



AIR EMISSION PERMIT NO. 05301050- 005
Moderate Amendment

IS ISSUED TO

University of Minnesota Board of Regents

UNIVERSITY OF MN – TWIN CITIES
W140 Boynton Health Service
Minneapolis, Hennepin County, Minnesota 55455

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

Permit Type	Application Date	Issue Date	Action #
Total Facility Operating Permit	January 1, 1996	May 16, 2006	001
Moderate Amendment	January 16, 2007	April 25, 2007	002
Moderate Amendment	May 21, 2007	September 6, 2007	003
Moderate Amendment	November 14, 2007	May 8, 2008	004
Moderate Amendment	October 6, 2010	See Below	005

This permit supersedes Permit No. 05301050-004, and authorizes the Permittee to operate and construct 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.

Unless otherwise indicated, all the Minnesota rules cited as the origin of the permit terms are incorporated into the SIP under 40 CFR § 52.1220 and as such as are enforceable by U.S. Environmental Protection Agency (EPA) Administrator or citizens under the Clean Air Act.

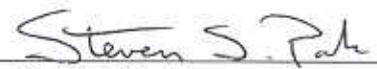
Permit Type: Federal Permit; Part 70/Major for NSR

Authorization to Construct and Operate Issuance Date: June 13, 2011

Issue Date: May 16, 2006

Expiration: May 16, 2011

Title I Conditions do not expire.


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

for Paul Aasen
Commissioner
Minnesota Pollution Control Agency

TDD (for hearing and speech impaired only): 651-282-5332

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NOTICE TO THE PERMITTEE:

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

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

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

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

PERMIT SHIELD:

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

FACILITY DESCRIPTION:

The University of Minnesota is a teaching and research institution with two campuses in the Twin Cities: the Minneapolis campus and the St. Paul campus. The two campuses are approximately three miles apart and are connected by a transitway 80 feet wide owned by the University. The Facility covers an area of approximately 1154 acres and contains approximately 22,000,000 gross square feet of buildings overall. The Facility employs approximately 15,000 people and serves a population of 40,000 full time and 11,000 part time students. The Facility owns and operates, or contracts with other parties who operate, a variety of facilities that support its teaching and research functions.

The Minneapolis Campus consists of the East and West Bank locations adjacent to the industrial downtown Minneapolis stretch of the Mississippi River. The campus has a variety of teaching and research facilities in the areas of engineering, liberal arts, business, health sciences, and athletics. The Minneapolis Campus provides dormitory and other facilities that are operated by the Facility. A central steam plant (Southeast Plant), which directly provides steam for heating and cooling to the Minneapolis Campus, is located on the East Bank. The Southeast Plant is owned by the Facility, but is currently operated by Foster Wheeler Twin Cities, Inc. (Foster Wheeler). The Southeast Plant provides steam to most on-campus buildings and to several off-campus customers through the University system.

The St. Paul Campus is generally located east of Cleveland Avenue, south of Larpenteur Avenue, west of the Minnesota State Fairgrounds, and north of Como Avenue in St. Paul. The campus has its primary teaching and research emphasis in agricultural studies. Prominent facilities include a veterinary medicine teaching and research facility, biological sciences complex, agricultural engineering building, agronomy and plant research facilities, and animal husbandry facilities.

PERMIT ACTION 005 DESCRIPTION:

This permit action is a moderate amendment to a Part 70 permit to authorize the construction and operation two diesel emergency generators (EU 154, 155) and two boilers (EU 156, 157) at the new Cancer/Cardio Research Facility. These units qualify for a moderate amendment because the potential emissions are below significant thresholds. These generators are subject to 40 CFR pt. 60, subp. IIII and 40 CFR pt. 63, subp. ZZZZ. The boilers are subject to 40 CFR pt. 60, subp. Dc.

TABLE A: LIMITS AND OTHER REQUIREMENTS

A-1 06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

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
SOURCE-SPECIFIC REQUIREMENTS	hdr
Comply with Fugitive Emission Control Plan: The Permittee shall follow the actions and recordkeeping specified in the control plan received by the Commissioner on December 23, 1996 and amended by Permit Application Form GI-05D Fugitive Emission Source Information received by the Commissioner on April 8, 2004. The plan may be amended by the Permittee with the Commissioner's approval. If the Commissioner determines that the Permittee is out of compliance with Minn. R. 7011.0150 or the fugitive control plan, the Permittee may be required to amend the control plan and/or install and operate particulate matter ambient monitors as requested by the Commissioner.	Minn. Stat. Section 116.07, subd. 4a; Minn. R. 7007.0100, Minn. R. 7007.0800, subp. 2; Minn. R. 7011.0150; Minn. R. 7009.0020
The facility currently uses ozone-depleting substances as defined in 40 CFR pt. 82. Sections 601-618 of the 1990 Clean Air Act Amendments and 40 CFR pt. 82 may apply to your facility. Read Sections 601-618 and 40 CFR pt. 82 to determine all the requirements that apply to your facility.	40 CFR pt. 82
Inapplicable Requirement: Standards of Performance for Commercial and Industrial Solid Waste Incineration Units, 40 CFR pt. 60, subp. CCCC do not apply to this facility. The permit shield applies in accordance with Minn. R. 7007.1800, subp. A(2).	Minn. R. 7007.1800, subp. (A)(2); 40 CFR pt. 60, subp. CCCC
Inapplicable Requirement: Standards of Performance for Grain Elevators, 40 CFR pt. 60, subp. DD do not apply to this facility. The permit shield applies in accordance with Minn. R. 7007.1800, subp. A(2).	Minn. R. 7007.1800, subp. (A)(2); 40 CFR pt. 60, subp. DD
Inapplicable Requirement: Minnesota Standards of Performance for Waste Combustors do not apply to this facility. The permit shield applies in accordance with Minn. R. 7007.1800, subp. A(2).	Minn. R. 7007.1800, subp. (A)(2); Minn. Rules 7011.1201 through 7011.1285
DETERMINING IF A PROJECT/MODIFICATION IS SUBJECT TO NEW SOURCE REVIEW	hdr
These requirements apply where there is a reasonable possibility that a proposed project, analyzed using the actual-to-projected-actual (ATPA) test and found to not be part of a major modification, may result in a significant emissions increase. If the ATPA test is not used for a particular project, or if there is not a reasonable possibility that the proposed project could result in a significant emissions increase, then these requirements do not apply to that project.	Title I Condition: 40 CFR Section 52.21(r)(6) and Minn. R. 7007.3000
Even though a particular modification is not subject to New Source Review, a permit amendment, recordkeeping, or notification may still be required under Minn. R. 7007.1150 - 7007.1500.	
Preconstruction Documentation -- Before beginning actual construction on a project, the Permittee shall document the following information: 1. A description of the project 2. Identification of the emission unit(s) whose emissions of an NSR pollutant could be affected 3. A description of the applicability test used to determine that the project is not a major modification for any regulated NSR pollutant, including the baseline actual emissions, the potential emissions, the projected actual emissions, the amount of emissions excluded due to increases not associated with the modification and that the unit(s) could have accommodated during the baseline period, an explanation of why the amounts were excluded, and any creditable contemporaneous increases and decreases that were considered in the determination. The Permittee shall maintain records of this documentation.	Title I Condition: 40 CFR Section 52.21(r)(6) and Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 4 & 5
The Permittee shall monitor the actual emissions of any regulated NSR pollutant that could increase as a result of the project and that were analyzed using the ATPA test, and the potential emissions of any regulated NSR pollutant that could increase as a result of the project and that were analyzed using potential emissions. The Permittee shall calculate and maintain a record of the sum of the actual and potential (if used in the analysis) emissions of the regulated pollutant, in tons per year on a calendar year basis, for a period of 5 years following resumption of regular operations after the change, or for a period of 10 years following resumption of regular operations after the change if the project increases the design capacity of or potential to emit of any unit associated with the project.	Title I Condition: 40 CFR Section 52.21(r)(6) and Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 4 & 5

TABLE A: LIMITS AND OTHER REQUIREMENTS

A-2 06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

<p>The Permittee must submit a report to the Agency if the annual summed (actual plus potential, if applicable) emissions differ from the preconstruction projection and exceed the baseline actual emissions by a significant amount as listed at 40 CFR Section 52.21(b)(23). Such report shall be submitted to the Agency within 60 days after the end of the year in which the exceedances occur. The report shall contain:</p> <p>a. The name and ID number of the facility, and the name and telephone number of the facility contact person</p> <p>b. The annual emissions (actual plus potential, if any part of the project was analyzed using potential emissions) for each pollutant for which the preconstruction projection and significant emissions increase are exceeded.</p> <p>c. Any other information, such as an explanation as to why the summed emissions differ from the preconstruction projection.</p>	Title I Condition: 40 CFR Section 52.21(r)(6) and Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 4 & 5
<p>The Permittee shall monitor the actual emissions of any regulated NSR pollutant that could increase as a result of a project that was analyzed using the baseline actual to projected actual emissions test, and the potential emissions of any regulated NSR pollutant that could increase as a result of the project and that was analyzed using potential emissions. The Permittee shall calculate and maintain a record of the sum of the actual and potential (if used in the analysis) emissions of the regulated pollutant, in tons per year on a calendar year basis, for a period of 5 years following resumption of regular operations after the change, or for a period of 10 years following resumption of regular operations after the change if the project increases the design capacity of or potential to emit of any unit associated with the project.</p>	Title I Condition: 40 CFR Section 52.21(r)(6) and Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 4 & 5
OPERATIONAL REQUIREMENTS	hdr
<p>Ambient Air Quality Standards: The Permittee shall comply, and upon written request 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 7009.0080.</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>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.</p>	Minn. R. 7011.0020
<p>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.</p>	Minn. R. 7007.0800, subp. 2; Minn. R. 7007.0800, subp. 16(J)
<p>Operation and Maintenance Plan: Retain at the stationary source an operation and maintenance plan for all air pollution control equipment. At a minimum, the O & M plan shall identify all air pollution control equipment and shall include a preventative maintenance program for that equipment, a description of (the minimum but not necessarily the only) corrective actions to be taken to restore the equipment to proper operation to meet applicable permit conditions, a description of the employee training program for proper operation and maintenance of the control equipment, and the records kept to demonstrate plan implementation.</p>	Minn. R. 7007.0800, subp. 14 and Minn. R. 7007.0800, subp. 16(J)
<p>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.</p>	Minn. R. 7019.1000, subp. 4
<p>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.</p>	Minn. R. 7011.0150
<p>Noise: The Permittee shall comply with the noise standards set forth in Minn. R. 7030.0010 to 7030.0080 at all times during the operation of any emission units. This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.</p>	Minn. R. 7030.0010 - 7030.0080
<p>Inspections: The Permittee shall comply with the inspection procedures and requirements as found in Minn. R. 7007.0800, subp. 9(A).</p>	Minn. R. 7007.0800, subp. 9(A)
<p>The Permittee shall comply with the General Conditions listed in Minn. R. 7007.0800, subp. 16.</p>	Minn. R. 7007.0800, subp. 16
PERFORMANCE TESTING	hdr
<p>Performance Testing: Conduct all performance tests in accordance with Minn. R. ch. 7017 unless otherwise noted in Tables A, B, and/or C.</p>	Minn. R. ch. 7017

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-3** 06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

<p>Performance Test Notifications and Submittals:</p> <p>Performance Tests are due as outlined in Tables A and B of the permit. See Table B for additional testing requirements.</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 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</p> <p>The Notification, Test Plan, and Test Report may be submitted in alternative format as allowed by Minn. R. 7017.2018.</p>	<p>Minn. Rs. 7017.2030, subp. 1-4, 7017.2018 and Minn. R. 7017.2035, subp. 1-2</p>
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
MONITORING REQUIREMENTS	hdr
Monitoring Equipment Calibration: Annually calibrate all required monitoring equipment (any requirements applying to continuous emission monitors are listed separately in this permit).	Minn. R. 7007.0800, subp. 4(D)
Operation of Monitoring Equipment: Unless otherwise noted in Tables A, B, and/or C, monitoring a process or control equipment connected to that process is not necessary during periods when the process is shutdown, or during checks of the monitoring systems, such as calibration checks and zero and span adjustments. If monitoring records are required, they should reflect any such periods of process shutdown or checks of the monitoring system.	Minn. R. 7007.0800, subp. 4(D)
MODELING REQUIREMENT	hdr
RECORDKEEPING	hdr
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)
Recordkeeping: Maintain records describing any insignificant modifications (as required by Minn. R. 7007. 1250, subp. 3) or changes contravening permit terms (as required by Minn. R. 7007.1350 subp. 2), including records of the emissions resulting from those changes.	Minn. R. 7007. 0800, subp. 5(B)
REPORTING/SUBMITTALS	hdr
<p>Shutdown Notifications: Notify the Commissioner at least 24 hours in advance of a planned shutdown of any control equipment or process equipment if the shutdown would cause any increase in the emissions of any regulated air pollutant. If the owner or operator does not have advance knowledge of the shutdown, notification shall be made to the Commissioner as soon as possible after the shutdown. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 3.</p> <p>At the time of notification, the owner or operator shall inform the Commissioner of the cause of the shutdown and the estimated duration. The owner or operator shall notify the Commissioner when the shutdown is over.</p>	Minn. R. 7019.1000, subp. 3
<p>Breakdown Notifications: Notify the Commissioner within 24 hours of a breakdown of more than one hour duration of any control equipment or process equipment if the breakdown causes any increase in the emissions of any regulated air pollutant. The 24-hour time period starts when the breakdown was discovered or reasonably should have been discovered by the owner or operator. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 2.</p> <p>At the time of notification or as soon as possible thereafter, the owner or operator shall inform the Commissioner of the cause of the breakdown and the estimated duration. The owner or operator shall notify the Commissioner when the breakdown is over.</p>	Minn. R. 7019.1000, subp. 2
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

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

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

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 reoccurrence of the deviation.	Minn. R. 7019.1000, subp. 1
Application for Permit Amendment: If a permit amendment is needed, submit an application in accordance with the requirements of Minn. R. 7007.1150 through Minn. R. 7007.1500. Submittal dates vary, depending on the type of amendment needed.	Minn. R. 7007.1150 through Minn. R. 7007.1500
Application for Permit Reissuance: due 180 days before expiration of existing permit.	Minn. R. 7007.0400, subp. 2
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 Inventory Report: due 91 days after end of each calendar year following permit issuance (April 1). To be submitted on a form approved by the Commissioner.	Minn. R. 7019.3000 through Minn. R. 7019.3100
Emission Fees: due 60 days after receipt of an MPCA bill.	Minn. R. 7002.0005 through Minn. R. 7002.0095

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-5** 06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: GP 001 New and modified boilers (annual limits to avoid mod)

Associated Items: EU 001 SG201 - Circulating Fluidized Bed Boiler
 EU 002 SG202 - Medium Pressure Package Boiler
 EU 003 SG203 - High Pressure Package Boiler
 EU 004 SE3 - Pulverized Coal Boiler
 EU 005 SE4 - Spreader Stoker Boiler
 EU 006 SG231 - Medium Pressure Package Boiler (new St. Paul boiler)
 SV 001 SG201 - CFB Boiler
 SV 002 SG202/SG203 - Med/High Pressure Package Boilers
 SV 003 SE3 - Pulverized Coal Boiler
 SV 004 SE4 - Spreader Stoker Boiler
 SV 005 SG231 - Med. pressure package boiler (new St. Paul boiler)

What to do	Why to do it
EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 32.9 tons/year using 12-month Rolling Sum , not including condensible emissions to be calculated by the 15th day of each month for the previous 12-month period.	Title I Condition: Limit to avoid classification as a major modification under 40 CFR Section 52.21 and Minn. R. 7007.3000
Particulate Matter < 10 micron: less than or equal to 91.7 tons/year using 12-month Rolling Sum to be calculated by the 15th day of each month for the previous 12-month period.	Title I Condition: Limit to avoid classification as a major modification under 40 CFR Section 52.21 and Minn. R. 7007.3000
Sulfur Dioxide: less than or equal to 248.9 tons/year using 12-month Rolling Sum to be calculated by the 15th day of each month for the previous 12-month period.	Title I Condition: Limit to avoid classification as a major modification under 40 CFR Section 52.21 and Minn. R. 7007.3000
Nitrogen Oxides: less than or equal to 734.8 tons/year using 12-month Rolling Sum to be calculated by the 15th day of each month for the previous 12-month period.	Title I Condition: Limit to avoid classification as a major modification under 40 CFR Section 52.21 and Minn. R. 7007.3000
Carbon Monoxide: less than or equal to 280.9 tons/year using 12-month Rolling Sum to be calculated by the 15th day of each month for the previous 12-month period.	Title I Condition: Limit to avoid classification as a major modification under 40 CFR Section 52.21, 40 CFR Section 51 Appendix S and Minn. R. 7007.3000
Volatile Organic Compounds: less than or equal to 31.2 tons/year using 12-month Rolling Sum to be calculated by the 15th day of each month for the previous 12-month period.	Title I Condition: Limit to avoid classification as a major modification under 40 CFR Section 52.21 and Minn. R. 7007.3000
OPERATIONAL REQUIREMENTS	hdr
Daily Coal Sampling: Sample and analyze for the sulfur content and heating value of the coal daily for EU001, EU004 and EU005 according to the procedures specified in GP008 of this permit. [Please be aware that further analysis of the coal is specified in other parts of this permit to comply with other requirements contained within this permit.]	Title I Condition: To avoid classification as a major modification under 40 CFR Section 52.21, Minn. R. 7007.3000 and 40 CFR Section 51 Appendix S (for CO)
Fuel Oil Sulfur Content Certification: Obtain and maintain at the facility fuel receipts from the fuel supplier which certify the sulfur content of the fuel does not exceed 0.5% by weight. Records shall be maintained for 5 years. This information may be used to calculate sulfur emissions for EU002, EU003 and EU006.	Title I Condition: To avoid classification as a major modification under 40 CFR Section 52.21, Minn. R. 7007.3000 and 40 CFR Section 51 Appendix S (for CO)
CALCULATIONS	hdr
Daily Emissions Calculations: Calculate daily the amount of Total PM, PM10, SO2, Nitrogen Oxides (NOx), Carbon Monoxide (CO) and Volatile Organic Compounds (VOC) emitted from the amount of fuel combusted in the emission units listed above. Calculate emissions using the emission factors below except that the daily average CEMS value shall be used for calculation of actual SO2 and NOx emissions where available.	Title I Condition: To avoid classification as a major modification under 40 CFR Section 52.21, Minn. R. 7007.3000 and 40 CFR Section 51 Appendix S (for CO)

TABLE A: LIMITS AND OTHER REQUIREMENTS
A-6 06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Daily Emissions Calculation: The following equation shall be used for this calculation: $F = \text{SUM} \sum_j (EF_{ij} \times TH_{lij})$ where: F = the total emission in tons/year of a specific pollutant SUM = sum over all values of i or j i = a number from 1 to 6 identifying each emission unit in the group j = identifies the type of fuel combusted EF _{ij} = emission factor as listed below or as determined by performance testing for emission unit i when combusting fuel j, or for pollutants monitored by CEMS in lb/MMBtu, the average value for each day TH _{lij} = the total heat input to the emission unit in a day in MMBtu, based on fuel consumption for fuel of type j in emission unit i, (or for pollutants monitored by a CEMS in lb/MMBtu)	Title I Condition: To avoid classification as a major modification under 40 CFR Section 52.21, Minn. R. 7007.3000 and 40 CFR Section 51 Appendix S (for CO)
Monthly Emissions Calculations: By the 15th day of each month, the Permittee shall calculate the 12-month rolling sum value for each pollutant.	Title I Condition: To avoid classification as a major modification under 40 CFR Section 52.21, Minn. R. 7007.3000 and 40 CFR Section 51 Appendix S (for CO)
EMISSION FACTORS	hdr
Emission factors for total PM, lb/MMBtu: EU001: all fuels, 0.018 EU002: fuel oil, 0.036; natural gas, 0.005 EU003: fuel oil, 0.036; natural gas, 0.005 EU004: coal, 0.034; fuel oil, 0.014 EU005: coal and approved biomass, 0.038; fuel oil, 0.014 EU006: fuel oil, 0.036; natural gas, 0.005	Title I Condition: To avoid classification as a major modification under 40 CFR Section 52.21, Minn. R. 7007.3000 and 40 CFR Section 51 Appendix S (for CO)
Emission factors for PM < 10 micron, lb/MMBtu EU001: all fuels, 0.033 EU002: fuel oil, 0.056; natural gas, 0.020 EU003: fuel oil, 0.056; natural gas, 0.020 EU004: coal, 0.106; fuel oil, 0.029 EU005: coal and approved biomass, 0.084; fuel oil, 0.029 EU006: fuel oil, 0.056; natural gas, 0.020	Title I Condition: To avoid classification as a major modification under 40 CFR Section 52.21, Minn. R. 7007.3000 and 40 CFR Section 51 Appendix S (for CO)
Emission factors for SO ₂ , lb/MMBtu EU001: coal, fuel oil and approved biomass, CEMS data; natural gas, 0.0006 EU002: fuel oil, fuel oil receipts; natural gas, 0.0006 EU003: fuel oil, fuel oil receipts; natural gas, 0.0006 EU004: coal, CEMS data; fuel oil, CEMS data EU005: coal and approved biomass, CEMS data; fuel oil, CEMS data EU006: fuel oil, fuel oil receipts; natural gas, 0.0006	Title I Condition: To avoid classification as a major modification under 40 CFR Section 52.21, Minn. R. 7007.3000 and 40 CFR Section 51 Appendix S (for CO)
Emission factors for nitrogen oxides, lb/MMBtu EU001: all fuels, CEMS data EU002: all fuels, CEMS data EU003: all fuels, CEMS data EU004: coal, 1.18; fuel oil, 0.200 EU005: coal and approved biomass, 0.783; fuel oil, 0.200 EU006: CEMS data	Title I Condition: To avoid classification as a major modification under 40 CFR Section 52.21, Minn. R. 7007.3000 and 40 CFR Section 51 Appendix S (for CO)
Emission factors for carbon monoxide, lb/MMBtu EU001: coal, 0.100; fuel oil, 0.200; natural gas, 0.200; wood and approved biomass 0.267 when operating at Maximum Continuous Rating (MCR). Emission of CO is not expected to exceed 30 lb/hr at 50% or more of MCR when firing coal only. EU002: all fuels, 0.040 EU003: all fuels, 0.040 EU004: coal, 0.034; fuel oil, 0.036 EU005: coal and approved biomass, 0.280; fuel oil, 0.036 EU006: all fuels, 0.040	Title I Condition: To avoid classification as a major modification under 40 CFR Section 52.21, Minn. R. 7007.3000 and 40 CFR Section 51 Appendix S (for CO)
Emission factors for volatile organic compounds, lb/MMBtu EU001: coal, 0.015; fuel oil, 0.015; natural gas, 0.001; approved biomass, 0.036 EU002: all fuels, 0.004 EU003: all fuels, 0.004 EU004: coal, 0.003; fuel oil, 0.001 EU005: coal, 0.003; fuel oil, 0.001; approved biomass, 0.036 EU006: all fuels, 0.004	Title I Condition: To avoid classification as a major modification under 40 CFR Section 52.21, Minn. R. 7007.3000 and 40 CFR Section 51 Appendix S (for CO)
Emission Factor Adjustments: The Permittees may propose adjustments to the emission factors. Submit the appropriate modification request for approval and subsequent permit amendment.	Minn. R. 7007.0800, subp. 4 and 6
RECORDKEEPING REQUIREMENTS	hdr

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-7** 06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Recordkeeping: Record daily the amount of coal combusted in emission units EU001, EU004, and EU005 and the sulfur content and heating value of the coal.	Title I Condition: To avoid classification as a major modification under 40 CFR Section 52.21, Minn. R. 7007.3000 and 40 CFR Section 51 Appendix S (for CO)
Recordkeeping: Record daily the amount of fuel other than coal combusted in emission units EU001, EU002, EU003, EU004, EU005, and EU006 and the heating value of the fuel.	Title I Condition: To avoid classification as a major modification under 40 CFR Section 52.21, Minn. R. 7007.3000 and 40 CFR Section 51 Appendix S (for CO)
Recordkeeping: Maintain a record of the daily emissions of each pollutant and a 12-month rolling sum of emissions for each pollutant that has a limit within GP001.	Title I Condition: To avoid classification as a major modification under 40 CFR Section 52.21, Minn. R. 7007.3000 and 40 CFR Section 51 Appendix S (for CO)
PERFORMANCE TESTING	hdr
Performance Testing Required: Test each emission unit within this group (EU001-EU006) by the date stated within the approved Testing Frequency Plan for PM, PM10, SO2, NOx, CO and VOC to verify emission factors. If the emission factor requirement for a unit specifies that CEMS or fuel receipts are to be used, then a performance test is not required for that pollutant at that unit. A specific testing frequency for each required pollutant for each boiler is located at the Stack/Vent level of this permit for each boiler in this group. The purpose of the testing is to verify that the emission factors listed in GP001 are not exceeded. They are not to be adjusted downward as a result of performance testing unless the procedures in the "Emission Factor Adjustments" requirement are followed. Calculations of actual emissions for Emission Inventory shall follow the process and hierarchy described in Minn. R. 7019.3020.	Minn. R. 7017.2020, subp. 1

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

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: GP 002 All steam service facilities steam boilers (HAP and heat input limits)

Associated Items: EU 001 SG201 - Circulating Fluidized Bed Boiler
 EU 002 SG202 - Medium Pressure Package Boiler
 EU 003 SG203 - High Pressure Package Boiler
 EU 004 SE3 - Pulverized Coal Boiler
 EU 005 SE4 - Spreader Stoker Boiler
 EU 006 SG231 - Medium Pressure Package Boiler (new St. Paul boiler)
 EU 007 SP1 - Pulverized Coal Boiler
 EU 008 SP2 - Pulverized Coal Boiler
 EU 009 SP5 - Spreader Stoker Boiler
 EU 010 SP6 - Spreader Stoker Boiler
 EU 011 SP7 - Oil/Gas Package Boiler

What to do	Why to do it
EMISSION LIMITS	hdr
Hydrochloric acid: less than or equal to 7 tons/year using 12-month Rolling Sum to be calculated by the 15th day of each month for the previous 12-month period (emissions as Hydrogen Chloride) for emissions units within GP002. See requirements labeled Hydrogen Chloride Monitoring and Monthly Hydrogen Chloride Emissions Calculations below.	Title I Condition: Limit to avoid classification as a major source under 40 CFR Section 63.2 and Minn. R. 7011.7000
Hexane: less than or equal to 7780 million cubic feet/year using 12-month Rolling Sum of natural gas to be calculated by the 15th day of each month for the previous 12-month period for emissions units within GP002. Use current emission factors from AP-42 and/or emission factors derived from MPCA-approved stack testing to calculate emissions.	Title I Condition: Limit to avoid major source classification under 40 CFR Section 63.2 and Minn. R. 7011.7000
HAPs - Total: less than or equal to 15 tons/year using 12-month Rolling Sum to be calculated by the 15th day of each month for the previous 12-month period. HAP emissions for each fuel shall be calculated by use of current AP-42 emission factors based upon actual fuel usage and/or by use of emission factors derived from MPCA-approved stack testing.	Title I Condition: Limit to avoid major source classification under 40 CFR Section 63.2 and Minn. R. 7011.7000
OPERATIONAL LIMITS	hdr
Heat input from natural gas and approved biomass: Natural gas and approved biomass shall account for greater than or equal to 70% of the total fuel heat input to steam generators in GP002, based on a 12-month rolling average to be calculated by the 15th day of each month for the previous 12-month period. Approved biomass is defined within EU001 and EU005. This is a state-only requirement and is not enforceable by the EPA Administrator and citizens under the Clean Air Act.	Minn. Stat. Section 116.07, subd. 4a
MONITORING REQUIREMENTS	hdr
Hydrogen Chloride Monitoring: Determine hydrogen chloride emissions by collecting daily coal and/or biomass samples in an as-fired condition at the inlet to the steam generating units according to the procedures in GP008 for EU001, EU004, EU005, and EU007-010 found within GP002. Combine the samples into a monthly composite, and analyze the monthly composite for chlorine content. For all emission units that burn fuel oil, collect a fuel oil sample from the fuel oil storage tank after each delivery of fuel oil and analyze for chlorine and heating value. Instead of by fuel analyses, the Permittee may determine hydrogen chloride emissions from solid fuels at EU001 with an emission factor of 0.054 lb HCl/ton fuel (the emission factor shall be adjusted if testing of any solid fuel indicates a fuel chlorine content greater than 1900 mg/kg or an HCl control efficiency less than 99%). The Permittee may propose HCl emission factors based on performance test results for other emission units.	Title I Condition: Limit to avoid major source classification under 40 CFR Section 63.2 and Minn. R. 7011.7000
CALCULATIONS	hdr
Monthly Hydrogen Chloride Emissions Calculations: Calculate monthly the amount of Hydrogen Chloride emitted from the emission units listed within GP002. For coal, fuel oil and biomass fuels, calculate emissions using the amount and type of fuel combusted, the heating value of the fuel combusted and the results of chlorine content sampling, and/or MPCA-approved emission factors derived from stack-testing results.	Title I Condition: Limit to avoid major source classification under 40 CFR Section 63.2 and Minn. R. 7011.7000

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

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

<p>Monthly Total HAPs Emissions Calculations: Calculate daily the amount of Hydrogen Chloride and Total HAPs emitted from the amount of fuel combusted in the emission units listed within GP002. Calculate emissions using current AP-42 emission factors or MPCA-approved stack-testing results.</p> <p>Calculate monthly the amount of Total HAPs emitted from the emission units listed within GP002. Calculate emissions using the amount and type of fuel combusted, the heat content of the fuel combusted, current AP-42 factors, and/or MPCA-approved emission factors derived from stack-testing results.</p>	Title I Condition: Limit to avoid major source classification under 40 CFR Section 63.2 and Minn. R. 7011.7000
<p>Monthly Fuel Usage Calculations: By the 15th day of each month, the Permittee shall calculate the 12-month rolling sum value for natural gas usage within GP002 boilers (to ensure Hexane emissions are below major source threshold limits for a single HAP).</p>	Title I Condition: To avoid classification as a major source under 40 CFR Section 63.2 and Minn. R.
RECORDKEEPING	hdr
<p>Daily Recordkeeping: Maintain records of the type, amount and heating value of each fuel combusted daily including clear indication of the type and quantity of any alternative biomass fired during a test burn.</p>	Title I Condition: To avoid classification as a major source under 40 CFR Section 63.2; Minn. R. 7007.0800, subp. 4 and 5
<p>Recordkeeping: Maintain records of the monthly calculation for Heating Value limit, the hydrogen chloride limit, the fuel usage limit and the total HAPs limit.</p>	Minn. R. 7007.0800, subp. 4 and 5
<p>Recordkeeping: Maintain records of the sampling and analysis of coal and fuel oil for chlorine content.</p>	Minn. R. 7007.0800, subp. 4 and 5

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-10** 06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: GP 003 Db Boilers - General and CEMS/COMS requirements

Associated Items: EU 001 SG201 - Circulating Fluidized Bed Boiler
 EU 002 SG202 - Medium Pressure Package Boiler
 EU 003 SG203 - High Pressure Package Boiler
 EU 006 SG231 - Medium Pressure Package Boiler (new St. Paul boiler)
 SV 001 SG201 - CFB Boiler
 SV 002 SG202/SG203 - Med/High Pressure Package Boilers
 SV 005 SG231 - Med. pressure package boiler (new St. Paul boiler)

What to do	Why to do it
CONTINUOUS EMISSIONS MONITORING SYSTEM (CEMS)	hdr
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. [EU001- Sulfur Dioxide and NOx CEMS; EU002, EU003 and EU006 - NOx CEMS, see EU level requirements]	40 CFR Section 60.13(e), Minn. R. 7017.1090, subp. 1
Excess Emissions/Downtime Reports (EERs): due 30 days after end of each calendar quarter following Permit Issuance (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.	Minn. R. 7017.1110, subp. 1; 40 CFR Section 60.7(c)
QA Plan: Develop and implement a written quality assurance plan that covers each CEMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40 CFR Section 60, App. F, section 3.	Minn. R. 7017.1170, subp. 2; 40 CFR pt. 60, App. F; section 3, Minn. R. 7017.1010, subp. 1(C)
CEMS QA/QC: The owner or operator of an affected facility is subject to the performance specifications listed in 40 CFR 60, Appendix B and shall operate, calibrate, and maintain each CEMS according to the QA/QC procedures in 40 CFR pt. 60, Appendix F as amended and maintain a written QA/QC program available in a form suitable for inspection.	40 CFR pt. 60, Appendix F; 40 CFR Section 60.13(a), Minn. R. 7017.1717, subp. 1
CEMS Daily Calibration Drift Check: Permittees must automatically check the zero (low level value between 0 and 20 percent of span value) and span (50 to 100 percent of span value) calibration drifts at least once daily. The zero and span must, at a minimum, be adjusted whenever the drift exceeds two times the limit specified in 40 CFR pt. 60, Appendix B. 40 CFR pt. 60, Appendix F shall be used to determine out-of-control periods for CEMS. Additional citation: Minn. R. 7107.1010, subp. 1	40 CFR pt. 60, Appendix F, section 4.1; 40 CFR Section 60.13(d)(1) regarding CEMS; Minn. R. 7017.1170, subp. 3
Cylinder Gas Audit (CGA): due before end of each calendar quarter following CEMS certification test. A CGA is not required during any calendar quarter in which a RATA was performed.	40 CFR pt. 60, Appendix F, section 5.1.2; Minn. R. 7017.1170, subp. 4; Minn. R. 7017.1010, subp. 1(C)
CEMS Relative Accuracy Test Audit (RATA): due before end of each calendar year following CEMS Certification Test. Follow the procedures in 40 CFR pt. 60, Appendix F.	40 CFR pt. 60, Appendix F, section 5.1.1; Minn. R. 7017.1170, subp. 5; Minn. R. 7017.1010, subp. 1(C)
Cylinder Gas Audit (CGA) Results Summary: due 30 days after end of each calendar quarter following Cylinder Gas Audit (CGA).	Minn. R. 7017.1180, subp.1
Relative Accuracy Test Audit (RATA) Notification: due 30 days before CEMS RATA.	Minn. R. 7017.1180, subp. 2
Relative Accuracy Test Audit (RATA) Results Summary: due 30 days after end of each calendar quarter in which the CEMS RATA was conducted.	Minn. R. 7017.1180, subp. 3
Recordkeeping: The owner or operator must retain records of all CEMS monitoring data and support information for a period of five years from the date of the monitoring sample, measurement or report. Records shall be kept at the source.	Minn. R. 7017.1130; meets requirements of 40 CFR Section 60.7(f)
Monitoring Data: Reduce all NOx and SOx data to 1-hour averages, in accordance with 40 CFR Section 60.13(h). 1-hour averages shall be computed from four or more data points equally spaced over each 1-hour period.	40 CFR Section 60.13(h) regarding continuous monitoring systems other than COMS.
CONTINUOUS OPACITY MONITORING SYSTEM (COMS)	hdr
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)

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-11** 06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

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)
Excess Emissions/Downtime Reports (EERs): due 30 days after end of each calendar quarter following initial startup of COMS.	Minn. R. 7017.1110, subp. 1; 40 CFR Section 60.7(c)
QA Plan Required: Develop and 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
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 span value shall be between 60% and 80%. 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)(1) regarding COMS and 60.13(d)(2)[40CFR48(e)(2)]
COMS Calibration Error Audit: due before end of each calendar half-year following COMS Certification Test. Conduct three point calibration error audits at least 3 months apart but no greater than 8 months apart. Conduct audits in accordance with Minn. R. 7017.1210, subp. 3.	Minn. R. 7017.1210, subp. 3
Attenuator Calibration: The Permittee shall have an independent testing company conduct calibrations of each of the neutral density filters used in the calibration error audit according to the procedure in Code of Federal Regulations, Title 40, Part 60, Appendix B, Section 7.1.3., within the time frame of opacity stability guaranteed by the attenuator manufacturer. The manufacturer's guarantee of stability shall be on site available for inspection.	Minn. R. 7017.1210, subp. 4
COMS Calibration Error Audit Results Summary: due 30 days after end of each calendar quarter in which the COMS calibration error audit was completed.	Minn. R. 7017.1220
COMS Monitoring Data: Owners or operators of all COMS shall reduce all data to 6 minute averages. Opacity averages shall be calculated from all equally spaced consecutive 10-second (or shorter) data points in the 6 minute averaging period.	Minn. R. 7007.0800, subp. 2; 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

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

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: GP 004 Boilers SG231 and SP7 - fuel oil usage limit**Associated Items:** EU 006 SG231 - Medium Pressure Package Boiler (new St. Paul boiler)

EU 011 SP7 - Oil/Gas Package Boiler

What to do	Why to do it
Fuel Usage: less than or equal to 45,200 gallons/day of distillate fuel oil. This is a state-only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.	Minn. R. 7009.0020
Daily Recordkeeping and Calculation: maintain a daily record of the amount of fuel oil combusted in these emission units and the sum of the amount used in each of the units daily. This is a state-only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.	Minn. R. 7009.0020

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

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: GP 005 CEMS req'd by state rule: SE Plant Boilers SE3 and SE4**Associated Items:** EU 004 SE3 - Pulverized Coal Boiler

EU 005 SE4 - Spreader Stoker Boiler

SV 003 SE3 - Pulverized Coal Boiler

SV 004 SE4 - Spreader Stoker Boiler

What to do	Why to do it
Emissions Monitoring: The owner or operator shall use a SO ₂ and diluent oxygen CEMS to measure SO ₂ emissions from each emissions unit after the dry scrubber. [EU004 and EU005 - SO _x CEMS, see EU level requirements]	Minn. R. 7017.1006
Continuous Operation: CEMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A CEMS must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant equipment. Acceptable monitor downtime 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
QA Plan: Develop and implement a written quality assurance plan that covers each CEMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain all of the information required by 40CFR 60, App. F, section 3.	Minn. R. 7017.1170, subp. 2
CEMS Daily Calibration Drift (CD) Test: The CD shall be quantified and recorded at zero (low-level) and upscale (high-level) gas concentrations at least once daily. The CEMS shall be adjusted whenever the CD exceeds twice the specification of 40 CFR pt. 60, Appendix B. 40 CFR pt. 60, Appendix F, shall be used to determine out-of-control periods for CEMS. Follow the procedures in 40 CFR pt. 60, Appendix F.	Minn. R. 7017.1170, subp. 3
Cylinder Gas Audit (CGA): due before end of each calendar half-year following CEMS Certification Test. Conduct CGA at least 3 months apart and not greater than 8 months apart. Follow the procedures in 40 CFR pt. 60, Appendix F.	Minn. R. 7017.1170, subp. 4
CEMS Relative Accuracy Test Audit (RATA): due before end of each year starting 01/01/1997. If the relative accuracy is 15% or less the next CEMS RATA is not due for 24 months. Follow the procedures in 40 CFR pt. 60, Appendix B and Appendix F.	Minn. R. 7017.1170, subp. 5
Relative Accuracy Test Audit (RATA) Results Summary: due 30 days after the end of each calendar quarter in which the CEMS Relative Accuracy Test Audit was conducted.	Minn. R. 7017.1180, subp. 3
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-14**

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: GP 006 COMS req'd by state rule: St. Paul Plant Boilers and SE Plant Boilers

Associated Items: EU 004 SE3 - Pulverized Coal Boiler
 EU 005 SE4 - Spreader Stoker Boiler
 EU 007 SP1 - Pulverized Coal Boiler
 EU 008 SP2 - Pulverized Coal Boiler
 EU 009 SP5 - Spreader Stoker Boiler
 EU 010 SP6 - Spreader Stoker Boiler
 EU 011 SP7 - Oil/Gas Package Boiler
 SV 003 SE3 - Pulverized Coal Boiler
 SV 004 SE4 - Spreader Stoker Boiler
 SV 006 SP1/SP2/SP5/SP6 Pulverized coal and spreader stoker boilers
 SV 007 SP7 - Oil/Gas Package Boiler

What to do	Why to do it
Continuous Operation: COMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit start-up, shutdown, or malfunction except for periods of acceptable monitor downtime. This requirement applies whether or not a numerical emission limit applies during these periods. A COMS must not be bypassed except in emergencies where failure to bypass would endanger human health, safety, or plant equipment. Acceptable monitor downtime includes reasonable periods as listed in Items A, B, C and D of Minn. R. 7017.1090, subp. 2.	Minn. R. 7017.1090, subp. 1; 40 CFR Section 60.13(e)
QA Plan Required: Develop and 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 span value shall be between 60% and 80%. 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)(1) regarding COMS and 60.13(d)(2)
COMS Calibration Error Audit: due before end of each calendar half-year following COMS Certification Test Conduct three point calibration error audits at least 3 months apart but no greater than 8 months apart. Conduct audits in accordance with Minn. R. 7017.1210, subp. 3.	Minn. R. 7017.1210, subp. 3
Attenuator Calibration: The Permittee shall have an independent testing company conduct calibrations of each of the neutral density filters used in the calibration error audit according to the procedure in Code of Federal Regulations, Title 40, Part 60, Appendix B, Section 7.1.3., within the time frame of opacity stability guaranteed by the attenuator manufacturer. The manufacturer's guarantee of stability shall be on site available for inspection.	Minn. R. 7017.1210, subp. 4
COMS Calibration Error Audit Results Summary: due 30 days after end of each calendar quarter in which the COMS calibration error audit was completed.	Minn. R. 7017.1220
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)
COMS monitoring data: The owners or operators of all COMS shall reduce all data to 6-minute averages. Opacity averages shall be calculated from all equally spaced consecutive 10-second (or shorter) data points in the 6-minute averaging period.	Minn. R. 7017.1200
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

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

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: GP 007 Low-temperature Fabric Filters (GP009, GP010, FS001)

Associated Items:

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

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

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

CE 026 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

CE 027 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

CE 028 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

CE 029 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

CE 030 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

CE 031 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

CE 032 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

CE 033 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

CE 034 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

CE 035 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

CE 036 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

CE 037 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

CE 038 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

EU 017 SE Plant Coal Receiving Hopper and Coneyor System with Two Transfer Points - Carter Day #1

EU 018 SE Plant Coal Receiving Hopper and Conveyor System with Three Transfer Points - Carter Day #2

EU 019 SE Plant Coal Conveyors with Six Transfer Points - F-111 Carter Day

EU 020 SE Plant CFB Coal Handling - F-104 MAC

EU 021 SE Plant Coal Transfer System with Three Transfer Points - F-109

EU 022 SE Plant Coal Transfer System with Three Transfer Points - F-110

EU 023 SE Plant Limestone Bin - F-202

EU 024 SE Plant Sand Bin - F-203

EU 025 SE Plant Lime Silo

EU 026 SE Plant New Ash Silo - F-106

EU 027 SE Plant New Ash Silo Vent - F-108

EU 028 SE Plant Ash Silo

EU 029 SE Plant Ash Silo Breather Vent

EU 030 St. Paul Plant Ash Silo

EU 031 St. Paul Plant Ash Silo Breather Vent

EU 040 Coal Storage Bldg Exhaust

FS 001 Southeast Coal and Biomass Bunker

What to do	Why to do it
Total Particulate Matter: greater than or equal to 99 percent control efficiency . The Permittee shall operate and maintain the control equipment such that it achieves an overall control efficiency for PM of 99 percent. This limit applies to each unit individually.	Title I Condition: to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.3000
Particulate Matter < 10 micron: greater than or equal to 99 percent control efficiency . The Permittee shall operate and maintain the control equipment such that it achieves an overall control efficiency for PM10 of 99 percent. This limit applies to each unit individually.	Title I Condition: to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.3000
Pressure Drop: greater than or equal to 2 inches of water column and less than or equal to 6 inches of water column , unless a new range is set pursuant to Minn. R. 7017.2025, subp. 3, based on the values recorded during the most recent MPCA approved performance test where compliance was demonstrated.	Title I Condition: to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.3000
Visible Emissions: The Permittee shall check the associated fabric filter stacks (SV013-SV027, SV029) 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 filter, once each day of operation.	Title I Condition: Monitoring for Limit taken to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 4 and 5

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

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Recordkeeping of Visible Emissions and Pressure Drop. The Permittee shall record the time and date of each visible emission inspection and 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	Title I Condition: Monitoring for Limit taken to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 4 and 5
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.	Title I Condition: Limit taken to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2 and 14
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
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

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

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: GP 008 Boilers subject to coal sampling and analysis**Associated Items:** EU 001 SG201 - Circulating Fluidized Bed Boiler

EU 004 SE3 - Pulverized Coal Boiler

EU 005 SE4 - Spreader Stoker Boiler

EU 007 SP1 - Pulverized Coal Boiler

EU 008 SP2 - Pulverized Coal Boiler

EU 009 SP5 - Spreader Stoker Boiler

EU 010 SP6 - Spreader Stoker Boiler

What to do	Why to do it
COAL SAMPLING AND ANALYSIS	hdr
Coal Sampling: collect coal samples according to the most recent version of ASTM D-2234 as described following. Samples collected according to this methodology for EU001 may include allowable alternate fuels.	Minn. R. 7007.0800, subp. 2 and 14
Increment Sample Frequency: Collect a sample every 2 hours from each operating boiler from the coal scale for each boiler, by cutting (sweeping) the full width of the free-falling coal stream from the scale feeder belt.	Minn. R. 7007.0800, subp. 2 and 14
Increment Sample Size: the weight of each increment sample size shall be 2 lb.	Minn. R. 7007.0800, subp. 2 and 14
Gross Sample Preparation: Combine the gross samples from each operating boiler to make a total plant gross (composite) sample each day for each steam service facility. Crush and reduce the gross sample as specified in ASTM Method D 2013, Sample Preparation, to form the sample for laboratory analysis.	Minn. R. 7007.0800, subp. 2 and 14
Coal Analysis: analyze the composite sample daily for sulfur content using ASTM D 3177, moisture content using ASTM D 3173 and as-received heating value using ASTM D-2015 or D-3286.	Minn. R. 7007.0800, subp. 2 and 14

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

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: GP 009 Coal handling operations

Associated Items: CE 023 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
 CE 024 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
 CE 025 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
 CE 026 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
 CE 027 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
 CE 028 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
 CE 038 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
 EU 017 SE Plant Coal Receiving Hopper and Coneyor System with Two Transfer Points - Carter Day #1
 EU 018 SE Plant Coal Receiving Hopper and Conveyor System with Three Transfer Points - Carter Day #2
 EU 019 SE Plant Coal Conveyors with Six Transfer Points - F-111 Carter Day
 EU 020 SE Plant CFB Coal Handling - F-104 MAC
 EU 021 SE Plant Coal Transfer System with Three Transfer Points - F-109
 EU 022 SE Plant Coal Transfer System with Three Transfer Points - F-110
 EU 040 Coal Storage Bldg Exhaust

What to do	Why to do it
EMISSION LIMITS	hdr
Fugitive PM: Apply chemical binding agent during unloading and conveying of coal to stockpile. This limit applies to each unit individually.	Minn. R. 7011.1105, subp. G, H
Total Particulate Matter: less than or equal to 0.020 grains/dry standard cubic foot . This limit applies to each unit individually.	Minn. R. 7011.1105, subp. G(1)
Opacity: less than or equal to 20 percent opacity . This limit applies to each unit individually.	Minn. R. 7011.1105, subp. G(2)
POLLUTION CONTROL EQUIPMENT	hdr
Operate and maintain low temperature fabric filters (CE023-CE028) at all times that any emission unit controlled by the fabric filters is in operation in accordance with the requirements of GP007. The Permittee shall document periods of non-operation of the control equipment.	Minn. R. 7007.0800, subp. 2 and 14

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

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: GP 010 Miscellaneous material handling operations

Associated Items: CE 029 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
 CE 030 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
 CE 031 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
 CE 032 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
 CE 033 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
 CE 034 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
 CE 035 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
 CE 036 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
 CE 037 Fabric Filter - Low Temperature, i.e., T<180 Degrees F
 EU 023 SE Plant Limestone Bin - F-202
 EU 024 SE Plant Sand Bin - F-203
 EU 025 SE Plant Lime Silo
 EU 026 SE Plant New Ash Silo - F-106
 EU 027 SE Plant New Ash Silo Vent - F-108
 EU 028 SE Plant Ash Silo
 EU 029 SE Plant Ash Silo Breather Vent
 EU 030 St. Paul Plant Ash Silo
 EU 031 St. Paul Plant Ash Silo Breather Vent

What to do	Why to do it
EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot if not required to meet the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735. Applies to each emissions unit individually.	Minn. R. 7011.0715, subp. 1(A)
Opacity: less than or equal to 20 percent opacity . Applies to each emission unit individually.	Minn. R. 7011.0715, subp. 1(B)
OPERATING LIMITS	hdr
Operate and maintain low temperature fabric filters (CE029-CE037) at all times that any emission unit controlled by the fabric filters is in operation in accordance with the requirements of GP007. The Permittee shall document periods of non-operation of the control equipment.	Minn. R. 7007.0800, subp. 2 and 14

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

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: GP 011 Peaking Unit Generators: Pre-PSD (EU041-043)**Associated Items:** EU 041 142GEN001 - Moos Tower

EU 042 142GEN002 - Moos Tower

EU 043 142GEN003 - Moos Tower

What to do	Why to do it
OPERATIONAL LIMITS	hdr
Operating Hours: less than or equal to 300 hours/year using 12-month Rolling Sum to be calculated by the 15th day of each month. This limit applies to each unit individually.	Minn. R. 7007.0800, subp. 2
EMISSION LIMITS	hdr
Opacity: less than or equal to 20 percent opacity once operating temperatures have been attained. This limit applies to each unit individually.	Minn. R. 7011.2300, subp. 1
Sulfur Dioxide: less than or equal to 0.5 lbs/million Btu heat input . This limit applies to each unit individually.	Minn. R. 7011.2300, subp. 2
RECORDKEEPING REQUIREMENTS	hdr
Maintain records of the hours of operation for each calendar month and a record of the 12-month rolling sum of hours of operation.	Minn. R. 7007.0800, subp. 5

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

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: GP 012 Peaking Unit Generators: Annual Limits to Avoid PSD

Associated Items: EU 044 144GEN003 - Phillips-Wang Bldg
 EU 046 158GEN002 - Washington Ave Ramp
 EU 047 165GEN001 - EE/Comp Sci Bldg
 EU 048 178GEN001 - Basic Science
 EU 049 178GEN002 - Basic Science
 EU 050 160GEN002 - 4th Street Switch
 EU 051 160GEN003 - 4th Street Switch
 EU 145 144GEN002 - Phillips-Wang Bldg

What to do	Why to do it
OPERATIONAL LIMITS	hdr
Operating Hours: less than or equal to 300 hours/year using 12-month Rolling Sum to be calculated by the 15th day of each month. This limit applies to each unit individually.	Title I Condition: to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.3000
EMISSION LIMITS	hdr
Opacity: less than or equal to 20 percent opacity once operating temperatures have been attained. This limit applies to each unit individually.	Minn. R. 7011.2300, subp. 1
Sulfur Dioxide: less than or equal to 0.5 lbs/million Btu heat input . This limit applies to each unit individually.	Minn. R. 7011.2300, subp. 2
RECORDKEEPING REQUIREMENTS	hdr
Maintain records of the hours of operation for each calendar month and a record of the 12-month rolling sum of hours of operation.	Title I Condition: to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.3000
Fuel Oil Sulfur Content Certification: Obtain and maintain at the facility fuel receipts from the fuel supplier which certify the sulfur content of the fuel does not exceed 0.5% by weight. Records shall be maintained for 5 years.	Minn. R. 7007.0800, subps. 4 & 5

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-22**

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: GP 013 Emergency Generators: Part of Netting

Associated Items: EU 054 172GEN001 - RR Weis Art Museum
 EU 055 335GEN001 - Aquaculture
 EU 060 050GEN001 - Williams Arena
 EU 061 174GEN001 - Lions Research Center
 EU 062 176GEN001 - Hockey Arena
 EU 063 177GEN001 - IWMF
 EU 064 180GEN001 - Magnetic Resonance Facility
 EU 065 208GEN001 - Middlebrook Hall
 EU 066 217GEN001 - 19th Ave Parking Ramp
 EU 067 249GEN001 - Carlson School
 EU 142 143GEN002 - Cancer Center

What to do	Why to do it
EMISSION LIMITS	hdr
Opacity: less than or equal to 20 percent opacity once operating temperatures have been attained. This limit applies to each unit individually.	Minn. R. 7011.2300, subp. 1
Sulfur Dioxide: less than or equal to 0.5 lbs/million Btu heat input . This limit applies to each unit individually.	Minn. R. 7011.2300, subp. 2
OPERATING CONDITIONS	hdr
Fuel type: Natural gas/propane/No. 2 fuel oil only. Use a fuel type limit if you are basing compliance with the SO2 standards on the sulfur content of the fuel.	Minn. R. 7005.0100, subp. 35a
Operating Hours: less than or equal to 300 hours/year using 12-month Rolling Sum to be calculated by the 15th day of each month. Applies to each unit individually.	Title I Condition: Limit to avoid classification as a major modification under 40 CFR Section 52.21 and 40 CFR Section 51, Appendix S; Minn. R. 7007.0800, subp. 5
RECORDINGKEEPING REQUIREMENTS	hdr
Fuel Oil Sulfur Content Certification: Obtain and maintain at the facility fuel receipts from the fuel supplier which certify the sulfur content of the fuel does not exceed 0.5% by weight. Records shall be maintained for 5 years.	Minn. R. 7007.0800, subps. 4 & 5

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

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: GP 014 Boilers: Part of Netting**Associated Items:** EU 056 180-BO-002 - Magnetic Resonance Boiler

EU 057 180-BO-003 - Magnetic Resonance Boiler

EU 058 478-BO-001 - Ag Chemical Building

EU 059 478-BO-002 - Ag Chemical Building

EU 068 180-BO-001 - Magnetic Resonance Boiler

EU 069 177-BO-001 - IWMF

EU 070 177-BO-002 - IWMF

EU 071 174-BO-001 - Lions Research Center

EU 072 174-BO-002 - Lions Research Center

EU 073 174-BO-003 - Lions Research Center

What to do	Why to do it
EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.4 lbs/million Btu heat input . This limit applies to each unit individually.	Minn. R. 7011.0515, subp. 1
Sulfur Dioxide: less than or equal to 1.6 lbs/million Btu heat input . This limit applies to each unit individually.	Minn. R. 7011.0515, subp. 1
Opacity: less than or equal to 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. This limit applies to each unit individually.	Minn. R. 7011.0515, subp. 2
OPERATING CONDITIONS	hdr
Fuel type: Natural gas only	Minn. R. 7005.0100, subp. 35a
Operating Hours: less than or equal to 5840 hours/year using 12-month Rolling Sum to be calculated by the 15th day of each month.	Title I Condition: Limit to avoid classification as a major modification under 40 CFR Section 52.21 and 40 CFR Section 51, Appenidix S; Minn. R. 7007.0800, subp. 5
RECORDINGKEEPING REQUIREMENTS	hdr
Maintain records of the hours of operation for each calendar month and a record of the 12-month rolling sum of hours of operation.	Title I Condition: to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.3000

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

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: GP 015 Diesel Emergency Generators

Associated Items: EU 052 186GEN001 - MCB
 EU 053 174GEN002 - Translation Research
 EU 104 042GEN001 - Walter Library
 EU 105 124GEN001 - East River Ramp
 EU 106 144GEN001 - Phillips-Wang Bldg
 EU 107 144GEN002 - Phillips-Wang Bldg
 EU 108 183GEN001 - East River Ramp
 EU 109 220GEN001 - Archive
 EU 110 298GEN001 - MLAC
 EU 111 436GEN001 - MALG Facility
 EU 112 439GEN001 - Cargill Building - Microbial & Plant Genomics
 EU 113 485GEN001 - Plant Growth
 EU 146 Hanson Hall Generator
 EU 147 New 717 Delaware Generator
 EU 148 Existing 717 Delaware Generator
 EU 149 Northrop Auditorium Generator
 EU 150 TCF Stadium Generator
 EU 151 MBB Generator
 EU 152 600 kW Portable Generator
 EU 153 STSS Center Generator
 EU 154 Cancer/Cardio Emergency Generator 1
 EU 155 Cancer/Cardio Emergency Generator 2

What to do	Why to do it
These requirements apply separately to each unit listed in GP 015 unless otherwise noted.	hdr
If any of the emergency generators were modified or reconstructed after July 11, 2005, or manufactured after April 1, 2006, they are subject to 40 CFR pt. 60, subp. IIII. These additional requirements are listed in Appendix C to the permit. This applies at a minimum to EU 146, EU 147, and EU 149-155.	40 CFR Sections 60.4200(2) & (3)
EU 154-155 are new affected sources as defined under 40 CFR pt. 63, subp. ZZZZ, and the facility is an area source as defined at 40 CFR Section 63.2, and EU 154-155 are emergency stationary RICEs with a site rating of more than 500 brake HP. The Permittee shall meet the requirements of 40 CFR pt. 63, subp. ZZZZ by meeting the requirements of 40 CFR pt. 60, subp. IIII. No further requirements of 40 CFR pt. 63, subp. ZZZZ apply to EU 154-155.	40 CFR Section 63.6590(c); Minn. R. 7011.8150
EMISSION LIMITS	hdr
Opacity: less than or equal to 20 percent opacity once operating temperatures have been attained. This limit applies to each unit individually.	Minn. R. 7011.2300, subp. 1
Sulfur Dioxide: less than or equal to 0.5 lbs/million Btu heat input . This limit applies to each unit individually.	Minn. R. 7011.2300, subp. 2
OPERATIONAL REQUIREMENTS	hdr
Fuel type: Natural gas//No. 2 fuel oil only.	Minn. R. 7005.0100, subp. 35a
Operating Limitations: Emergency usage, maintenance, training, or testing purposes only.	Minn. R. 7007.0800, subp. 2
Hours of Operation: less than or equal to 500 hours per year based on a 12-month rolling sum. The U.S. EPA memorandum entitled "Calculating Potential to Emit (PTE) for Emergency Generators", dated September 6, 1995, limits operation to 500 hours per year.	Minn. R. 7007.0800, subp. 4 & 5
RECORDKEEPING REQUIREMENTS	hdr
Recordkeeping - Hours of Operation: The Permittee shall maintain documentation of hours of operation for each unit listed in GP 015.	Minn. R. 7007.0800, subps. 4 & 5

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

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Recordkeeping: The Permittee shall record the date, length of time, type of fuel, and reason for each use for each unit listed in GP 015.	Minn. R. 7007.0800, subps. 4 & 5
Fuel Oil Sulfur Content Certification: Obtain and maintain at the facility fuel receipts from the fuel supplier which certify the sulfur content of the fuel does not exceed 0.5% by weight. Records shall be maintained for 5 years.	Minn. R. 7007.0800, subps. 4 & 5

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

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: SV 001 SG201 - CFB Boiler**Associated Items:** EU 001 SG201 - Circulating Fluidized Bed Boiler

GP 001 New and modified boilers (annual limits to avoid mod)

GP 003 Db Boilers - General and CEMS/COMS requirements

What to do	Why to do it
EMISSION LIMITS	6hdr
Carbon Monoxide: less than or equal to 0.267 lbs/million Btu heat input and less than or equal to 70.75 lb/hr as a 1-hr average. This is a state-only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.	Minn. R. 7009.0020
Sulfur Dioxide: less than or equal to 0.38 lbs/million Btu heat input and less than or equal to 96.1 lb/hr as determined by a CEMS as a 1-hour average when combusting coal. This is a state-only requirement and is not enforceable by the EPA Administrator and citizens under the Clean Air Act.	Minn. R. 7009.0020
Nitrogen Oxides: less than or equal to 0.222 lbs/million Btu heat input and less than or equal to 58.96 lb/hr as determined by a CEMS as a 30-day rolling average. This is a state-only requirement and is not enforceable by the EPA Administrator and citizens under the Clean Air Act.	Minn. R. 7009.0020
PERFORMANCE TESTING	hdr
Performance Test: due before end of each calendar 60 months starting 08/21/2003 (next test on or before 8/21/08) to verify emission factors for PM, PM10, CO and VOC emissions within GP001. Also, to verify compliance with CO limit set within SV001.	Minn. R. 7017.2020, subp. 1
PERFORMANCE TESTING - OAT HULLS	hdr
Oat Hull Performance Test: due 60 days after achieving the maximum oat hull firing rate, but no later than 180 days after initial startup of the biomass truck unloading station, biomass storage silo, and biomass transfer system to measure CO, PM, PM10, VOC, HCl, and hexane emissions, to monitor NOx and SO2 emissions, and to determine fuel chlorine content for calculating HCl control efficiency.	Minn. R. 7017.2020, subp. 1
Oat Hull Performance Test Notification and Submittals; Performance Test Notification (written): due 30 days before Performance Test Performance Test Plan: due 30 days before Performance Test Performance Test Pre-Test Meeting: due 7 day before Performance Test Performance Test Report: due 45 days after Performance Test Performance Test Report - Microfiche Copy or CD: due 105 days after Performance Test. The Notification, Test Plan, and Test Report may be submitted in alternative format as allowed by Minn. R. 7017.2018.	Minn. R. 7017.2030, subp. 1-4; Minn. R. 7017.2018 and Minn. R. 7017.2035, subp. 1-2
Revised PSD Analysis based on Oat Hull Performance Test: Within 60 days of submitting the Oat Hull Performance Test Report, the Permittee shall perform a revised PSD analysis based on the results of the performance test. If the results of the analysis continue to demonstrate that projected actual emission do not exceed baseline actual emissions for any regulated NSR pollutant by a significant amount, the Permittee may burn oat hulls up to the tested rate and shall maintain records of the revised PSD analysis. If the results of the analysis demonstrate that a significant emissions increase would occur, the Permittee may not operate the biomass truck unloading station, biomass storage silo, and biomass transfer system without obtaining a permit amendment in compliance with Minn. R. 7007.1150 through Minn. R. 7007.1500.	Title I Condition: Limit to avoid major modification under 40 CFR Section 52.21; Minn. R. 7007.1150 through Minn. R. 7007.1500
ALTERNATIVE BOIMASS FUEL TESTING AND SUBMITTALS	hdr
Alternative Biomass Fuel Testing Authorization: The Permittee is authorized to conduct test burns of the following alternative biomass fuels: agricultural crops; herbs, nuts, by-products or waste; vegetable oils, by-products or waste; crop field residue or field processing by-products; shells, husks, seed, dust, screenings and other agricultural by-products; cultivated grasses or grass by-products; wood, wood waste including wood processing by-products; and leaves. Acceptable biomass fuels do not include peat, wood that has been painted, stained or pressure treated, waste oil, farm chemicals, pesticide containers, demolition waste except for wood, waste from farms from an open dump, tire derived fuels, non-agricultural industrial process wastes, animal manures and wastes, or any material meeting the definition of a hazardous waste.	Minn R. 7007.0800, subp. 2
Alternative Biomass Fuel Testing Restrictions: Test burns for any potential biomass fuel shall be limited to 4,000 tons, no more than 45 days of operation using the fuel, and a test period not to exceed 180 days.	Minn R. 7007.0800, subp. 2

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

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Alternative Biomass Fuel Testing Requirements: Test burns shall be conducted to measure CO, PM, PM10, VOC, HCl, and hexane emissions, to monitor NOx and SO2 emissions, and to determine fuel chlorine content for calculating HCl control efficiency.	Minn R. 7007.0800, subp. 2
Alternative Biomass Fuel Testing Submittals: 30 days prior to testing of a biomass fuel, the Permittee shall submit a written performance test notification and test plan. The test plan shall meet the requirements of Minn. R. 7017.2030 and shall also include the type(s) and estimated amount of biomass to be tested, 2) operating parameters and anticipated fuel mixes during testing for the boiler to be tested, 3) air pollutants that will be monitored and measured during testing, and 4) a testing schedule.	Minn. R. 7017.2030, subp. 1-4; Minn. R. 7017.2018
Alternative Biomass Fuel Testing Notification and Submittals; Pre-Test Meeting: due 7 day before Performance Test Test Report: due 45 days after Performance Test Test Report - Microfiche Copy or CD: due 105 days after Performance Test. The Notification, Test Plan, and Test Report may be submitted in alternative format as allowed by Minn. R. 7017.2018.	Minn. R. 7017.2030, subp. 1-4; Minn. R. 7017.2018 and Minn. R. 7017.2035, subp. 1-2

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

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: SV 002 SG202/SG203 - Med/High Pressure Package Boilers**Associated Items:** EU 002 SG202 - Medium Pressure Package Boiler

EU 003 SG203 - High Pressure Package Boiler

GP 001 New and modified boilers (annual limits to avoid mod)

GP 003 Db Boilers - General and CEMS/COMS requirements

What to do	Why to do it
EMISSION LIMITS	hdr
Sulfur Dioxide: less than or equal to 267.6 lbs/hour using 3-hour Block Average as determined by fuel oil vendor certification. This is a state-only requirement and is not enforceable by the EPA Administrator and citizens under the Clean Air Act. This limit applies to simultaneous operation of boilers EU002 and EU003.	Minn. R. 7009.0020
Nitrogen Oxides: less than or equal to 0.140 lbs/million Btu heat input using 30-day Rolling Average for simultaneous operation of both boilers and less than or equal to 35.24 lb/hr for EU002 and less than or equal to 37.51 lb/hr for EU003 for all fuels and fuel combinations as determined by CEMS (NOx CEMS required under EU002 and EU003).	Minn. R. 7009.0020; most stringent limit, meets requirements of 40 CFR Section 60.44b(a)
Carbon Monoxide: less than or equal to 0.040 lbs/million Btu heat input using 1-Hour Average for simultaneous operation of both boilers and less than or equal to 10.07 lb/hr for EU002 and less than or equal to 10.71 lb/hr for EU003 for all fuels and fuel combinations. This is a state-only requirement and is not enforceable by the EPA Administrator and citizens under the Clean Air Act.	Minn. R. 7009.0020
PERFORMANCE TESTING/TESTING FREQUENCY	hdr
Performance Test: due before end of each calendar 60 months starting 02/03/2004 (on or before 2/3/09) to verify compliance with hourly CO limit for EU002.	Minn. R. 7017.2020, subp. 1
Performance Test: due before end of each calendar 60 months starting 02/04/2004 (on or before 2/4/09) to verify compliance with hourly CO limit for EU003.	Minn. R. 7017.2020, subp. 1
Performance Test: due before end of each calendar 60 months starting 02/03/2004 (on or before 02/03/09) for CO, VOC, PM and PM10 to verify emission factors within GP001 for EU002.	Minn. R. 7017.2020, subp. 1
Performance Test: due before end of each calendar 60 months starting 02/04/2004 (on or before 2/4/09) for CO, VOC, PM and PM10 to verify emission factors within GP001 for EU003.	Minn. R. 7017.2020, subp. 1
OTHER REQUIREMENTS	hdr
Compliance with Sulfur Dioxide limit: See requirements under GP001, EU002 and EU003 that address retaining fuel oil receipts, natural gas emission factors, daily records of fuel type usage and calculation methods.	Recordkeeping for Minn. R. 7009.0020

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-29**

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: SV 003 SE3 - Pulverized Coal Boiler**Associated Items:** EU 004 SE3 - Pulverized Coal Boiler

GP 001 New and modified boilers (annual limits to avoid mod)

GP 005 CEMS req'd by state rule: SE Plant Boilers SE3 and SE4

GP 006 COMS req'd by state rule: St. Paul Plant Boilers and SE Plant Boilers

What to do	Why to do it
EMISSION LIMITS	hdr
Sulfur Dioxide: less than or equal to 0.34 lbs/million Btu heat input and less than or equal to 56.78 lb/hr, as a 1-hr average when combusting coal or No. 2 fuel oil or both as determined by CEMS. This is a state-only requirement and is not enforceable by the EPA Administrator and citizens under the Clean Air Act.	Minn. R. 7009.0020
Nitrogen Oxides: less than or equal to 1.176 lbs/million Btu heat input and less than or equal to 198.74 lb/hr. This is a state-only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.	Minn. R. 7009.0020
Carbon Monoxide: less than or equal to 0.030 lbs/million Btu heat input and less than or equal to 5.75 lb/hr. This is a state-only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.	Minn. R. 7009.0020
PERFORMANCE TESTING	hdr
Performance Test: due before end of each calendar 60 months starting 01/26/2005 (next test on or before 1/26/10) to verify emission factors for PM, PM10, NOx, CO and VOC within GP001.	Minn. R. 7017.2020, subp. 1

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-30**

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: SV 004 SE4 - Spreader Stoker Boiler**Associated Items:** EU 005 SE4 - Spreader Stoker Boiler

GP 001 New and modified boilers (annual limits to avoid mod)

GP 005 CEMS req'd by state rule: SE Plant Boilers SE3 and SE4

GP 006 COMS req'd by state rule: St. Paul Plant Boilers and SE Plant Boilers

What to do	Why to do it
EMISSION LIMITS	hdr
Sulfur Dioxide: less than or equal to 0.34 lbs/million Btu heat input and less than or equal to 62.83 lb/hr, as a 1-hr average when combusting coal or No. 2 fuel oil or both with or without approved biomass as determined by CEMS. This is a state-only requirement and is not enforceable by the EPA Administrator and citizens under the Clean Air Act.	*Minn. R. 7009.0020
Nitrogen Oxides: less than or equal to 0.78 lbs/million Btu heat input and less than or equal to 146.61 lb/hr. This is a state-only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.	Minn. R. 7009.0020
Carbon Monoxide: less than or equal to 0.28 lbs/million Btu heat input and less than or equal to 52.34 lb/hr. This is a state-only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.	Minn. R. 7009.0020
PERFORMANCE TESTING	hdr
Performance Test: due before end of each calendar 60 months starting 11/16/2004 (next test on or before 11/16/09 to verify emission factors for PM, PM10, NOx, and VOC within GP001.	Minn. R. 7017.2020, subp. 1
Performance Test: due before end of each calendar 60 months starting 11/25/2003 (next test on or before 11/25/08) to verify emission factors for CO within GP001.	Minn. R. 7017.2020, subp. 1

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-31**

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: SV 005 SG231 - Med. pressure package boiler (new St. Paul boiler)**Associated Items:** EU 006 SG231 - Medium Pressure Package Boiler (new St. Paul boiler)

GP 001 New and modified boilers (annual limits to avoid mod)

GP 003 Db Boilers - General and CEMS/COMS requirements

What to do	Why to do it
EMISSION LIMITS	hdr
Nitrogen Oxides: less than or equal to 0.140 lbs/million Btu heat input and less than or equal to 37.95 lb/br as determined by CEMS as a 30-day rolling average.	Minn. R. 7009.0020; most stringent limit, meets requirements of 40 CFR Section 60.44b(a); Minn. R. 7011.0565
Carbon Monoxide: less than or equal to 0.040 lbs/million Btu heat input and less than or equal to 10.86 lb/hr. This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.	Minn. R. 7009.0020
PERFORMANCE TESTING	hdr
Performance Test: due before end of each calendar 60 months starting 04/08/2004 (next test on or before 4/8/09) to verify emission factors for PM, PM10, CO and VOC emissions within GP001.	Minn. R. 7017.2020, subp. 1

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-32**

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: SV 006 SP1/SP2/SP5/SP6 Pulverized coal and spreader stoker boilers**Associated Items:** EU 007 SP1 - Pulverized Coal Boiler

EU 008 SP2 - Pulverized Coal Boiler

EU 009 SP5 - Spreader Stoker Boiler

EU 010 SP6 - Spreader Stoker Boiler

GP 006 COMS req'd by state rule: St. Paul Plant Boilers and SE Plant Boilers

What to do	Why to do it
EMISSION LIMITS	hdr
Particulate Matter less than 10 microns - Ambient Air Impact Analysis based on Performance Test: If the Performance Test demonstrates an emission rate greater than either 0.1 lb/MMBtu or 25.8 lb/hr PM10 for all boilers operating simultaneously, the Permittees shall submit a protocol for an ambient air impact dispersion model using the measured emission rate. The protocol shall be submitted by 60 days after the last performance test reports for SV006 has been received and accepted by the MPCA. The results of the dispersion model using the measured emission rate shall be submitted as specified in the protocol as approved by the MPCA. This is a state-only requirement and is not enforceable by the EPA Administrator and citizens under the Clean Air Act.	Minn. R. 7009.0020
Nitrogen Oxides: less than or equal to 0.63 lbs/million Btu heat input and less than or equal to 162.56 lb/hr when emission units EU007, EU008, EU009, and EU010 are all operating at the maximum continuous rating; less than or equal to 0.808 lb/MMBtu when only EU007 and/or EU008 are operating; less than or equal to 0.538 lb/MMBtu when only EU009 and/or EU010 are operating. This is a state-only requirement and is not enforceable by the EPA Administrator and citizens under the Clean Air Act.	Minn. R. 7009.0020
Sulfur Dioxide: less than or equal to 1.15 lbs/million Btu heat input and less than or equal to 297.48 lb/hr as determined by fuel sampling and analysis. This is a state-only requirement and is not enforceable by the EPA Administrator and citizens under the Clean Air Act.	Minn. R. 7009.0020; most stringent, meets limits set by Minn. R. 7011.0510, subp. 1
Carbon Monoxide: less than or equal to 0.14 lbs/million Btu heat input and less than or equal to 36.2 lb/hr when all 4 boilers are operating; less than or equal to 0.04 lb/MMBtu when only EU007 and/or EU008 are operating; less than or equal to 0.192 lb/MMBtu when only EU009 and/or EU010 are operating. This is a state-only requirement and is not enforceable by the EPA Administrator and citizens under the Clean Air Act.	Minn. R. 7009.0020
OPERATIONAL LIMITS	hdr
Opacity CEMS: Maintain and operate a Continuous Opacity Monitoring System (COMS).	Minn. R. 7017.1000, subp. 1
Sulfur Dioxide: See EU007, EU008, EU009, EU010 for required coal sampling and analysis requirement.	Minn. R. 7009.0020; Minn. R. 7017.0200
PERFORMANCE TESTING	hdr
Performance Test: due before end of each calendar 60 months starting 01/15/2002 (next test on or before 1/15/07) for PM10 (to verify emission factor used in modeling analysis), NOx and CO for EU007.	Minn. R. 7017.2020, subp. 1
Performance Test: due before end of each calendar 36 months starting 12/04/2003 (next test on or before 12/04/06) for NOx and CO for EU008.	Minn. R. 7017.2020, subp. 1
Performance Test: due before end of each calendar 60 months starting 12/04/2003 (next test on or before 12/04/08) for PM10 (to verify emission factor used in modeling analysis) for EU008.	Minn. R. 7017.2020, subp. 1
Performance Test: due before end of each calendar 36 months starting 01/16/2002 (next test on or before 1/16/07) for PM10 (to verify emission factor used in modeling analysis) for EU009.	Minn. R. 7017.2020, subp. 1
Performance Test: due before end of each calendar 36 months starting 12/01/2004 (next test on or before 12/1/07) for NOx for EU009.	Minn. R. 7017.2020, subp. 1
Performance Test: due before end of each calendar 60 months starting 12/03/2003 (next test on or before 12/3/08) for CO for EU009.	Minn. R. 7017.2020, subp. 1
Performance Test: due before end of each calendar 36 months starting 12/02/2003 (next test on or before 12/02/06) for NOx for EU010.	Minn. R. 7017.2020, subp. 1
Performance Test: due before end of each calendar 60 months starting 01/17/2002 (next test on or before 1/17/07) for PM10 (to verify emission factor used in modeling analysis) for EU010.	Minn. R. 7017.2020, subp. 1
Performance Test: due before end of each calendar 60 months starting 12/02/2003 (next test on or before 12/02/08) for CO for EU010.	Minn. R. 7017.2020, subp. 1

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-33**

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: SV 007 SP7 - Oil/Gas Package Boiler**Associated Items:** EU 011 SP7 - Oil/Gas Package Boiler

GP 006 COMS req'd by state rule: St. Paul Plant Boilers and SE Plant Boilers

What to do	Why to do it
EMISSION LIMITS	hdr
Particulate Matter less than 10 microns - Ambient Air Impact Analysis based on Performance Test: If the Performance Test demonstrates an emission rate greater than either 0.056 lb/MMBtu or 5.54 lb/hr PM10, the Permittees shall submit a protocol for an ambient air impact dispersion model using the measured emission rate. The protocol shall be submitted by 60 days after the last performance test reports for SV007 has been received and accepted by the MPCA. The results of the dispersion model using the measured emission rate shall be submitted as specified in the protocol as approved by the MPCA. This is a state-only requirement and is not enforceable by the EPA Administrator and citizens under the Clean Air Act.	Minn. R. 7009.0020
Nitrogen Oxides: less than or equal to 0.140 lbs/million Btu heat input and less than or equal to 13.86 lb/hr. This is a state-only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.	Minn. R. 7009.0020
Carbon Monoxide: less than or equal to 0.04 lbs/million Btu heat input and less than or equal to 3.56 lb/hr. This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.	Minn. R. 7009.0020
PERFORMANCE TESTING	hdr
Performance Test: due before end of each calendar 60 months starting 12/05/2003 (next test on or before 12/5/08) for PM10 and CO emissions.	Minn. R. 7017.2020, subp. 1
Performance Test: due before end of each calendar 36 months starting 12/05/2005 (next test on or before 12/5/08) for NOx emissions.	Minn. R. 7017.2020, subp. 1

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-34**

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: EU 001 SG201 - Circulating Fluidized Bed Boiler**Associated Items:** CE 001 Fabric Filter - High Temperature, i.e., T>250 Degrees F

CE 020 Dry Limestone Injection

GP 001 New and modified boilers (annual limits to avoid mod)

GP 002 All steam service facilities steam boilers (HAP and heat input limits)

GP 003 Db Boilers - General and CEMS/COMS requirements

GP 008 Boilers subject to coal sampling and analysis

SV 001 SG201 - CFB Boiler

What to do	Why to do it
SULFUR DIOXIDE	hdr
Sulfur Dioxide: less than or equal to 10% of the potential sulfur dioxide emission rate according to the following formula: $Es = (KaHa + KbHb)/(Ha+Hb)$ where: Es = sulfur dioxide emission limit, in lb/million Btu heat input Ka = 1.2 lb/million Btu Kb = 0.80 lb/million Btu Ha = heat input from the combustion of coal (million Btu) Hb = heat input from the combustion of oil (million Btu)	40 CFR Section 60.42b(a); Minn. R. 7011.0565
Annual Capacity Factor for Fuels Other Than Coal: greater than 10%. Annual Capacity Factor shall be calculated as defined in 40 CFR pt. 60, subp. Db.	40 CFR Section 60.43b(a)(2) and 40 CFR Section 60.41b; Minn. R. 7011.0565
Fuel oil sulfur limits and/or percent reduction requirements under this section are determined on a 30-day rolling average.	40 CFR Section 60.42b(e); Minn. R. 7011.0565
Sulfur Dioxide: The Sulfur Dioxide emission limits and percent reduction requirements apply at all times, including periods of startup, shutdown and malfunction, except that percent reduction requirements do not apply when only very low sulfur fuel oil or natural gas is combusted, and further, except that the percent reduction requirement does not apply during startup, shutdown, or malfunction when the fluidized bed temperature is below normal operating level.	40 CFR Section 60.42b(g) and 40 CFR Section 60.42b(j); Minn. R. 7011.0565
Sulfur Dioxide: The Permittee shall obtain and maintain at the facility fuel receipts from the fuel supplier which certify that the fuel oil contains less than or equal to 0.5% sulfur by weight.	40 CFR Section 60.49b(r); Minn. R. 7011.0565
Sulfur Dioxide Monitoring: Determine the average SO ₂ emissions and percent reduction by collecting coal/biomass samples in as as-fired condition at the inlet to the steam generating unit and analyzing them for sulfur and heating value according to Method 19 and the procedure specified within GP008 and measuring SO ₂ in stack SV001 by the SO ₂ CEMS.	40 CFR Section 60.47b(b); Minn. R. 7011.0565
PARTICULATE MATTER	hdr
Total Particulate Matter: less than or equal to 0.10 lbs/million Btu heat input for all fuels and fuel combinations.	40 CFR Section 60.43b(a)(2); Minn. R. 7011.0565
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 opacity.	40 CFR Section 60.43b(f); Minn. R. 7011.0565
Opacity Compliance: Demonstrate compliance with opacity standards using COMS data results.	40 CFR Section 60.11(e)(5); Minn. R. 7017.2015, subp. 2(B); Minn. R. 7011.0565
The PM and opacity standards apply at all times, except during periods of startup, shutdown or malfunction.	40 CFR Section 60.43b(g); Minn. R. 7011.0565
NITROGEN OXIDES	hdr
Nitrogen Oxides: less than or equal to 0.200 lbs/million Btu heat input using 30-day Rolling Average (which is equivalent to 53.06 lb/hr at manufacturer's rated capacity) when combusting only natural gas or only fuel oil.	40 CFR Section 60.44b(a)(1); 40 CFR Section 60.44b(a)(2); Minn. R. 7011.0565

TABLE A: LIMITS AND OTHER REQUIREMENTS
A-35 06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Nitrogen Oxides: less than or equal to the amount allowed by the following formula when the facility simultaneously combusts coal, oil and/or natural gas or if the facility simultaneously combusts coal or oil, or a mixture of these fuels with natural gas and approved biomass: $E_n = [(EL_{go} \times H_{go}) + (EL_c \times H_c)] / (H_{go} + H_c)$ where: E _n = the NO _x emission limit in lb/MMBtu EL _{go} = the emission limit for natural gas or fuel oil, lb/MMBtu H _{go} = the total heat input from natural gas or fuel oil, MMBtu/hr EL _c = the emission limit for coal in lb/MMBtu H _c = the total heat input from coal, MMBtu/hr	40 CFR Section 60.44b(b); 40 CFR Section 60.44b(c); Minn. R. 7011.0565
Nitrogen Oxides: The nitrogen oxides standards apply at all times including periods of startup, shutdown and malfunction.	40 CFR Section 60.44b(h); Minn. R. 7011.0565
Nitrogen Oxides: emission rate shall be determined by the NO _x CEMS as a 30-day rolling average.	40 CFR Section 60.43b(i); Minn. R. 7011.0565
OPERATIONAL LIMITS	hdr
Startup Fuel: Natural gas only except that No. 2 fuel oil may be used when natural gas is curtailed. No. 2 fuel oil may be used up to 15% of the maximum heat input (40 MMBtu/hr) for startup only.	Minn. R. 7009.0020
Fuel type: Bituminous and Subbituminous Coal, approved biomass, approved biomass mixed with coal, approved biomass mixed with natural gas, and natural gas. No. 2 fuel oil for startup only as stated above.	Minn. R. 7005.0100, subp. 35a
Approved Biomass: Approved biomass includes wood (as limited below) and oat hulls. Alternative biomass may be fired during test burns in compliance with all permit conditions.	Title I Condition: Limit to avoid major modification under 40 CFR Section 52.21
Treated wood and wood waste materials prohibited as fuel: No wood or wood waste which meets the definition of hazardous waste may be used as fuel.	Minn. R. 7007.0800, subp. 2
No owner or operator shall build, erect, install, or use any article, machine, equipment or process, the use of which conceals an emission which would otherwise constitute a violation of an applicable standard.	40 CFR Section 60.12; Minn. R. 7011.0050
PERFORMANCE TESTING	hdr
See SV001 requirements.	Minn. R. 7017.2020, subp. 1
CEMS REQUIREMENTS	hdr
Opacity CEMS: The owner or operator shall install, calibrate, maintain, and operate a continuous opacity monitoring system (COMS). Subpart Db COMS requirements are contained in GP003 of the permit.	40 CFR Section 60.48b(a)
Sulfur Dioxide CEMS: The Permittee shall install, calibrate, maintain and operate continuous emission monitoring systems (CEMS) for measuring SO ₂ concentrations and either Oxygen (2) or Carbon Dioxide (CO ₂) concentrations. Subp. Db CEMS requirements are contained in GP003 of this permit.	40 CFR Section 60.47b(a)
Nitrogen Oxide CEMS: The Permittee shall install, calibrate, maintain and operate a continuous monitoring system for measuring NO _x . Subpart Db CEMS requirements are contained in GP003 of this permit.	40 CFR Section 60.48b(b)
POLLUTION CONTROL EQUIPMENT	hdr
Operate the associated baghouse fabric filter (CE001) whenever unit is operational according to the requirements in CE001.	Minn. R. 7007.0800, subp. 2 and 14
RECORDKEEPING	hdr
Recordkeeping: For each emission unit, maintain records of the type and amount of fuel combusted each day; calculate the annual capacity factor for each fuel for each calendar quarter.	40 CFR Section 60.49b(d); Minn. R. 7011.0565
Recordkeeping: Maintain a file of all measurements, maintenance, reports and records for at least five years.	40 CFR Section 60.7(f); Minn. R. 7019.0100, subp. 1
Records of Startup, Shutdown, or Malfunction: Any owner or operator subject to the provisions of this part shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative.	40 CFR Section 60.7(b); Minn. R. 7019.0100, subp. 1
NOTIFICATIONS	hdr
Notification of Anticipated Date for Conducting Opacity Observations: due 30 day prior to observation date	40 CFR Section 60.7(a)(4); Minn. R. 7019.0100, subp. 1

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-36**

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Notification of any physical or operational change which increases emission rate: due 60 days (or as soon as practical) before the change is commenced, unless specifically exempted under an applicable subpart or in section 60.14(e).	40 CFR Section 60.7(a)(4); Minn. R. 7019.0100, subp. 1
OAT HULL INFORMATION	hdr
Oat Hull Performance Test: due 60 days after achieving the maximum oat hull firing rate, but no later than 180 days after initial startup of the biomass truck unloading station, biomass storage silo, and biomass transfer system to measure CO, PM, PM10, VOC, HCl, and hexane emissions, to monitor NOx and SO2 emissions, and to determine fuel chlorine content for calculating HCl control efficiency.	Minn. R. 7017.2020, subp. 1
Oat Hull Performance Test Notification and Submittals; Performance Test Notification (written): due 30 days before Performance Test Performance Test Plan: due 30 days before Performance Test Performance Test Pre-Test Meeting: due 7 day before Performance Test Performance Test Report: due 45 days after Performance Test Performance Test Report - Microfiche Copy or CD: due 105 days after Performance Test. The Notification, Test Plan, and Test Report may be submitted in alternative format as allowed by Minn. R. 7017.2018.	Minn. R. 7017.2030, subp. 1-4; Minn. R. 7017.2018 and Minn. R. 7017.2035, subp. 1-2
Revised PSD Analysis based on Oat Hull Performance Test: Within 60 days of submitting the Oat Hull Performance Test Report, the Permittee shall perform a revised PSD analysis based on the results of the performance test. If the results of the analysis continue to demonstrate that projected actual emission do not exceed baseline actual emissions for any regulated NSR pollutant by a significant amount, the Permittee may burn oat hulls up to the tested rate and shall maintain records of the revised PSD analysis. If the results of the analysis demonstrate that a significant emissions increase would occur, the Permittee may not operate the biomass truck unloading station, biomass storage silo, and biomass transfer system without obtaining a permit amendment in compliance with Minn. R. 7007.1150 through Minn. R. 7007.1500.	Title I Condition: Limit to avoid major modification under 40 CFR Section 52.21; Minn. R. 7007.1150 through Minn. R. 7007.1500
Alternative Biomass Fuel Testing Authorization: The Permittee is authorized to conduct test burns of the following alternative biomass fuels: agricultural crops; herbs, nuts, by-products or waste; vegetable oils, by-products or waste; crop field residue or field processing by-products; shells, husks, seed, dust, screenings and other agricultural by-products; cultivated grasses or grass by-products; wood, wood waste including wood processing by-products; and leaves. Acceptable biomass fuels do not include peat, wood that has been painted, stained or pressure treated, waste oil, farm chemicals, pesticide containers, demolition waste except for wood, waste from farms from an open dump, tire derived fuels, non-agricultural industrial process wastes, animal manures and wastes, or any material meeting the definition of a hazardous waste.	Minn R. 7007.0800, subp. 2
Alternative Biomass Fuel Testing Restrictions: Test burns for any potential biomass fuel shall be limited to 4,000 tons, no more than 45 days of operation using the fuel, and a test period not to exceed 180 days.	Minn R. 7007.0800, subp. 2
Alternative Biomass Fuel Testing Requirements: Test burns shall be conducted to measure CO, PM, PM10, VOC, HCl, and hexane emissions, to monitor NOx and SO2 emissions, and to determine fuel chlorine content for calculating HCl control efficiency.	Minn R. 7007.0800, subp. 2
Alternative Biomass Fuel Testing Submittals: 30 days prior to testing of a biomass fuel, the Permittee shall submit a written performance test notification and test plan. The test plan shall meet the requirements of Minn. R. 7017.2030 and shall also include the type(s) and estimated amount of biomass to be tested, 2) operating parameters and anticipated fuel mixes during testing for the boiler to be tested, 3) air pollutants that will be monitored and measured during testing, and 4) a testing schedule.	Minn. R. 7017.2030, subp. 1-4; Minn. R. 7017.2018
Alternative Biomass Fuel Testing Notification and Submittals; Pre-Test Meeting: due 7 day before Performance Test Test Report: due 45 days after Performance Test Test Report - Microfiche Copy or CD: due 105 days after Performance Test. The Notification, Test Plan, and Test Report may be submitted in alternative format as allowed by Minn. R. 7017.2018.	Minn. R. 7017.2030, subp. 1-4; Minn. R. 7017.2018 and Minn. R. 7017.2035, subp. 1-2

TABLE A: LIMITS AND OTHER REQUIREMENTS

A-37 06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: EU 002 SG202 - Medium Pressure Package Boiler**Associated Items:** GP 001 New and modified boilers (annual limits to avoid mod)

GP 002 All steam service facilities steam boilers (HAP and heat input limits)

GP 003 Db Boilers - General and CEMS/COMS requirements

SV 002 SG202/SG203 - Med/High Pressure Package Boilers

What to do	Why to do it
EMISSION LIMITS	hdr
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 opacity.	40 CFR Section 60.43b(f)
Nitrogen Oxides: less than or equal to 0.20 lbs/million Btu heat input using 30-day Rolling Average as determined by CEMS. Please note the NOx limit at SV002 for EU002 and EU003 which is more restrictive.	40 CFR Section 60.44b(a); Minn. R. 7011.0565
OPERATIONAL LIMITS	hdr
Fuel type: Natural gas or No. 2 fuel oil only.	Minn. R. 7005.0100, subp. 35a
Sulfur Dioxide: less than or equal to 0.5 percent by weight sulfur in fuel oil; percent reduction requirement of 40 CFR Section 60.42b(a) does not apply to this emission unit.	40 CFR Section 60.42b(j); most stringent, meets limit set by 40 CFR Section 60.42b(a) for fuel oil
Sulfur Dioxide: The Permittee shall obtain and maintain at the facility fuel receipts from the fuel supplier for each shipment which certify that the fuel oil contains less than or equal to 0.5% sulfur by weight.	40 CFR Section 60.49b(r); Minn. R. 7011.0565
The opacity standards apply at all times, except during periods of startup, shutdown or malfunction.	40 CFR Section 60.43b(g)
Opacity CEMS: The owner or operator shall install, calibrate, maintain, and operate a continuous opacity monitoring system (COMS).	40 CFR Section 60.48b(a)
Opacity Compliance: Demonstrate compliance with opacity standards using COMS data results.	40 CFR Section 60.11(e)(5); Minn. R. 7017.2015, subp. 2(B)
Nitrogen Oxides CEMS: The owner or operator shall install, calibrate, maintain, and operate a continuous monitoring system for NOx.	40 CFR Section 60.48b(b)
Nitrogen Oxides: The NOx standards apply at all times including periods of startup, shutdown, and malfunction.	40 CFR Section 60.44b(h)
Nitrogen Oxides: emission rate shall be determined by the NOx CEMS as a 30-day rolling average.	40 CFR Section 60.43b(i); Minn. R. 7011.0565
RECORDKEEPING	hdr
Recordkeeping: For each emission unit, maintain records of the type and amount of fuel combusted each day; calculate the annual capacity factor for each fuel for each calendar quarter.	40 CFR Section 60.49b(d); Minn. R. 7011.0565
Records of Startup, Shutdown, or Malfunction: Any owner or operator subject to the provisions of this part shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative.	40 CFR Section 60.7(b); Minn. R. 7019.0100, subp. 1
Recordkeeping: Maintain a file of all measurements, maintenance, reports and records for at least five years.	40 CFR Section 60.7(f); Minn. R. 7019.0100, subp. 1
NOTIFICATIONS	hdr
Notification of Anticipated Date for Conducting Opacity Observations: due 30 days prior to observation date	40 CFR Section 60.7(a)(4); Minn. R. 7019.0100, subp. 1
Notification of any physical or operational change which increases emission rate: due 60 days (or as soon as practical) before the change is commenced, unless specifically exempted under an applicable subpart or in section 60.14(e).	40 CFR Section 60.7(a)(4); Minn. R. 7019.0100, subp. 1
No owner or operator shall build, erect, install, or use any article, machine, equipment or process, the use of which conceals an emission which would otherwise constitute a violation of an applicable standard.	40 CFR Section 60.12; Minn. R. 7011.0050
PERFORMANCE TESTING	hdr
See SV002 requirements.	Minn. R. 7017.2020, subp. 1

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-38**

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: EU 003 SG203 - High Pressure Package Boiler**Associated Items:** GP 001 New and modified boilers (annual limits to avoid mod)

GP 002 All steam service facilities steam boilers (HAP and heat input limits)

GP 003 Db Boilers - General and CEMS/COMS requirements

SV 002 SG202/SG203 - Med/High Pressure Package Boilers

What to do	Why to do it
EMISSION LIMITS	hdr
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 opacity.	40 CFR Section 60.43b(f)
Nitrogen Oxides: less than or equal to 0.20 lbs/million Btu heat input using 30-day Rolling Average as determined by CEMS. Please note the NOx limit at SV002 for EU002 and EU003 which is more restrictive.	40 CFR Section 60.44b(a); Minn. R. 7011.0565
OPERATIONAL LIMITS	hdr
Fuel type: Natural gas or No. 2 fuel oil only.	Minn. R. 7005.0100, subp. 35a
Sulfur Dioxide: less than or equal to 0.5 percent by weight sulfur in fuel oil; percent reduction requirement of 40 CFR Section 60.42b(a) does not apply to this emission unit.	40 CFR Section 60.42b(j); most stringent, meets limit set by 40 CFR Section 60.42b(a) for fuel oil
Sulfur Dioxide: The Permittee shall obtain and maintain at the facility fuel receipts from the fuel supplier for each shipment which certify that the fuel oil contains less than or equal to 0.5% sulfur by weight.	40 CFR Section 60.49b(r); Minn. R. 7011.0565
The opacity standards apply at all times, except during periods of startup, shutdown or malfunction.	40 CFR Section 60.43b(g)
Opacity CEMS: The owner or operator shall install, calibrate, maintain, and operate a continuous opacity monitoring system (COMS).	40 CFR Section 60.48b(a)
Opacity Compliance: Demonstrate compliance with opacity standards using COMS data results.	40 CFR Section 60.11(e)(5); Minn. R. 7017.2015, subp. 2(B)
Nitrogen Oxides CEMS: The owner or operator shall install, calibrate, maintain, and operate a continuous monitoring system for NOx.	40 CFR Section 60.48b(b)
Nitrogen Oxides: The NOx standards apply at all times including periods of startup, shutdown, and malfunction.	40 CFR Section 60.44b(h)
Nitrogen Oxides: emission rate shall be determined by the NOx CEMS as a 30-day rolling average.	40 CFR Section 60.43b(i); Minn. R. 7011.0565
RECORDKEEPING	hdr
Recordkeeping: For each emission unit, maintain records of the type and amount of fuel combusted each day; calculate the annual capacity factor for each fuel for each calendar quarter.	40 CFR Section 60.49b(d); Minn. R. 7011.0565
Records of Startup, Shutdown, or Malfunction: Any owner or operator subject to the provisions of this part shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative.	40 CFR Section 60.7(b); Minn. R. 7019.0100, subp. 1
Recordkeeping: Maintain a file of all measurements, maintenance, reports and records for at least five years.	40 CFR Section 60.7(f); Minn. R. 7019.0100, subp. 1
NOTIFICATIONS	hdr
Notification of Anticipated Date for Conducting Opacity Observations: due 30 days prior to observation date	40 CFR Section 60.7(a)(4); Minn. R. 7019.0100, subp. 1
Notification of any physical or operational change which increases emission rate: due 60 days (or as soon as practical) before the change is commenced, unless specifically exempted under an applicable subpart or in section 60.14(e).	40 CFR Section 60.7(a)(4); Minn. R. 7019.0100, subp. 1
No owner or operator shall build, erect, install, or use any article, machine, equipment or process, the use of which conceals an emission which would otherwise constitute a violation of an applicable standard.	40 CFR Section 60.12; Minn. R. 7011.0050
PERFORMANCE TESTING	hdr
See SV002 requirements.	Minn. R. 7017.2020, subp. 1

TABLE A: LIMITS AND OTHER REQUIREMENTS

A-39

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: EU 004 SE3 - Pulverized Coal Boiler

Associated Items: CE 002 Fabric Filter - Medium Temperature i.e., 180 F<T<250 F
 CE 003 Gas Scrubber (General, Not Classified)
 GP 001 New and modified boilers (annual limits to avoid mod)
 GP 002 All steam service facilities steam boilers (HAP and heat input limits)
 GP 005 CEMS req'd by state rule: SE Plant Boilers SE3 and SE4
 GP 006 COMS req'd by state rule: St. Paul Plant Boilers and SE Plant Boilers
 GP 008 Boilers subject to coal sampling and analysis
 SV 003 SE3 - Pulverized Coal Boiler

What to do	Why to do it
EMISSION LIMITS	hdr
Sulfur Dioxide: less than or equal to 3.0 lbs/million Btu heat input when combusting solid fuels only. See next requirement for SO ₂ limit when simultaneously combusting solid and liquid fuels.	Minn. R. 7011.0510, subp. 1
Sulfur Dioxide: less than or equal to the amount allowed by the following formula when the facility simultaneously combusts coal and/or oil: $Ex = [(ELO \times Ho) + (ELc \times Hc)] / (Ho + Hc)$ where: Es = the SO ₂ emission limit in lb/MMBtu ELo = the emission limit for fuel oil Ho = the total heat input from fuel oil, MMBtu/hr ELc = the emission limit for coal Hc = the total heat input from coal	Minn. R. 7011.0510, subp. 1
Sulfur Dioxide: less than or equal to 1.6 lbs/million Btu heat input when combusting liquid fuels only.	Minn. R. 7011.0510, subp. 1
Total Particulate Matter: less than or equal to 0.1 lbs/million Btu heat input	Minn. R. 7007.0800, subp. 2, more stringent than Minn. R. 7011.0510, subp. 1, referencing Minn. R. 7011.0545
Opacity: less than or equal to 20 percent opacity, except for one six-minute period per hour of not more than 33% opacity.	Minn. R. 7007.0800, subp. 2, more stringent than Minn. R. 7011.0510, subp. 1, referencing Minn. R. 7011.0545
OPERATIONAL LIMITS	hdr
Fuel type: Subbituminous and bituminous coal, No. 2 fuel oil and natural gas only.	Minn. R. 7005.0100, subp. 35a
Combustion of EDTA-type boiler cleaning agents is authorized provided the cleaning agents are generated on site and provide less than 5% of heat input to the emission unit per hour.	Minn. Stat. Section 116.07, subd. 4a; Minn. R. 7007.0800, subp. 2
Opacity CEMS: The owner or operator shall maintain and operate a COMS to measure opacity emissions from the emission unit.	Minn. R. 7017.1006
Sulfur Dioxide CEMS: Maintain and operate CEMS for SO ₂ and diluent oxygen after the dry scrubber.	Minn. R. 7017.1006
POLLUTION CONTROL EQUIPMENT	hdr
Operate CE002 (med. temp fabric filter) and CE003 (gas scrubber). The Permittee shall operate and maintain the fabric filter and the gas scrubber at all times that any emission unit controlled by the fabric filter and the gas scrubber is in operation in accordance with the requirements of CE002 and CE003, respectively.	Minn. R. 7007.0800, subp. 2 and 14
PERFORMANCE TESTING	hdr
See SV003 requirements.	Minn. R. 7017.2020, subp. 1

TABLE A: LIMITS AND OTHER REQUIREMENTS
A-40

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: EU 005 SE4 - Spreader Stoker Boiler

Associated Items: CE 004 Fabric Filter - Medium Temperature i.e., 180 F<T<250 F
 CE 005 Gas Scrubber (General, Not Classified)
 GP 001 New and modified boilers (annual limits to avoid mod)
 GP 002 All steam service facilities steam boilers (HAP and heat input limits)
 GP 005 CEMS req'd by state rule: SE Plant Boilers SE3 and SE4
 GP 006 COMS req'd by state rule: St. Paul Plant Boilers and SE Plant Boilers
 GP 008 Boilers subject to coal sampling and analysis
 SV 004 SE4 - Spreader Stoker Boiler

What to do	Why to do it
EMISSION LIMITS	hdr
Sulfur Dioxide: less than or equal to 3.0 lbs/million Btu heat input when combusting solid fuels only. See next requirement for SO2 limit when simultaneously combusting solid and liquid fuels.	Minn. R. 7011.0510, subp. 1
Sulfur Dioxide: less than or equal to the amount allowed by the following formula when the facility simultaneously combusts coal and/or oil (with or without approved biomass): $Ex = [(ELo \times Ho) + (ELc \times Hc)] / (Ho + Hc)$ where: Es = the SO2 emission limit in lb/MMBtu ELo = the emission limit for fuel oil Ho = the total heat input from fuel oil, MMBtu/hr ELc = the emission limit for coal Hc = the total heat input from coal	Minn. R. 7011.0510, subp. 1
Sulfur Dioxide: less than or equal to 1.6 lbs/million Btu heat input when combusting liquid fuels only.	Minn. R. 7011.0510, subp. 1
Total Particulate Matter: less than or equal to 0.1 lbs/million Btu heat input	Minn. R. 7007.0800, subp. 2, more stringent than Minn. R. 7011.0510, subp. 1, referencing Minn. R. 7011.0545
Opacity: less than or equal to 20 percent opacity, except for one six-minute period per hour of not more than 33% opacity.	Minn. R. 7007.0800, subp. 2, more stringent than Minn. R. 7011.0510, subp. 1, referencing Minn. R. 7011.0545
OPERATIONAL LIMITS	hdr
Fuel type: Subbituminous and Bituminous Coal, No. 2 fuel oil, natural gas and approved biomass mixed with coal only. Approved biomass is defined below.	Minn. R. 7005.0100, subp. 35a
Approved Biomass: Approved biomass includes oat hulls. Alternative biomass may be fired during test burns in compliance with all permit conditions.	*Title I Condition: Limit to avoid major modification under 40 CFR Section 52.21
Combustion of EDTA-type boiler cleaning agents is authorized provided the cleaning agents are generated on site and provide less than 5% of heat input to the emission unit per hour.	Minn. Stat. Section 116.07, subd. 4a; Minn. R. 7007.0800, subp. 2
Opacity CEMS: The owner or operator shall maintain and operate a COMS to measure opacity emissions from the emission unit.	Minn. R. 7017.1006
Sulfur Dioxide CEMS: Maintain and operate CEMS for SO2 and diluent oxygen after the dry scrubber.	Minn. R. 7017.1006
POLLUTION CONTROL EQUIPMENT	hdr
Operate CE004 (med. temp fabric filter) and CE005 (gas scrubber). The Permittee shall operate and maintain the fabric filter and the gas scrubber at all times that any emission unit controlled by the fabric filter and the gas scrubber is in operation in accordance with the requirements of CE004 and CE005, respectively.	Minn. R. 7007.0800, subp. 2 and 14
PERFORMANCE TESTING	hdr
See SV004 requirements.	Minn. R. 7017.2020, subp. 1
OAT HULL INFORMATION	hdr
Oat Hull Performance Test: due 60 days after achieving the maximum oat hull firing rate, but no later than 180 days after initial startup of the biomass truck unloading station, biomass storage silo, and biomass transfer system to measure CO, PM, PM10, VOC, HCl, and hexane emissions, to monitor NOx and SO2 emissions, and to determine fuel chlorine content for calculating HCl control efficiency.	Minn. R. 7017.2020, subp. 1

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-41**

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

<p>Oat Hull Performance Test Notification and Submittals; Performance Test Notification (written): due 30 days before Performance Test Performance Test Plan: due 30 days before Performance Test Performance Test Pre-Test Meeting: due 7 day before Performance Test Performance Test Report: due 45 days after Performance Test Performance Test Report - Microfiche Copy or CD: due 105 days after Performance Test. The Notification, Test Plan, and Test Report may be submitted in alternative format as allowed by Minn. R. 7017.2018.</p>	<p>Minn. R. 7017.2030, subp. 1-4; Minn. R. 7017.2018 and Minn. R. 7017.2035, subp. 1-2</p>
<p>Revised PSD Analysis based on Oat Hull Performance Test: Within 60 days of submitting the Oat Hull Performance Test Report, the Permittee shall perform a revised PSD analysis based on the results of the performance test. If the results of the analysis continue to demonstrate that projected actual emission do not exceed baseline actual emissions for any regulated NSR pollutant by a significant amount, the Permittee may burn oat hulls up to the tested rate and shall maintain records of the revised PSD analysis. If the results of the analysis demonstrate that a significant emissions increase would occur, the Permittee may not operate the biomass truck unloading station, biomass storage silo, and biomass transfer system without obtaining a permit amendment in compliance with Minn. R. 7007.1150 through Minn. R. 7007.1500.</p>	<p>Title I Condition: Limit to avoid major modification under 40 CFR Section 52.21; Minn. R. 7007.1150 through Minn. R. 7007.1500</p>
<p>Alternative Biomass Fuel Testing Authorization: The Permittee is authorized to conduct test burns of the following alternative biomass fuels: agricultural crops; herbs, nuts, by-products or waste; vegetable oils, by-products or waste; crop field residue or field processing by-products; shells, husks, seed, dust, screenings and other agricultural by-products; cultivated grasses or grass by-products; wood, wood waste including wood processing by-products; and leaves. Acceptable biomass fuels do not include peat, wood that has been painted, stained or pressure treated, waste oil, farm chemicals, pesticide containers, demolition waste except for wood, waste from farms from an open dump, tire derived fuels, non-agricultural industrial process wastes, animal manures and wastes, or any material meeting the definition of a hazardous waste.</p>	<p>Minn R. 7007.0800, subp. 2</p>
<p>Alternative Biomass Fuel Testing Restrictions: Test burns for any potential biomass fuel shall be limited to 4,000 tons, no more than 45 days of operation using the fuel, and a test period not to exceed 180 days.</p>	<p>Minn R. 7007.0800, subp. 2</p>
<p>Alternative Biomass Fuel Testing Requirements: Test burns shall be conducted to measure CO, PM, PM10, VOC, HCl, and hexane emissions, to monitor NOx and SO2 emissions, and to determine fuel chlorine content for calculating HCl control efficiency.</p>	<p>Minn R. 7007.0800, subp. 2</p>
<p>Alternative Biomass Fuel Testing Submittals: 30 days prior to testing of a biomass fuel, the Permittee shall submit a written performance test notification and test plan. The test plan shall meet the requirements of Minn. R. 7017.2030 and shall also include the type(s) and estimated amount of biomass to be tested, 2) operating parameters and anticipated fuel mixes during testing for the boiler to be tested, 3) air pollutants that will be monitored and measured during testing, and 4) a testing schedule.</p>	<p>Minn. R. 7017.2030, subp. 1-4; Minn. R. 7017.2018</p>
<p>Alternative Biomass Fuel Testing Notification and Submittals; Pre-Test Meeting: due 7 day before Performance Test Test Report: due 45 days after Performance Test Test Report - Microfiche Copy or CD: due 105 days after Performance Test. The Notification, Test Plan, and Test Report may be submitted in alternative format as allowed by Minn. R. 7017.2018.</p>	<p>Minn. R. 7017.2030, subp. 1-4; Minn. R. 7017.2018 and Minn. R. 7017.2035, subp. 1-2</p>

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-42**

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: EU 006 SG231 - Medium Pressure Package Boiler (new St. Paul boiler)

Associated Items: GP 001 New and modified boilers (annual limits to avoid mod)

GP 002 All steam service facilities steam boilers (HAP and heat input limits)

GP 003 Db Boilers - General and CEMS/COMS requirements

GP 004 Boilers SG231 and SP7 - fuel oil usage limit

SV 005 SG231 - Med. pressure package boiler (new St. Paul boiler)

What to do	Why to do it
EMISSION LIMITS	hdr
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 60.43b(f)
Nitrogen Oxides: less than or equal to 0.20 lbs/million Btu heat input using 30-day Rolling Average as determined by CEMS. Please note the NOx limit at SV005 for EU006 which is more restrictive.	40 CFR Section 60.44b(a); Minn. R. 7011.0565
OPERATIONAL LIMITS	hdr
Sulfur Dioxide: less than or equal to 0.5 percent by weight sulfur in fuel oil; percent reduction requirement of 40 CFR Section 60.42b(a) does not apply to this emission unit.	40 CFR Section 60.42b(j); most stringent, meets limit set by 40 CFR Section 60.42b(a) for fuel oil
The opacity standard applies at all times, except during periods of startup, shutdown or malfunction.	40 CFR Section 60.43b(g)
Opacity CEMS: The owner or operator shall install, calibrate, maintain, and operate a continuous opacity monitoring system (COMS).	40 CFR Section 60.48b(a)
Opacity Compliance: Demonstrate compliance with opacity standards using Reference Method 9.	40 CFR Section 60.11; Minn. R. 7017.2015, subp. 2(B)
Nitrogen Oxides: emission rate shall be determined by the NOx CEMS as a 30-day rolling average.	40 CFR Section 60.43b(i); Minn. R. 7011.0565
Nitrogen Oxides: The NOx standards apply at all times including periods of startup, shutdown, and malfunction.	40 CFR Section 60.44b(h)
Nitrogen Oxides CEMS: The owner or operator shall install, calibrate, maintain, and operate a continuous monitoring system for NOx.	40 CFR Section 60.48b(b)
Fuel type: No. 2 fuel oil and natural gas only.	Minn. R. 7005.0100, subp. 35a
RECORDKEEPING AND REPORTING	hdr
Recordkeeping: For each emission unit, maintain records of the type and amount of fuel combusted each day; calculate the annual capacity factor for each fuel for each calendar quarter.	40 CFR Section 60.49b(d); Minn. R. 7011.0565; Minn. R. 7019.0100, subp. 1
Recordkeeping for Sulfur Dioxide: The Permittee shall obtain and maintain at the facility fuel receipts from the fuel supplier which certify that fuel oil meets the definition of very low sulfur fuel oil (less than or equal to 0.5% sulfur by weight).	40 CFR Section 60.49b(r); Minn. R. 7011.0565
Records of Startup, Shutdown, or Malfunction: Any owner or operator subject to the provisions of this part shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative.	40 CFR Section 60.7(b); Minn. R. 7019.0100, subp. 1
Recordkeeping: Maintain a file of all measurements, maintenance, reports and records for at least five years.	40 CFR Section 60.7(f); Minn. R. 7019.0100, subp. 1
NOTIFICATIONS	hdr
Notification of Anticipated Date for Conducting Opacity Observations: due 30 day prior to observation date	40 CFR Section 60.7(a)(4); Minn. R. 7019.0100, subp. 1
Notification of any physical or operational change which increases emission rate: due 60 days (or as soon as practical) before the change is commenced, unless specifically exempted under an applicable subpart or in section 60.14(e).	40 CFR Section 60.7(a)(4); Minn. R. 7019.0100, subp. 1
No owner or operator shall build, erect, install, or use any article, machine, equipment or process, the use of which conceals an emission which would otherwise constitute a violation of an applicable standard.	40 CFR Section 60.12; Minn. R. 7011.0050
PERFORMANCE TESTING	hdr
See SV005 requirements.	Minn. R. 7017.2020, subp. 1

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-43**

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: EU 007 SP1 - Pulverized Coal Boiler**Associated Items:** CE 006 Centrifugal Collector - Medium Efficiency

CE 007 Fabric Filter - High Temperature, i.e., T>250 Degrees F

GP 002 All steam service facilities steam boilers (HAP and heat input limits)

GP 006 COMS req'd by state rule: St. Paul Plant Boilers and SE Plant Boilers

GP 008 Boilers subject to coal sampling and analysis

SV 006 SP1/SP2/SP5/SP6 Pulverized coal and spreader stoker boilers

What to do	Why to do it
EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.4 lbs/million Btu heat input	Minn. R. 7011.0510, subp. 1
Opacity: less than or equal to 20 percent opacity , except for one six-minute period per hour of not more than 60% opacity.	Minn. R. 7011.0510, subp. 2
Sulfur Dioxide: less than or equal to the amount allowed by the following formula when different fuels are burned simultaneously in any combination: $W = (Y \times A + Z \times B) / (X + Y + Z)$ where: W = the maximum allowable emissions of SO ₂ in lb/MMBtu X = percentage of total heat input from gaseous fossil fuel Y = percentage of total heat input from liquid fossil fuel Z = percentage of total heat input from solid fossil fuel A = the allowable SO ₂ standard for liquid fossil fuels B = the allowable SO ₂ standard for solid fossil fuels (less stringent than SO ₂ limit found under SV006, met by equipment design)	Minn. R. 7011.0505, subp. 3
OPERATIONAL LIMITS	hdr
Fuel type: Bituminous and Subbituminous Coal, No. 2 fuel oil, and natural gas.	Minn. R. 7005.0100, subp. 35a
Combustion of EDTA-type boiler cleaning agents is authorized provided the cleaning agents are generated on site and provide less than 5% of heat input to the emission unit per hour.	Minn. Stat. Section 116.07, subd. 4a; Minn. R. 7007.0800, subp. 2
Combustion of on-specification and off-specification used oil is authorized provided the Permittee meets the requirements of Minn. R. ch. 7045. The Permittee must keep a daily record of the amount of used oil combusted.	Minn. Stat. Section 116.07, subd. 4a; Minn. R. 7007.0800, subp. 2, Minn. R. 7045.0020, subp. 100a; 7045.0125; and 7045.0695
Opacity CEMS: The owner or operator shall maintain and operate a COMS on SV006 to measure opacity emissions from the emission unit.	Minn. R. 7017.1006
Sulfur Dioxide: Determine the average SO ₂ emissions by collecting coal samples in an as-fired condition at the inlet to the steam-generating unit using the coal sampling procedures specified in GP008 of this permit. Analyze them for sulfur content and heating value, and maintain fuel oil supplier receipts according to the procedures specified in this permit.	Minn. R. 7009.0020
POLLUTION CONTROL EQUIPMENT	hdr
Operate and maintain CE007 (high temp. fabric filter) and CE006 (med. efficiency centrifugal collector) at all times that any emission unit controlled by the fabric filter is in operation. The fabric filter shall be operated in accordance with the requirements of CE007.	Minn. R. 7007.0800, subp. 2 and 14
PERFORMANCE TESTING	hdr
See SV006 requirements.	Minn. R. 7017.2020, subp. 1

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-44**

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: EU 008 SP2 - Pulverized Coal Boiler

Associated Items: CE 007 Fabric Filter - High Temperature, i.e., T>250 Degrees F
 CE 041 Centrifugal Collector - Medium Efficiency
 GP 002 All steam service facilities steam boilers (HAP and heat input limits)
 GP 006 COMS req'd by state rule: St. Paul Plant Boilers and SE Plant Boilers
 GP 008 Boilers subject to coal sampling and analysis
 SV 006 SP1/SP2/SP5/SP6 Pulverized coal and spreader stoker boilers

What to do	Why to do it
EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.4 lbs/million Btu heat input	Minn. R. 7011.0510, subp. 1
Opacity: less than or equal to 20 percent opacity , except for one six-minute period per hour of not more than 60% opacity.	Minn. R. 7011.0510, subp. 2
Sulfur Dioxide: less than or equal to the amount allowed by the following formula when different fuels are burned simultaneously in any combination: $W = (Y \times A + Z \times B) / (X + Y + Z)$ where: W = the maximum allowable emissions of SO ₂ in lb/MMBtu X = percentage of total heat input from gaseous fossil fuel Y = percentage of total heat input from liquid fossil fuel Z = percentage of total heat input from solid fossil fuel A = the allowable SO ₂ standard for liquid fossil fuels B = the allowable SO ₂ standard for solid fossil fuels (less stringent than SO ₂ limit found under SV006, met by equipment design)	Minn. R. 7011.0505, subp. 3
OPERATIONAL LIMITS	hdr
Fuel type: Bituminous and Subbituminous Coal, No. 2 fuel oil, and natural gas.	Minn. R. 7005.0100, subp. 35a
Combustion of EDTA-type boiler cleaning agents is authorized provided the cleaning agents are generated on site and provide less than 5% of heat input to the emission unit per hour.	Minn. Stat. Section 116.07, subd. 4a; Minn. R. 7007.0800, subp. 2
Combustion of on-specification and off-specification used oil is authorized provided the Permittee meets the requirements of Minn. R. ch. 7045. The Permittee must keep a daily record of the amount of used oil combusted.	Minn. Stat. Section 116.07, subd. 4a; Minn. R. 7007.0800, subp. 2, Minn. R. 7045.0020, subp. 100a; 7045.0125; and 7045.0695
Opacity CEMS: The owner or operator shall maintain and operate a COMS on SV006 to measure opacity emissions from the emission unit.	Minn. R. 7017.1006
Sulfur Dioxide: Determine the average SO ₂ emissions by collecting coal samples in an as-fired condition at the inlet to the steam-generating unit using the coal sampling procedures specified in GP008 of this permit. Analyze them for sulfur content and heating value, and maintain fuel oil supplier receipts according to the procedures specified in this permit.	Minn. R. 7009.0020
POLLUTION CONTROL EQUIPMENT	hdr
Operate and maintain CE007 (high temp. fabric filter) and CE006 (med. efficiency centrifugal collector) at all times that any emission unit controlled by the fabric filter is in operation. The fabric filter shall be operated in accordance with the requirements of CE007.	Minn. R. 7007.0800, subp. 2 and 14
PERFORMANCE TESTING	hdr
See SV006 requirements.	Minn. R. 7017.2020, subp. 1

TABLE A: LIMITS AND OTHER REQUIREMENTS

A-45

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: EU 009 SP5 - Spreader Stoker Boiler

Associated Items: CE 021 Fabric Filter - High Temperature, i.e., T>250 Degrees F
 CE 042 Centrifugal Collector - Medium Efficiency
 GP 002 All steam service facilities steam boilers (HAP and heat input limits)
 GP 006 COMS req'd by state rule: St. Paul Plant Boilers and SE Plant Boilers
 GP 008 Boilers subject to coal sampling and analysis
 SV 006 SP1/SP2/SP5/SP6 Pulverized coal and spreader stoker boilers

What to do	Why to do it
EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.4 lbs/million Btu heat input	Minn. R. 7011.0510, subp. 1
Opacity: less than or equal to 20 percent opacity , except for one six-minute period per hour of not more than 60% opacity.	Minn. R. 7011.0510, subp. 2
Sulfur Dioxide: less than or equal to the amount allowed by the following formula when different fuels are burned simultaneously in any combination: $W = (Y \times A + Z \times B) / (X + Y + Z)$ where: W = the maximum allowable emissions of SO ₂ in lb/MMBtu X = percentage of total heat input from gaseous fossil fuel Y = percentage of total heat input from liquid fossil fuel Z = percentage of total heat input from solid fossil fuel A = the allowable SO ₂ standard for liquid fossil fuels B = the allowable SO ₂ standard for solid fossil fuels (less stringent than SO ₂ limit found under SV006, met by equipment design)	Minn. R. 7011.0505, subp. 3
OPERATIONAL LIMITS	hdr
Fuel type: Bituminous and Subbituminous Coal, No. 2 fuel oil, and natural gas.	Minn. R. 7005.0100, subp. 35a
Combustion of EDTA-type boiler cleaning agents is authorized provided the cleaning agents are generated on site and provide less than 5% of heat input to the emission unit per hour.	Minn. Stat. Section 116.07, subd. 4a; Minn. R. 7007.0800, subp. 2
Combustion of on-specification and off-specification used oil is authorized provided the Permittee meets the requirements of Minn. R. ch. 7045. The Permittee must keep a daily record of the amount of used oil combusted.	Minn. Stat. Section 116.07, subd. 4a; Minn. R. 7007.0800, subp. 2, Minn. R. 7045.0020, subp. 100a; 7045.0125; and 7045.0695
Opacity CEMS: The owner or operator shall maintain and operate a COMS on SV006 to measure opacity emissions from the emission unit.	Minn. R. 7017.1006
Sulfur Dioxide: Determine the average SO ₂ emissions by collecting coal samples in an as-fired condition at the inlet to the steam-generating unit using the coal sampling procedures specified in GP008 of this permit. Analyze them for sulfur content and heating value, and maintain fuel oil supplier receipts according to the procedures specified in this permit.	Minn. R. 7009.0020
POLLUTION CONTROL EQUIPMENT	hdr
Operate and maintain CE021 (high temp. fabric filter) and CE006 (med. efficiency centrifugal scrubber) at all times that any emission unit controlled by the fabric filter is in operation. The fabric filter shall be operated in accordance with the requirements of CE021.	Minn. R. 7007.0800, subp. 2 and 14
PERFORMANCE TESTING	hdr
See SV005 requirements.	Minn. R. 7017.2020, subp. 1

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-46**

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: EU 010 SP6 - Spreader Stoker Boiler

Associated Items: CE 022 Fabric Filter - High Temperature, i.e., T>250 Degrees F
 CE 043 Centrifugal Collector - Medium Efficiency
 GP 002 All steam service facilities steam boilers (HAP and heat input limits)
 GP 006 COMS req'd by state rule: St. Paul Plant Boilers and SE Plant Boilers
 GP 008 Boilers subject to coal sampling and analysis
 SV 006 SP1/SP2/SP5/SP6 Pulverized coal and spreader stoker boilers

What to do	Why to do it
EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.4 lbs/million Btu heat input	Minn. R. 7011.0510, subp. 1
Opacity: less than or equal to 20 percent opacity , except for one six-minute period per hour of not more than 60% opacity.	Minn. R. 7011.0510, subp. 2
Sulfur Dioxide: less than or equal to the amount allowed by the following formula when different fuels are burned simultaneously in any combination: $W = (Y \times A + Z \times B) / (X + Y + Z)$ where: W = the maximum allowable emissions of SO ₂ in lb/MMBtu X = percentage of total heat input from gaseous fossil fuel Y = percentage of total heat input from liquid fossil fuel Z = percentage of total heat input from solid fossil fuel A = the allowable SO ₂ standard for liquid fossil fuels B = the allowable SO ₂ standard for solid fossil fuels (less stringent than SO ₂ limit found under SV006, met by equipment design)	Minn. R. 7011.0505, subp. 3
OPERATIONAL LIMITS	hdr
Fuel type: Bituminous and Subbituminous Coal, No. 2 fuel oil, and natural gas.	Minn. R. 7005.0100, subp. 35a
Combustion of EDTA-type boiler cleaning agents is authorized provided the cleaning agents are generated on site and provide less than 5% of heat input to the emission unit per hour.	Minn. Stat. Section 116.07, subd. 4a; Minn. R. 7007.0800, subp. 2
Combustion of on-specification and off-specification used oil is authorized provided the Permittee meets the requirements of Minn. R. ch. 7045. The Permittee must keep a daily record of the amount of used oil combusted.	Minn. Stat. Section 116.07, subd. 4a; Minn. R. 7007.0800, subp. 2, Minn. R. 7045.0020, subp. 100a; 7045.0125; and 7045.0695
Opacity CEMS: The owner or operator shall maintain and operate a COMS on SV006 to measure opacity emissions from the stack.	Minn. R. 7017.1006
Sulfur Dioxide: Determine the average SO ₂ emissions by collecting coal samples in an as-fired condition at the inlet to the steam-generating unit using the coal sampling procedures specified in GP008 of this permit. Analyze them for sulfur content and heating value, and maintain fuel oil supplier receipts according to the procedures specified in this permit.	Minn. R. 7009.0020
POLLUTION CONTROL EQUIPMENT	hdr
Operate and maintain CE022 (high temp. fabric filter) and CE006 (med. efficiency centrifugal collector) at all times that any emission unit controlled by the fabric filter is in operation. The fabric filter shall be operated in accordance with the requirements of CE022.	Minn. R. 7007.0800, subp. 2 and 14
PERFORMANCE TESTING	hdr
See SV006 requirements.	Minn. R. 7017.2020, subp. 1

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-47**

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: EU 011 SP7 - Oil/Gas Package Boiler**Associated Items:** GP 002 All steam service facilities steam boilers (HAP and heat input limits)

GP 004 Boilers SG231 and SP7 - fuel oil usage limit

GP 006 COMS req'd by state rule: St. Paul Plant Boilers and SE Plant Boilers

SV 007 SP7 - Oil/Gas Package Boiler

What to do	Why to do it
EMISSION LIMITS	hdr
Opacity: less than or equal to 20 percent opacity (six-minute average) when combusting oil; except for one (1) six-minute period per hour of not more than 27% opacity.	40 CFR Section 60.43c(c); Minn. R. 7011.0570
The opacity standard applies at all times, except during periods of startup, shutdown or malfunction.	40 CFR Section 60.43c(d); Minn. R. 7011.0570
OPERATIONAL LIMITS	hdr
Fuel type: Distillate fuel oil (No. 2 fuel oil), and natural gas.	Minn. R. 7005.0100, subp. 35a
Fuel Heat Input: less than or equal to 99 million Btu/hour	Title I Condition: limit to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.3000
Maximum Distillate Oil Fuel Usage: less than or equal to 1151600 gallons/year using 12-month Rolling Sum	Title I Condition: limit to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.3000
Maximum Natural Gas Fuel Usage: less than or equal to 563 million cubic feet/year using 12-month Rolling Sum	Title I Condition: limit to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.3000
Fuel Usage: less than or equal to 1147600 gallons/year using 12-month Rolling Sum for distillate oil and less than or equal to 405.5 million cubic feet using a 12-month rolling period for natural gas. For every 1000 gallons distillate oil used in excess of the limit above, the limit on natural gas is reduced by 114.1 million cubic feet. For every 1 million cubic feet natural gas used in excess of the limit above, the limit on distillate oil use is reduced by 7300 gallons.	Title I Condition: limit to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.3000
Sulfur Dioxide: less than or equal to 0.5 percent by weight sulfur in fuel oil.	40 CFR Section 60.42c(d); Minn. R. 7011.0570
Sulfur Dioxide: The SO ₂ standard applies at all times including startup, shutdown or malfunction.	40 CFR Section 60.42c(i); Minn. R. 7011.0570
CONTINUOUS OPACITY MONITORING SYSTEM (COMS)	hdr
Emissions Monitoring: The owner or operator shall use a COMS to measure opacity emissions from SV007 (See requirements for COMS under GP006).	Minn. R. 7017.1006, subp. 1
RECORDKEEPING	hdr
Maintain records of the type and amount of each fuel combusted each day. Calculate the 12-month rolling sum each calendar month for each fuel type.	40 CFR Section 60.48c(g); Minn. R. 7011.0570
Recordkeeping: maintain records of the type and amount of each fuel combusted each day. Calculate the 12-month rolling sum each calendar month for each fuel type.	40 CFR Section 60.48c(g); Minn. R. 7011.0570
Sulfur Dioxide: The Permittees shall obtain and maintain at the facility records of fuel supplier certifications. The certifications shall include the following information: 1. The name of the fuel supplier; 2. A statement from the supplier that the fuel oil meets the definition of distillate oil in 40 CFR Section 60.41c.	40 CFR Section 60.48c(f)(1); 40 CFR Section 60.44c(h); Minn. R. 7011.0570
PERFORMANCE TESTING	hdr
See SV006 requirements.	Minn. R. 7017.2020, subp. 1

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-48**

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: EU 014 Diesel 1 - 1800 rpm Generator; 6 Cylinder in Line; 4 Cycles, Turbo St. Paul Plant**Associated Items:** SV 010 Diesel 1 - 1800 rpm GEN Turbo SP Plant

What to do	Why to do it
OPERATIONAL LIMITS	hdr
Operating Hours: less than or equal to 300 hours/year using 12-month Rolling Sum to be calculated by the 15th day of each month.	Title I Condition: to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.3000
EMISSION LIMITS	hdr
Opacity: less than or equal to 20 percent opacity once operating temperatures have been attained.	Minn. R. 7011.2300, subp. 1
Sulfur Dioxide: less than or equal to 0.5 lbs/million Btu heat input	Minn. R. 7011.2300, subp. 2
RECORDKEEPING REQUIREMENTS	hdr
Maintain records of the hours of operation for each calendar month and a record of the 12-month rolling sum of hours of operation.	Title I Condition: to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.3000
Fuel Oil Sulfur Content Certification: Obtain and maintain at the facility fuel receipts from the fuel supplier which certify the sulfur content of the fuel does not exceed 0.5% by weight. Records shall be maintained for 5 years.	Minn. R. 7007.0800, subps. 4 & 5

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-49**

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: EU 015 Diesel 2 - 1800 rpm Generator; 8 Cylinder V; 4 Cycles, Turbo**Associated Items:** SV 011 Diesel 2 - 1800 rpm GEN Turbo

What to do	Why to do it
OPERATIONAL LIMITS	hdr
Operating Hours: less than or equal to 300 hours/year using 12-month Rolling Sum to be calculated by the 15th day of each month.	Title I Condition: to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.3000
EMISSION LIMITS	hdr
Opacity: less than or equal to 20 percent opacity once operating temperatures have been attained.	Minn. R. 7011.2300, subp. 1
Sulfur Dioxide: less than or equal to 0.5 lbs/million Btu heat input	Minn. R. 7011.2300, subp. 2
RECORDKEEPING REQUIREMENTS	hdr
Maintain records of the hours of operation for each calendar month and a record of the 12-month rolling sum of hours of operation.	Title I Condition: to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.3000
Fuel Oil Sulfur Content Certification: Obtain and maintain at the facility fuel receipts from the fuel supplier which certify the sulfur content of the fuel does not exceed 0.5% by weight. Records shall be maintained for 5 years.	Minn. R. 7007.0800, subps. 4 & 5

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-50**

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: EU 016 Diesel 3 - 1800 rpm; 6 Cylinder in Line; 4 Cycles SE Fire Pump**Associated Items:** SV 012 Diesel 3 - 1800 rpm GEN Fire pump

What to do	Why to do it
OPERATIONAL LIMITS	hdr
Operating Hours: less than or equal to 300 hours/year using 12-month Rolling Sum to be calculated by the 15th day of each month.	Title I Condition: to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.3000
EMISSION LIMITS	hdr
Opacity: less than or equal to 20 percent opacity once operating temperatures have been attained.	Minn. R. 7011.2300, subp. 1
Sulfur Dioxide: less than or equal to 0.5 lbs/million Btu heat input as determined by vendor certification of fuel oil sulfur content.	Minn. R. 7011.2300, subp. 2
RECORDKEEPING REQUIREMENTS	hdr
Maintain records of the hours of operation for each calendar month and a record of the 12-month rolling sum of hours of operation.	Title I Condition: to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.3000
Fuel Oil Sulfur Content Certification: Obtain and maintain at the facility fuel receipts from the fuel supplier which certify the sulfur content of the fuel does not exceed 0.5% by weight. Records shall be maintained for 5 years.	Minn. R. 7007.0800, subps. 4 & 5

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-51**

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: EU 050 160GEN002 - 4th Street Switch**Associated Items:** GP 012 Peaking Unit Generators: Annual Limits to Avoid PSD

SV 039 160GEN002 - 4th Street Switch

What to do	Why to do it
Intercooler Temperature: less than 195 degrees Fahrenheit at all times during emission unit operation.	Title I Condition: limit to avoid classification as a major modification under 40 CFR Section 52.21
Recordkeeping: Maintain records of intercooler temperatures for a period of five years from the date of measurement.	Title I Condition: recordkeeping for limit to avoid classification as a major modification under 40 CFR Section 52.21
Refer to GP012 for further requirements.	hdr

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-52**

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: EU 051 160GEN003 - 4th Street Switch**Associated Items:** GP 012 Peaking Unit Generators: Annual Limits to Avoid PSD

SV 040 160GEN003 - 4th Street Switch

What to do	Why to do it
Intercooler Temperature: less than 195 degrees Fahrenheit at all times during emission unit operation.	Title I Condition: limit to avoid classification as a major modification under 40 CFR Section 52.21
Recordkeeping: Maintain records of intercooler temperatures for a period of five years from the date of measurement.	Title I Condition: recordkeeping for limit to avoid classification as a major modification under 40 CFR Section 52.21
Refer to GP012 for further requirements.	hdr

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-53**

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: EU 139 240-BO-005 Art Building

What to do	Why to do it
EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.4 lbs/million Btu heat input	Minn. R. 7011.0510, subp. 1
Sulfur Dioxide: less than or equal to 1.6 lbs/million Btu heat input	Minn. R. 7011.0510, subp. 1
Opacity: less than or equal to 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity.	Minn. R. 7011.0510, subp. 2
OPERATING CONDITIONS	hdr
Fuel type: Natural gas only.	Minn. R. 7005.0100, subp. 35a

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-54**

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: EU 140 139-BO-001 - Bierman Field Ath

What to do	Why to do it
EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.4 lbs/million Btu heat input	Minn. R. 7011.0510, subp. 1
Sulfur Dioxide: less than or equal to 1.6 lbs/million Btu heat input	Minn. R. 7011.0510, subp. 1
Opacity: less than or equal to 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity.	Minn. R. 7011.0510, subp. 2
OPERATING CONDITIONS	hdr
Fuel type: Natural gas/propane/No. 2 fuel oil only.	Minn. R. 7005.0100, subp. 35a
RECORDINGKEEPING REQUIREMENTS	hdr
Fuel Oil Sulfur Content Certification: Obtain and maintain at the facility fuel receipts from the fuel supplier which certify the sulfur content of the fuel does not exceed 0.5% by weight. Records shall be maintained for 5 years.	Minn. R. 7007.0800, subps. 4 & 5
Fuel type: Natural gas only.	Minn. R. 7005.0100, subp. 35a

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-55**

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: EU 141 139-BO-002 - Bierman Field Ath

What to do	Why to do it
EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.4 lbs/million Btu heat input	Minn. R. 7011.0510, subp. 1
Sulfur Dioxide: less than or equal to 1.6 lbs/million Btu heat input	Minn. R. 7011.0510, subp. 1
Opacity: less than or equal to 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity.	Minn. R. 7011.0510, subp. 2
OPERATING CONDITIONS	hdr
Fuel type: Natural gas only.	Minn. R. 7005.0100, subp. 35a

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-56**

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: EU 143 SE Mpls biomass truck unloading**Associated Items:** CE 039 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

What to do	Why to do it
EMISSION LIMITS	hdr
Opacity: less than or equal to 5% opacity from truck unloading stations, railcar unloading stations, railcar loading stations, and handling operation fugitive emissions.	Minn. R. 7011.1005, subp. 3(A)
Opacity: less than or equal to 10 percent opacity discharged from control equipment.	Minn. R. 7011.1005, subp. 3(D)
Total Particulate Matter: greater than or equal to 80% collection efficiency.	Minn. R. 7011.1005, subp. 3(E)
Particulate Matter < 10 micron: greater than or equal to 89.1 percent control efficiency . The Permittee shall operate and maintain the control equipment such that it achieves an overall control efficiency for PM10 of 89.1 percent. This limit applies to each unit individually.	Minn. R. 7007.0800, subp. 2 and 14
Total Particulate Matter: greater than or equal to 89.1 percent control efficiency . The Permittee shall operate and maintain the control equipment such that it achieves an overall control efficiency for PM of 89.1percent. This limit applies to each unit individually.	Minn. R. 7007.0800, subp. 2 and 14
OPERATING LIMITS	hdr
The Permittee shall clean up commodities (i.e., biomass) spilled on the driveway and other facility property as required to minimize fugitive emissions to a level consistent with RACT (reasonably available control technology).	Minn. R. 7011.1005, subp. 1(A)
Visible Emissions: The Permittee shall check the fabric filter 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 filter, once each day of operation.	Minn. R. 7007.0800, subp. 4 and 5
Pressure Drop: greater than or equal to 2 inches of water column and less than or equal to 6 inches of water column , unless a new range is required to be set pursuant to Minn. R. 7017.2025, subp. 3, based on the values recorded during the most recent MPCA approved performance test where compliance was demonstrated.	Minn. R. 7007.0800, subp. 4 and 5
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.	Minn. R. 7007.0800, subp. 2 and 14
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
REPORTING AND RECORDKEEPING	hdr
Recordkeeping of Visible Emissions and Pressure Drop. The Permittee shall record the time and date of each visible emission inspection and pressure drop reading, and whether or not any visible emissions were observed.	Minn. R. 7007.0800, subp. 4 and 5
NOTIFICATIONS	hdr
Notification of Commence Construction Date and Initial Startup Date: due 30 days after initial startup. The Permittee shall submit the following information with the notification: stack/vent, control equipment, and emissions unit information using the latest MPCA application forms.	Minn. R. 7007.0800, subp. 2

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-57**

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: EU 144 SE Mpls biomass silo and biomass transfer to CFB**Associated Items:** CE 040 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

What to do	Why to do it
EMISSION LIMITS	hdr
Opacity: less than or equal to 5% opacity from truck unloading stations, railcar unloading stations, railcar loading stations, and handling operation fugitive emissions.	Minn. R. 7011.1005, subp. 3(A)
Opacity: less than or equal to 10 percent opacity discharged from control equipment.	Minn. R. 7011.1005, subp. 3(D)
Total Particulate Matter: greater than or equal to 80% collection efficiency.	Minn. R. 7011.1005, subp. 3(E)
Particulate Matter < 10 micron: greater than or equal to 99 percent control efficiency . The Permittee shall operate and maintain the control equipment such that it achieves an overall control efficiency for PM10 of 99 percent. This limit applies to each unit individually.	Minn. R. 7007.0800, subp. 2 and 14
Total Particulate Matter: greater than or equal to 99 percent control efficiency . The Permittee shall operate and maintain the control equipment such that it achieves an overall control efficiency for PM of 99 percent. This limit applies to each unit individually.	Minn. R. 7007.0800, subp. 2 and 14
OPERATING LIMITS	hdr
The Permittee shall clean up commodities (i.e., biomass) spilled on the driveway and other facility property as required to minimize fugitive emissions to a level consistent with RACT (reasonably available control technology).	Minn. R. 7011.1005, subp. 1(A)
Visible Emissions: The Permittee shall check the fabric filter 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 filter, once each day of operation.	Minn. R. 7007.0800, subp. 4 and 5
Pressure Drop: greater than or equal to 2 inches of water column and less than or equal to 6 inches of water column , unless a new range is required to be set pursuant to Minn. R. 7017.2025, subp. 3, based on the values recorded during the most recent MPCA approved performance test where compliance was demonstrated.	Minn. R. 7007.0800, subp. 4 and 5
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.	Minn. R. 7007.0800, subp. 2 and 14
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
REPORTING AND RECORDKEEPING	hdr
Recordkeeping of Visible Emissions and Pressure Drop. The Permittee shall record the time and date of each visible emission inspection and pressure drop reading, and whether or not any visible emissions were observed.	Minn. R. 7007.0800, subp. 4 and 5
NOTIFICATIONS	hdr
Notification of Commence Construction Date and Initial Startup Date: due 30 days after initial startup. The Permittee shall submit the following information with the notification: stack/vent, control equipment, and emissions unit information using the latest MPCA application forms.	Minn. R. 7007.0800, subp. 2

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: University of MN - Twin Cities
Permit Number: 05301050 - 005

Subject Item: EU 156 Cancer/Cardio Boiler 1

Associated Items: SV 088 Cancer/Cardio Boiler 1

What to do	Why to do it
Recordkeeping: By the last day of each calendar month, the Permittee shall record the amount of natural gas combusted in the boilers during the previous calendar month. These records shall consist of purchase records, receipts, or fuel meter readings.	40 CFR Section 60.48c(g); Minn. R. 7011.0570

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-59**

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: EU 157 Cancer/Cardio Boiler 2**Associated Items:** SV 089 Cancer/Cardio Boiler 2

What to do	Why to do it
Recordkeeping: By the last day of each calendar month, the Permittee shall record the amount of natural gas combusted in the boilers during the previous calendar month. These records shall consist of purchase records, receipts, or fuel meter readings.	40 CFR Section 60.48c(g); Minn. R. 7011.0570

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-60**

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: CE 001 Fabric Filter - High Temperature, i.e., T>250 Degrees F**Associated Items:** EU 001 SG201 - Circulating Fluidized Bed Boiler

What to do	Why to do it
Total Particulate Matter: greater than or equal to 99 percent control efficiency . The Permittee shall operate and maintain the control equipment such that it achieves an overall control efficiency for PM of 99 percent.	Title I Condition: Limit taken to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.3000
Particulate Matter < 10 micron: greater than or equal to 99 percent control efficiency . The Permittee shall operate and maintain the control equipment such that it achieves an overall control efficiency for PM10 of 99 percent.	Title I Condition: Limit taken to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.3000
Pressure Drop: greater than or equal to 2 inches of water column and less than or equal to 6 inches of water column , unless a new range is set pursuant to Minn. R. 7017.2025, subp. 3, based on the values recorded during the most recent MPCA approved performance test where compliance was demonstrated.	Title I Condition: Limit taken to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.3000
Calibrate pressure gauge annually and maintain a written record of the calibration and any action resulting from the calibration.	Minn. R. 7007.0800, subp. 2 and 14
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.	Title I Condition: Limit taken to avoid classification as a major source and modification under 40 CFR Section 52.21; to avoid classification as a major source under 40 CFR Section 70.2; Minn. R. 7007.0800, subp. 2 and 14
Recordkeeping of Pressure Drop. The Permittee shall record the time and date of each pressure drop reading and whether or not the recorded pressure drop was within the range specified in this permit.	Title I Condition: Limit taken to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.3000
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

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-61**

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: CE 002 Fabric Filter - Medium Temperature i.e., 180 F<T<250 F**Associated Items:** EU 004 SE3 - Pulverized Coal Boiler

What to do	Why to do it
Total Particulate Matter: greater than or equal to 96 percent control efficiency . The Permittee shall operate and maintain the control equipment such that it achieves an overall control efficiency for PM of 96 percent.	Title I Condition: Limit taken to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.3000
Particulate Matter < 10 micron: greater than or equal to 96 percent control efficiency . The Permittee shall operate and maintain the control equipment such that it achieves an overall control efficiency for PM10 of 96 percent.	Title I Condition: Limit taken to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.3000
Pressure Drop: greater than or equal to 2 inches of water column and less than or equal to 6 inches of water column , unless a new range is set pursuant to Minn. R. 7017.2025, subp. 3, based on the values recorded during the most recent MPCA approved performance test where compliance was demonstrated.	Title I Condition: Limit taken to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.3000
Calibrate pressure gauge annually and maintain a written record of the calibration and any action resulting from the calibration.	Minn. R. 7007.0800, subp. 2 and 14
Recordkeeping of Pressure Drop. The Permittee shall record the time and date of each pressure drop reading and whether or not the recorded pressure drop was within the range specified in this permit.	Title I Condition: Limit taken to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.3000
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.	Title I Condition: Limit taken to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.3000
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

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-62**

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: CE 003 Gas Scrubber (General, Not Classified)**Associated Items:** EU 004 SE3 - Pulverized Coal Boiler

What to do	Why to do it
Sulfur Dioxide: greater than or equal to 70 percent control efficiency . The Permittee shall operate and maintain the control equipment such that it achieves an overall control efficiency for SO2 of 70 percent.	Title I Condition: Limit taken to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.3000
Operational requirement: The Permittee is required to operate the scrubber whenever EU004 is in operation.	Title I Condition: Limit taken to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.3000
Pressure Drop: less than or equal to 2 inches of water column	Title I Condition: Monitoring for limit taken to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.3000
Monitoring and Recordkeeping: The Permittee shall operate the scrubber per manufacturers specifications and the pressure drop range as specified in the Operation and Maintenance (O & M) manual, unless a new pressure drop range is set pursuant to Minn. R. 7017.20205, subp. 3, based on the values recorded during the most recent MPCA-approved performance test where compliance was demonstrated. The Permittee shall record the pressure drop rate once every 24 hours when in operation.	Minn. R. 7007.0800, subp. 4 and 5

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-63**

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: CE 004 Fabric Filter - Medium Temperature i.e., 180 F<T<250 F**Associated Items:** EU 005 SE4 - Spreader Stoker Boiler

What to do	Why to do it
Total Particulate Matter: greater than or equal to 97 percent control efficiency . The Permittee shall operate and maintain the control equipment such that it achieves an overall control efficiency for PM of 97percent.	Title I Condition: Limit taken to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.3000
Particulate Matter < 10 micron: greater than or equal to 99 percent control efficiency . The Permittee shall operate and maintain the control equipment such that it achieves an overall control efficiency for PM10 of 99 percent.	Title I Condition: Limit taken to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.3000
Pressure Drop: greater than or equal to 2 inches of water column and less than or equal to 6 inches of water column , unless a new range is set pursuant to Minn. R. 7017.2025, subp. 3, based on the values recorded during the most recent MPCA approved performance test where compliance was demonstrated.	Title I Condition: Limit taken to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.3000
Calibrate pressure gauge annually and maintain a written record of the calibration and any action resultng from the calibration.	Minn. R. 7007.0800, subp. 2 and 14
Recordkeeping of Pressure Drop. The Permittee shall record the time and date of each pressure drop reading and whether or not the recorded pressure drop was within the range specified in this permit.	Title I Condition: Limit taken to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.3000
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.	Title I Condition: Limit taken to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.3000
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

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-64**

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: CE 005 Gas Scrubber (General, Not Classified)**Associated Items:** EU 005 SE4 - Spreader Stoker Boiler

What to do	Why to do it
Sulfur Dioxide: greater than or equal to 70 percent control efficiency . The Permittee shall operate and maintain the control equipment such that it achieves an overall control efficiency for SO2 of 70 percent.	Title I Condition: Limit taken to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.3000
Operational requirement: The Permittee is required to operate the scrubber whenever EU004 is in operation.	Title I Condition: Limit taken to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.3000
Pressure Drop: less than or equal to 2 inches of water column	Title I Condition: Monitoring for limit taken to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.3000
Monitoring and Recordkeeping: The Permittee shall operate the scrubber per manufacturers specifications and the pressure drop range as specified in the Operation and Maintenance (O & M) manual, unless a new pressure drop range is set pursuant to Minn. R. 7017.20205, subp. 3, based on the values recorded during the most recent MPCA-approved performance test where compliance was demonstrated. The Permittee shall record the pressure drop once every 24 hours when in operation.	Minn. R. 7007.0800, subp. 4 and 5

TABLE A: LIMITS AND OTHER REQUIREMENTS

A-65

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: CE 007 Fabric Filter - High Temperature, i.e., T>250 Degrees F**Associated Items:** EU 007 SP1 - Pulverized Coal Boiler

EU 008 SP2 - Pulverized Coal Boiler

What to do	Why to do it
Total Particulate Matter: greater than or equal to 96 percent control efficiency . The Permittee shall operate and maintain the control equipment such that it achieves an overall control efficiency for PM of 96 percent.	Title I Condition: Limit taken to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.3000
Particulate Matter < 10 micron: greater than or equal to 96 percent control efficiency . The Permittee shall operate and maintain the control equipment such that it achieves an overall control efficiency for PM10 of 96 percent.	Title I Condition: Limit taken to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.3000
Pressure Drop: greater than or equal to 2 inches of water column and less than or equal to 6 inches of water column , unless a new range is set pursuant to Minn. R. 7017.2025, subp. 3, based on the values recorded during the most recent MPCA approved performance test where compliance was demonstrated.	Title I Condition: Limit taken to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.3000
Calibrate pressure gauge annually and maintain a written record of the calibration and any action resulting from the calibration.	Minn. R. 7007.0800, subp. 2 and 14
Recordkeeping of Pressure Drop. The Permittee shall record the time and date of each pressure drop reading and whether or not the recorded pressure drop was within the range specified in this permit.	Title I Condition: Monitoring for Limit taken to avoid classification as a major source and modification under 40 CFR Section 52.21; to avoid classification as a major source under 40 CFR Section 70.2; Minn. R. 7007.0800, subp. 4 and 5
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.	Title I Condition: Limit taken to avoid classification as a major source and modification under 40 CFR Section 52.21; to avoid classification as a major source under 40 CFR Section 70.2; Minn. R. 7007.0800, subp. 2 and 14
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

TABLE A: LIMITS AND OTHER REQUIREMENTS

A-66

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: CE 021 Fabric Filter - High Temperature, i.e., T>250 Degrees F**Associated Items:** EU 009 SP5 - Spreader Stoker Boiler

What to do	Why to do it
Total Particulate Matter: greater than or equal to 97 percent control efficiency . The Permittee shall operate and maintain the control equipment such that it achieves an overall control efficiency for PM of 97 percent.	Title I Condition: Limit taken to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.3000
Particulate Matter < 10 micron: greater than or equal to 97 percent control efficiency . The Permittee shall operate and maintain the control equipment such that it achieves an overall control efficiency for PM10 of 97 percent.	Title I Condition: Limit taken to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.3000
Pressure Drop: greater than or equal to 2 inches of water column and less than or equal to 6 inches of water column , unless a new range is set pursuant to Minn. R. 7017.2025, subp. 3, based on the values recorded during the most recent MPCA approved performance test where compliance was demonstrated.	Title I Condition: Limit taken to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.3000
Calibrate pressure gauge annually and maintain a written record of the calibration and any action resulting from the calibration.	Minn. R. 7007.0800, subp. 2 and 14
Recordkeeping of Pressure Drop. The Permittee shall record the time and date of each pressure drop reading and whether or not the recorded pressure drop was within the range specified in this permit.	Title I Condition: Recordkeeping for limit taken to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.3000
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.	Title I Condition: Monitoring for limit taken to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.3000
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

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-67**

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: CE 022 Fabric Filter - High Temperature, i.e., T>250 Degrees F**Associated Items:** EU 010 SP6 - Spreader Stoker Boiler

What to do	Why to do it
Total Particulate Matter: greater than or equal to 97 percent control efficiency . The Permittee shall operate and maintain the control equipment such that it achieves an overall control efficiency for PM of 97 percent.	Title I Condition: Limit taken to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.3000
Particulate Matter < 10 micron: greater than or equal to 97 percent control efficiency . The Permittee shall operate and maintain the control equipment such that it achieves an overall control efficiency for PM10 of 97 percent.	Title I Condition: Limit taken to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.3000
Pressure Drop: greater than or equal to 2 inches of water column and less than or equal to 6 inches of water column , unless a new range is set pursuant to Minn. R. 7017.2025, subp. 3, based on the values recorded during the most recent MPCA approved performance test where compliance was demonstrated.	Title I Condition: Limit taken to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.3000
Calibrate pressure gauge annually and maintain a written record of the calibration and any action resulting from the calibration.	Minn. R. 7007.0800, subp. 2 and 14
Recordkeeping of Pressure Drop. The Permittee shall record the time and date of each pressure drop reading and whether or not the recorded pressure drop was within the range specified in this permit.	Title I Condition: Recordkeeping for limit taken to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.3000
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.	Title I Condition: Monitoring for limit taken to avoid classification as a major modification under 40 CFR Section 52.21; Minn. R. 7007.3000
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

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-68**

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: CE 039 Fabric Filter - Low Temperature, i.e., T<180 Degrees F**Associated Items:** EU 143 SE Mpls biomass truck unloading

What to do	Why to do it
The Permittee shall operate and maintain the fabric filter at all times that any emission unit controlled by the fabric filter is in operation in accordance with the requirements located within EU143.	Minn. R. 7007.0800, subp. 2 and 14

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-69**

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: CE 040 Fabric Filter - Low Temperature, i.e., T<180 Degrees F**Associated Items:** EU 144 SE Mpls biomass silo and biomass transfer to CFB

What to do	Why to do it
The Permittee shall operate and maintain the fabric filter at all times that any emission unit controlled by the fabric filter is in operation in accordance with the requirements located within EU144.	Minn. R. 7007.0800, subp. 2 and 14

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-70**

06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

Subject Item: FS 001 Southeast Coal and Biomass Bunker**Associated Items:** CE 038 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

GP 007 Low-temperature Fabric Filters (GP009, GP010, FS001)

What to do	Why to do it
OPERATIONAL LIMITS	hdr
Fugitive PM: Maintain shape of pile and apply water to minimize fugitive dust.	Minn. R. 7011.1105, subp. C and F

TABLE B: SUBMITTALS

B-1 06/20/11

Facility Name: University of MN - Twin Cities
Permit Number: 05301050 - 005

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

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

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

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

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

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

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

Send any application for a permit or permit amendment to:

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

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

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

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

TABLE B: ONE TIME SUBMITTALS OR NOTIFICATIONS**B-2** 06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

What to send	When to send	Portion of Facility Affected
Computer Dispersion Modeling Information	due 1096 days after 05/16/2006 . Submit modeling data as specified in MPCA guidance for Modeling Information Requests (for PM10, SO2 and NOx). This modeling information is for data collection purposes, no modeling analysis is required at this time. This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.	Total Facility
Notification of the Date Construction Began	due 30 days after Start Of Construction. This notification shall include the information specified by 40 CFR 60.48c(a)(1)-(3).	EU156, EU157
Relative Accuracy Test Audit (RATA) Notification	due 30 days before CEMS Relative Accuracy Test Audit (RATA)	GP005

TABLE B: RECURRENT SUBMITTALS**B-3** 06/20/11

Facility Name: University of MN - Twin Cities

Permit Number: 05301050 - 005

What to send	When to send	Portion of Facility Affected
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	GP005
Excess Emissions/Downtime Reports (EER's)	due 30 days after end of each calendar quarter following Initial Startup of the Monitor	GP006
Excess Emissions/Downtime Reports (EER's)	due 30 days after end of each calendar quarter following Initial Startup of the Monitor (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.	GP005
Semiannual Deviations Report	due 30 days after end of each calendar half-year starting 05/16/2006 . The first semiannual report submitted by the Permittee shall cover the calendar half-year in which the permit is issued. The first report of each calendar year covers January 1 - June 30. The second report of each calendar year covers July 1 - December 31. If no deviations have occurred, the Permittee shall submit the report stating no deviations.	Total Facility
Compliance Certification	due 31 days after end of each calendar year starting 05/16/2006 (for the previous calendar year). To be submitted on a form approved by the Commissioner, both to the Commissioner and to the US EPA regional office in Chicago. This report covers all deviations experienced during the calendar year.	Total Facility

APPENDIX A

Insignificant Activities and Applicable Requirements

Facility Name: University of Minnesota – Twin Cities

Permit Number: 05301050-005

The table below lists the insignificant activities that are currently at the facility and their associated general applicable requirements.

Under Minn. R. 7007.1250, subp. 1(A), the Permittee may add insignificant activities to the stationary source throughout the term of the permit without getting permit amendments. Certain exclusions apply and are listed in Minn. R. 7007.1250, subp.2. In addition, this permit specifically prohibits the Permittee from making any modifications that would make the source major under NSR. The following table is a listing of the insignificant activities that the Permittee is somewhat likely to add and their associated applicable requirements.

Minn. R. 7007.1300, subpart	Rule Description of the Activity	Applicable Requirement
3(A)	Fuel use: space heaters fueled by, kerosene, natural gas, or propane.	Minn. R. 7011.0510/0515
3(B)	Furnaces, boilers, and incinerators: - Infrared electric ovens	Minn. R. 7011.0105/0110
3(C)	Fabrication operations: equipment used exclusively for forging, pressing, drawing, spinning, or extruding hot metals.	Minn. R. 7011.0710/0715
3(D)	Processing operations: - open tumblers with a batch capacity of 1,000 pounds or less	Minn. R. 7011.0710/0715
3(E)	Storage tanks: 1. Gasoline storage tanks with a combined total tankage capacity of not more than 10,000 gallons; and 2. Non-hazardous air pollutant VOC storage tanks with a combined total tankage capacity of not more than 10,000 gallons of non-hazardous air pollutant VOCs and with a vapor pressure of not more than 1.0 psia at 60 degrees Fahrenheit.	Minn. R. 7011.0710/0715 <i>OR</i> Minn. R. 7011.1505, subp. 2(B)/3(B) <i>or</i> Minn. R. 7011.0105/0110 (<i>if not associated with industrial process per the IPE definition</i>)
3(F)	Cleaning operations: commercial laundries, not including dry cleaners and industrial launderers.	Minn. R. 7011.0105/0110
3(G)	Emissions from a laboratory, as defined in the subpart. <ul style="list-style-type: none"> Animal Waste Treatment Facility Crops Services Building Process Kaufert Forestry Products Research Mechanical Engineering Electric Arcing Research University Laboratories 	Minn. R. 7011.0105; Minn. R. 7011.0510/0515; Minn. R. 7011.0610; Minn. R. 7011.0710/0715
3(H)	Miscellaneous: 1. Equipment used exclusively for packaging lubricants or greases; 2. Equipment used for hydraulic or hydrostatic testing; 3. Brazing, soldering or welding equipment; <ul style="list-style-type: none"> Rarig Theatre MIG Welder Rarig Theater Gas Welder Tedd Mann Concert Hall MIG Welder 4. Blueprint copiers and photographic processes; Three Coffman Studio Photo Developing Rooms 5. Equipment used exclusively for melting or application of wax; Art Department Wax Melting 6. Nonasbestos equipment used exclusively for bonding lining to brake shoes; and 7. Cleaning operations: alkaline/phosphate cleaners and associated cleaners and associated burners.	Minn. R. 7011.0105/0110; Minn. R. 7011.0510/0515; Minn. R. 7011.0610; Minn. R. 7011.0710/0715
3(I)	Individual emissions units at a stationary source, each of which have a potential to emit the following pollutants in amounts less than: 1. 4,000 lbs/year of carbon monoxide; and 2. 2,000 lbs/year each of nitrogen oxide, sulfur dioxide, particulate matter, particulate matter less than ten microns, volatile organic compounds (including hazardous air pollutant-containing VOC), and ozone.	
	<ul style="list-style-type: none"> Blegen and Mayo Building Fire Pumps 	Minn. R. 7011.2300
	<ul style="list-style-type: none"> Coal drop onto storage pile (100 ton/hr) 	Minn. R. 7011.1105

Minn. R. 7007.1300, subpart	Rule Description of the Activity	Applicable Requirement
3(I)	<ul style="list-style-type: none"> • Art Depart. Gas Blast Furnace No. 1 (240-BF-001) • Art Depart. Gas Blast Furnace No. 2 (240-BF-002) • Art Depart. Gas Blast Furnace No. 3 (240-BF-003) • Art Depart. Gas Burn-Out Kiln (240-BK-001) • Art Depart. Gas Indoor Kiln No. 1 (240-IK-001) • Art Depart. Gas Indoor Kiln No. 2 (240-IK-002) • Art Depart. Gas Indoor Kiln No. 3 (240-IK-003) • Art Depart. Gas Indoor Kiln No. 4 (240-IK-004) • Art Depart. Gas Indoor Kiln No. 5 (240-IK-005) • Art Depart. Gas Outdoor Kiln No. 1 (240-OK-001) • Art Depart. Gas Outdoor Kiln No. 2 (240-OK-002) • Art Depart. Gas Outdoor Kiln No. 3 (240-OK-003) • Art Depart. Gas Outdoor Kiln No. 4 (240-OK-004) 	Minn. R. 7011.0610
	<ul style="list-style-type: none"> • Three wet ash truck loading operations (Old and New at SE Plant and St. Paul Plant), each 20 ton/hr capacity and 27% moisture (from AP-42) • Degreaser – Coffman Facilities • Degreaser – Physics Machine Shop • Degreaser – Civil Mineral Engineering • Degreaser – Civ/Min Pavement Lab • Degreaser – FM Zone 1 • Degreaser – FM Zone 3 • Degreaser – Fleet Service (Holman) • Degreaser – Fleet Service (Farm and Grounds) • Degreaser – Physics-Eric Ganz’s Lab • Degreaser – Studio Arts • Degreaser – Mechanical Engineering • Degreaser – Machine Shop 	Minn. R. 7011.0710/0715
	<p>NATURAL GAS EMERGENCY GENERATORS</p> <ul style="list-style-type: none"> • 020GEN001 - Elliot Hall (50 kW) • 028GEN001 - Sanford Hall (25 kW) • 037GEN001 - Appleby Hall (10 kW) • 042GEN001 - Walter Library (30 kW) • 044GEN001 - Shops Building (50 kW) • 049GEN001 - Tate Lab of Physics (45 kW) • 053GEN001 - Northrop Auditorium (75 kW) • 060GEN001 - Vincent Hall (15 kW) • 066GEN001 - Amundson Hall (30 kW) • 107GEN001 - Masonic Cancer Center (80 kW) • 122GEN001 - Kolthoff Hall (75 kW) • 125GEN001 - Shepard Labs (50 kW) • 139GEN001 - Bierman Field Ath. (25 kW) • 158GEN001 - Harvard St. Ramp (55 kW) • 207GEN001 - Willey Hall (70 kW) • 208GEN002 - Middlebrook Hall (25 kW) • 209GEN001 - Rarig Center (45 kW) • 215GEN001 - Ferguson Hall (55 kW) • 322GEN001 - Coffey Hall (15 kW) • 338GEN001 - McNeal Hall (50 kW) • 350GEN001 - Haecker Hall (25 kW) • 357GEN001 - Green Hall (33 kW) • 371GEN001 - Vet. Teaching Hospital (75 kW) • 372GEN001 - Peters Hall (25 kW) • 373GEN001 - St. Paul Central Lib. (75 kW) • 394GEN001 - Alderman Hall (15 kW) • 396GEN001 - Christensen Hall (25 kW) • 412GEN001 - COB (15 kW) • 455GEN001 - Swine Res. Fac. (55 kW) • 463GEN001 - Poultry Teaching (75 kW) 	Minn. R. 7011.2300

Minn. R. 7007.1300, subpart	Rule Description of the Activity	Applicable Requirement
3(I)	DIESEL EMERGENCY GENERATORS <ul style="list-style-type: none"> • 093GEN090 – 1901 University Ave. (75 kW) • 160GEN001 – 4th Street Switch (50 kW) • 205GEN001 – Anderson Hall (30 kW) • 370GEN001 – Greenhouse (50 kW) • 383GEN001 – Bailey Hall (20 kW) 	Minn. R. 7011.2300
	<ul style="list-style-type: none"> • 250 gal diesel tank – Horticul. Res. • 2000 gal diesel tank – Church St. Garage • 550 gal diesel tank – Mgmt/Econ Bldg • 300 gal diesel tank – Transport. Safety • 300 gal diesel tank – Transport. Safety • 200 gal diesel tank – 19th Ave Ramp • 500 gal diesel tank – 21st Ave Ramp • 400 gal diesel tank – Middlebrook • 200 gal diesel tank – Comstock • 550 gal diesel tank – YMCA • 280 gal diesel – Law Utility • 300 gal diesel tank – HHH • 300 gal diesel tank – Anderson Hall • 300 gal diesel tank – CME • 600 gal diesel tank – CME • 1000 gal diesel tank – Elec Engineering • 15,000 gal fuel oil tank – Gould Building • 3000 gal diesel tank – PWB-Unit A (B/C) • 3000 gal diesel tank – PWB-Moos Tower (B/C) • 500 gal diesel tank – Millard-JOML Complex • 265 gal diesel tank – Williamson Hall • 505,000 gal fuel oil 1&2 tank – MPLS Htg Plant-Main • 225,000 gal fuel oil 1&2 tank – MPLS Htg Plant-Main • 10,000 gal fuel oil 1&2 tank – MPLS Htg Plant-S.E. • 20,000 gal diesel tank – Basic Sciences • 6000 gal diesel tank – Telecom. Bldg • 510 gal diesel tank – IWMF • 2000 gal diesel tank – Naval Satellite • 2500 gal diesel tank – MCT Facility • 500 gal diesel tank – Ag Engineering • 160 gal diesel tank – Eng. & Fisheries Lab • 265 gal diesel tank – Student Center • 300 gal diesel tank – Golf Course Tool H • 35,000 gal #2 fuel oil tank – St. Paul Htg Plant • 35,000 gal #2 fuel oil tank – St. Paul Htg Plant • 280 gal diesel tank – Earl Brown Cent • 1500 gal diesel tank – Biol Sci Center • 265 gal diesel tank – Bailey Hall • 7500 gal #2 fuel oil tank – Bruce Publsgh • 6000 gal diesel tank – Farm & Grnds Main • 520,000 gal fuel oil 1&2 tank – St. Paul Htg Plant • 1000 gal diesel tank – Vet Teach Hospt • 1000 gal diesel tank – Lewis Hosp-Animals • Diesel and fuel oil transfer operations 	Minn. R. 7011.0105/0110 or Minn. R. 7011.0710/0715
	<ul style="list-style-type: none"> • 560 gal gasoline tank and transfer – Naval Satellite • 1000 gal gasoline tank and transfer – Golf Course Tool H 	Minn. R. 7011.0105 and Minn. R. 7011.1505 – no requirements apply under these rules

Minn. R. 7007.1300, subpart	Rule Description of the Activity	Applicable Requirement
3(I)	NATURAL GAS BOILERS <ul style="list-style-type: none"> 87-BO-001 – 711 E. River Road (0.3 MM Btu/hr) 88-BO-001 – Torture Treat. Ctr. (0.225 MM Btu/hr) 92-BO-001 – 425 Ontario (1 MM Btu/hr) 141-BO-001 – Oak St. Ramp (1.2 MM Btu/hr) 159-BO-001 – Football Complex (1.438 MM Btu/hr) 159-BO-002 – Football Complex (1.438 MM Btu/hr) 160-BO-001 – 4th Street Switch (0.472 MM Btu/hr) 160-BO-002 – 4th Street Switch Unit Heater (0.131 MM Btu/hr) 160-BO-003 – 4th Street Switch Unit Heater (0.131 MM Btu/hr) 160-BO-004 – 4th Street Switch Unit Heater (0.131 MM Btu/hr) 160-BO-005 – 4th Street Switch Unit Heater (0.131 MM Btu/hr) 184-BO-001 – Network/Telecom (1.043 MM Btu/hr) 240-BO-001 – Art Building (0.5 MM Btu/hr) 240-BO-002 – Art Building (0.4 MM Btu/hr) 240-BO-003 – Art Building (0.4 MM Btu/hr) 240-BO-004 – Art Building (0.165 MM Btu/hr) 349-BO-001 – Golf Maintenance (0.15 MM Btu/hr) 353-BO-001 – KOUM Transmitter (0.248 MM Btu/hr) 354-BO-001 – Golf Club House (1 MM Btu/hr) 384-BO-001 – Commonwealth #1 (0.167 MM Btu/hr) 384-BO-002 – Commonwealth #2 (0.167 MM Btu/hr) 384-BO-003 – Commonwealth #3 (0.167 MM Btu/hr) 384-BO-004 – Commonwealth #4 (0.167 MM Btu/hr) 384-BO-005 – Commonwealth #5 (0.167 MM Btu/hr) 384-BO-006 – Commonwealth #6 (0.167 MM Btu/hr) 384-BO-007 – Commonwealth #7 (0.167 MM Btu/hr) 384-BO-008 – Commonwealth #8 (0.167 MM Btu/hr) 384-BO-009 – Commonwealth #9 (0.167 MM Btu/hr) 384-BO-010 – Commonwealth #25 (0.167 MM Btu/hr) 384-BO-011 – Commonwealth #26 (0.167 MM Btu/hr) 384-BO-012 – Commonwealth #27 (0.167 MM Btu/hr) 384-BO-013 – Commonwealth #28 (0.167 MM Btu/hr) 384-BO-014 – Commonwealth #29 (0.167 MM Btu/hr) 384-BO-015 – Commonwealth #30 (0.167 MM Btu/hr) 384-BO-016 – Commonwealth #45 (0.167 MM Btu/hr) 384-BO-017 – Commonwealth #46 (0.167 MM Btu/hr) 384-BO-018 – Commonwealth #47 (0.167 MM Btu/hr) 384-BO-019 – Commonwealth #48 (0.167 MM Btu/hr) 384-BO-020 – Commonwealth #49 (0.167 MM Btu/hr) 384-BO-021 – Commonwealth #10 (0.91 MM Btu/hr) 384-BO-022 – Commonwealth #16 (0.91 MM Btu/hr) 384-BO-023 – Commonwealth #17 (0.91 MM Btu/hr) 384-BO-024 – Commonwealth #22 (0.91 MM Btu/hr) 384-BO-025 – Commonwealth #24 (0.91 MM Btu/hr) 384-BO-026 – Commonwealth #31 (0.91 MM Btu/hr) 384-BO-027 – Commonwealth #32 (0.91 MM Btu/hr) 384-BO-028 – Commonwealth #35 (0.91 MM Btu/hr) 384-BO-029 – Commonwealth #37 (0.91 MM Btu/hr) 384-BO-030 – Commonwealth #39 (0.91 MM Btu/hr) 384-BO-031 – Commonwealth #42 (0.91 MM Btu/hr) 384-BO-032 – Commonwealth #44 (0.91 MM Btu/hr) 384-BO-033 – Commonwealth #50 (0.91 MM Btu/hr) 384-BO-034 – Commonwealth #57 (0.91 MM Btu/hr) 384-BO-035 – Commonwealth #57 (0.91 MM Btu/hr) 384-BO-036 – Commonwealth #13 (0.78 MM Btu/hr) 384-BO-037 – Commonwealth #20 (0.78 MM Btu/hr) 384-BO-038 – Commonwealth #55 (0.167 MM Btu/hr) 384-BO-039 – Commonwealth #55 (0.167 MM Btu/hr) 384-BO-040 – Commonwealth #52,51 (1.56 MM Btu/hr) 384-BO-041 – Commonwealth #18 (0.125 MM Btu/hr) 	Minn. R. 7011.0510/0515
3(J)	Fugitive Emissions from roads and parking lots.	Minn. R. 7011.0150
3(K)	- Infrequent use of spray paint equipment for routine housekeeping or plant upkeep activities not associated with primary production processes at the stationary source, such as spray painting of buildings, machinery, vehicles, and other supporting equipment. - St. Paul Paint Shop	Minn. R. 7011.0710/0715

Insignificant Activities Required to Be Listed for Part 70 sources

Minn. R. 7007.1300, subpart	Rule Description of the Activity	Applicable Requirement
4	<p>Individual emissions units at a stationary source, each of which has:</p> <p>A. Potential emissions of 5.7 pounds per hour or actual emissions of two tons per year of carbon monoxide;</p> <p>B. Potential emissions of 2.28 pounds per hour or actual emissions of one ton per year for particulate matter, particulate matter less than ten microns, nitrogen oxide, sulfur dioxide, and VOCs; and</p> <p>C. For hazardous air pollutants, emissions units with:</p> <ol style="list-style-type: none"> 1. Potential emissions of 25 percent or less of the hazardous air pollutant thresholds listed in subp. 5; or 2. Combined HAP actual emissions of one ton per year unless the emissions unit emits one or more of the HAPs listed in this subpart. 	
	<ul style="list-style-type: none"> • 2500 gal IWMF waste solvent storage tank No. 1 • 2500 gal IWMF waste solvent storage tank No. 2 • 2500 gal IWMF waste solvent storage tank No. 3 • IWMF Distillation – Walk-in Hood • IWMF Distillation – Bench Top Hood • IWMF Transfer Operations • Rarig Theatre Spray Painting • Tedd Mann Concert Hall Spray Gun • Coffman Studio Screen Printing Operation 	Minn. R. 7011.0710/0715
	<ul style="list-style-type: none"> • 10,000 gal gasoline tank and transfer – Holman Bldg • 6000 gal gasoline tank and transfer – Farm & Grnds Main 	Minn. R. 7011.1505
	<p>SMALL ENGINE DIESEL EMERGENCY GENERATORS (EU074-EU103)</p> <ul style="list-style-type: none"> • 063GEN001 – Comstock Hall (200 kW) • 064GEN001 – Coffman (400 kW) • 079GEN001 – Lyon Labs (200 kW) • 144GEN001 – Phillips-Wang. Bldg. (250 kW) • 144GEN090 – Phillips-Wang. Bldg. (250 kW) • 152GEN001 – Williamson Hall (180 kW) • 156GEN001 – Civ. And Min. Eng. Blg (300 kW) • 161GEN090 – Telecomm. Building (375 kW) • 161GEN091 – Telecomm. Building Portable Generator (80 kW) • 161GEN092 – Telecomm. Building Portable Generator (80 kW) • 161GEN093 – Telecomm. Building Portable Generator (80 kW) • 163GEN001 – Church St. Garage (125 kW) • 167GEN001 – Aquatic Center (230 kW) • 181GEN001 – Ridder Arena (150 kW) • 188GEN001 – University Ramp (Gateway) (130 kW) • 201GEN001 – Management and Econ. (125 kW) • 211GEN001 – Law Building (200 kW) • 214GEN001 – West Bank Ramp (125 kW) • 216GEN001 – Humphrey Center (100 kW) • 241GEN001 – Art Building (150 kW) • 334GEN001 – Ag. Eng. Bldg. (180 kW) • 376GEN001 – Student Center (75 kW) • 411GEN001 – Biol. Sciences (& FP) (375 kW) • 420GEN001 – Brown Cont. Ed. Ctr (90 kW) • 427GEN001 – Vet. Teaching Hospital (350 kW) • 438GEN001 – Ecology Building (300 kW) • 483GEN001 – Gortner Avenue Ramp (100 kW) • ELECGEN003 – Portable Generator (250 kW) • ELECGEN004 – Portable Generator (115 kW) • ELECGEN005 – Portable Generator (55 kW) 	<p>Minn. R. 7011.2300; Minn. R. 7007.0800, subp. 2; Minn. R. 7007.0800, subp. 5 (annual hours of operation recorded and available upon request)</p>

Minn. R. 7007.1300, subpart	Rule Description of the Activity	Applicable Requirement
4	NATURAL GAS EMERGENCY GENERATORS (EU114-EU138) <ul style="list-style-type: none"> • 035GEN001 – Smith Hall (190 kW) • 052GEN001 – Pioneer Hall (75 kW) • 068GEN001 – Centennial Hall (115 kW) • 069GEN001 – Variety Club Res. Ctr (150 kW) • 070GEN001 – Boynton Health Serv. (130 kW) • 074GEN001 – Mayo & Add. (B10) (170 kW) • 074GEN002 – Mayo & Add. (B155) (100 kW) • 074GEN003 – Mayo & Add. (L350) (170 kW) • 074GEN004 – Mayo & Add. (B700-C) (355 kW) • 074GEN005 – Mayo & Add. (B700-B) (170 kW) • 074GEN006 – Mayo & Add. (b700-A) (170 kW) • 074GEN007 – Mayo & Add. (G265) (250 kW) • 074GEN090 – Mayo & Add. (250 kW) • 110GEN001 – Frontier Hall (80 kW) • 115GEN001 – Children's Rehab Center (170 kW) • 141GEN001 – Oak St. Ramp (150 kW) • 202GEN001 – Social Science (250 kW) • 204GEN001 – Wilson Library (200 kW) • 208GEN003 – Middlebrook Hall (85 kW) • 265GEN002 – Mechanical Engineering (255 kW) • 385AGEN001 – Vet. Med. Diagnostic (100 kW) • 393GEN001 – Hodson Hall (115 kW) • 413GEN001 – Andrew Boss Lab (100 kW) • 416GEN001 – Animal Sci./Vet. Med. (250 kW) • 426GEN001 – Voc. and Tech. Ed. (170 kW) 	Minn. R. 7011.2300; Minn. R. 7007.0800, subp. 2; Minn. R. 7007.0800, subp. 5 (annual hours of operation recorded and available upon request)
	NATURAL GAS BOILERS (EU 139-141, EU 156-157) <ul style="list-style-type: none"> • 240-BO-005 – Art Building (2.86 MM Btu/hr) • 139-BO-001 – Bierman Field Ath. (9.8 MM Btu/hr) • 139-BO-002 – Bierman Field Ath. (9.8 MM Btu/hr) • EU 156 – Cancer Cardio Boiler 1 (11 MM Btu/hr) • EU 157 – Cancer Cardio Boiler 2 (11 MM Btu/hr) 	Minn. R. 7011.0105; Minn. R. 7011.0510/0515; Minn. R. 7007.0800, subp. 2; Minn. R. 7007.0800, subp. 5 (annual hours of operation recorded and available upon request)
	INTEGRATED WASTE MANAGEMENT FACILITY 177-EF-14 – Transfer Operation	Minn. R. 7011.0105; Minn. R. 7011.0710/0715 (carbon tetrachloride lab packed and, therefore, not processed in IWMF)

Conditionally Insignificant Activities

	Rule Description of the Activity	Applicable Requirement
Minn. R. 7008.4110	Emissions from equipment venting particulate matter (PM) or particulate matter less than 10 microns (PM-10) inside a building, provided that emissions from the equipment are: a). filtered through an air cleaning system; and b). vented inside of the building 100% of the time. <ul style="list-style-type: none"> • Art Department Woodworking • Architecture Woodworking Shop • Weisman Woodworking 	Minn. R. 7011.0710/0715

APPENDIX B

Parameters Used in Air Dispersion Modeling Analysis

Facility Name: University of Minnesota – Twin Cities
Permit Number: 05301050-005

SUMMARY OF STACK PARAMETERS FOR MODELING INPUT
[from Second Supplement to AEPA, Table V-15, p.5-30, Record 013]
(and based on FW Memo to MPCA dated 5/5/98 as part of revised modeling for PM10)

Source ID	EU #	Stack UTM coordinates		Base Elevation	Stack Height	Stack Temp	Exit Velocity	Stack Diameter
		East (m)	West (m)	(m)	(m)	(K)	(m/sec)	(m)
SV001 (ST#101)	EU 001	480299.9	4980665.1	235.66	80.42	422.0	2.77	4.27
SV002 (ST#102)	EU 002, EU 003	480342.0	4980665.1	235.66	80.42	462.8	5.71	4.27
SV003 (ST#103)	EU 004	480299.9	4980684.0	235.66	80.42	367.8	2.76	4.27
SV004 (ST#104)	EU 005	480342.0	4980684.0	235.66	80.42	395.9	3.18	4.27
SV005 (ST#301)	EU 006	485537.8	4980476.5	273.71	36.58	399.8	6.17	2.13
SV006 (STPB#1)	EU 007-EU 010	485500.0	4980500.0	273.71	60.96	453.2	12.15	2.44
SV007 (STPB#7)	EU 011	485546.0	4980521.0	273.71	27.43	469.3	8.81	1.52

SUMMARY OF WORST CASE OPERATING SCENARIOS-NEW UNITS
[from Second Supplement to AEPA, Table V-16, p.5-33, Record 013]

Pollutant	Unit	Stack Number	Fuel	Load	Emission Rate (g/sec)	Lb/hr (x 7.93656)
SO ₂	EU001	SV001	Coal	100%	3.67	29.13
	EU002, EU003	SV002	Distillate Oil	100%	33.72	267.62
	EU006	SV005	Distillate Oil	NA	11.18	88.73
TSP/PM ₁₀	EU001	SV001	Coal	100%	1.10	8.76
	EU002, EU003	SV002	Distillate Oil	100%	3.67	29.10
	EU006	SV005	Distillate Oil	NA	1.15	9.11
CO g/s [lb/hr]	EU001	SV001	Wood	100%	8.91 [70.75]*	
	EU002, EU003	SV002	Distillate Oil	100%	2.62 [20.810]*	
	EU006	SV005	Distillate Oil	100%	1.37 [10.88]*	
NO _x	EU001	SV001	Wood	100%	7.43	58.97
	EU002, EU003	SV002	Distillate Oil	100%	9.17	72.78
	EU006	SV005	Distillate Oil	100%	4.78	37.94

SUMMARY OF WORST CASE OPERATING SCENARIOS-EXISTING UNITS
[from Second Supplement to AEPA, Table V-17, p.5-34, Record 013]

Pollutant	Unit	Stack Number	Emission Rate (g/sec)	Lb/hr (x 7.93656)
SO ₂	EU004	SV003	7.15	56.75
	EU005, EU007-010	SV004, SV006	7.92, 37.48	62.86, 297.46
	EU011	SV007	6.24	49.52
TSP	EU004	SV003	0.53	4.21
	EU005, EU007-010	SV004, SV006	0.59, 0.62	4.68, 4.92
	EU011	SV007	0.18	1.43
PM ₁₀	EU004	SV003	2.26	17.91
	EU005, EU007-010	SV004, SV006	1.98, 3.25	15.71, 25.80
	EU011	SV007	0.70	5.54
CO	EU004	SV003	0.72 [5.72]*	
	EU005, EU007-010	SV004, SV006	6.60 [52.40], 4.37 [34.70]*	
	EU011	SV007	0.45 [3.57]*	
NO _x	EU004	SV003	25.04	198.73
	EU005, EU007-010	SV004, SV006	18.47, 20.48	146.59, 162.54
	EU011	SV007	1.75	13.89

* – Numbers in brackets [] were penciled into the tables by previous permit engineer.

APPENDIX C

40 CFR pt. 60, subpart IIII Requirements

Facility Name: University of Minnesota – Twin Cities

Permit Number: 05301050-005

The following tables list the requirements for emergency generator engines subject to subp. IIII.

Table 1 – Applies to pre-2007 model year generator engines manufactured after April 1, 2006

Emission Limits	
Exhaust Opacity: Less than or equal to: 1. 20 percent during the acceleration mode 2. 15 percent during the lugging mode; and 3. 50 percent during the peaks in either the acceleration or lugging modes.	40 CFR 60.4202(a)(2); 40 CFR 89.113 (a)
Carbon Monoxide: Exhaust emissions of carbon monoxide shall not exceed 11.4 grams per kilowatt-hour.	40 CFR 60.4205(a)
Hydrocarbons: Exhaust emissions of hydrocarbons shall not exceed 1.3 grams per kilowatt-hour.	40 CFR 60.4205(a)
Nitrogen Oxides: Exhaust emissions of nitrogen oxides shall not exceed 9.2 grams per kilowatt-hour.	40 CFR 60.4205(a)
Particulate Matter: Exhaust emissions of particulate matter shall not exceed 0.54 grams per kilowatt-hour	40 CFR 60.4205(a)
Operating Conditions	
Fuel Type: Diesel fuel must meet the requirements of 40 CFR 80.510(a), which requires that diesel fuel have a maximum sulfur content of 500 parts per million and either a minimum cetaine index of 40 or a maximum aromatic content of 35 volume percent. This rule is applicable beginning October 1, 2007. The Permittee may petition the Administrator for approval to use existing non-compliant diesel fuel inventories for up to six months or until exhausted, whichever comes first. If additional time is needed, the Permittee must submit a new application to the Administrator. This rule is applicable if the generator was manufactured before 2011.	40 CFR 60.4207(a); 40 CFR 60.4207(c); 40 CFR 80.510(a)
Fuel Type: Diesel fuel must meet the requirements of 40 CFR 80.510(b), which requires that diesel fuel have a maximum sulfur content of 15 parts per million and either a minimum cetaine index of 40 or a maximum aromatic content of 35 volume percent. This rule is applicable beginning October 1, 2010. The Permittee may petition the Administrator for approval to use existing non-compliant diesel fuel inventories for up to six months or until exhausted, whichever comes first. If additional time is needed, the Permittee must submit a new application to the Administrator. This rule is applicable if the generator was manufactured before 2011.	40 CFR 60.4207(b); 40 CFR 60.4207(c); 40 CFR 80.510(b)
Emission Standards: The Permittee shall operate and maintain the unit in accordance with the standards as required by 40 CFR 60.4205, according to the manufacturer's written instructions, or according to procedures developed by the owner or operator that are approved by the engine manufacturer, for the entire life of the engine. Settings for the unit may not be changed unless permitted by the manufacturer.	40 CFR 60.4206; 40 CFR 60.4211(a)
Operating Limitations: The Permittee may operate the emergency engine for the purpose of maintenance checks and readiness testing provided that the tests are recommended by Federal, State, or local government; the manufacturer; the vendor; or the insurance company associated with the engine. Maintenance checks and readiness testing for the emergency engines is limited to 100 hours per year. Anyone may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing. A petition is not required if the owner or operator maintains records indicating that the Federal, State, or local standards require maintenance and testing of emergency ICE beyond 100 hours per year. There is no time limit on the use of emergency stationary ICE in emergency situations. Any operation other than emergency operation, maintenance, and testing, as permitted, is prohibited.	40 CFR 60.4211(e)
Performance Testing (Optional): If the Permittee conducts performance tests, the tests must be completed in accordance with 40 CFR 60.4212(a) through 40 CFR 60.4212(d).	40 CFR 60.4212
Operating Limitations: After December 31, 2008, the Permittee may not install stationary CI ICE that do not meet applicable requirements for 2007 model year engines.	40 CFR 60.4208(a)
Monitoring Requirements	
Monitoring – Hours of Operation: The engine shall contain a non-resettable hour meter prior to startup of the engine.	40 CFR 60.4209(a)
Compliance Requirements	
Compliance Demonstration: The Permittee may use one of the following methods to demonstrate compliance. 1. Purchase an engine certified to conform with the emission standards listed in 40 CFR pt. 89, for the same model year and maximum engine power. The engine must be installed and configured according to the manufacturer's specifications. 2. Keep records of performance test results for each pollutant for a test conducted on a similar engine. The test must have been conducted using the same methods specified in 40 CFR 60.4212 and must have been followed correctly. 3. Keep records of engine manufacturer data indicating compliance with the standards. 4. Keep records of control device vendor data indicating compliance with the standards. 5. Conduct an initial performance test to demonstrate compliance with the emissions standards according to the requirements specified in 40 CFR 60.4212, as applicable.	40 CFR 60.4211(b); 40 CFR pt. 89

Table 2 – Applies to 2007 model year, or later, emergency generator engines

Emission Limits	
Exhaust Opacity: Less than or equal to: 1. 20 percent during the acceleration mode 2. 15 percent during the lugging mode; and 3. 50 percent during the peaks in either the acceleration or lugging modes.	40 CFR 60.4202(a)(2); 40 CFR 89.113(a)
Carbon Monoxide: Exhaust emissions of carbon monoxide shall not exceed 3.5 grams per kilowatt-hour.	40 CFR 60.4202(a)(2); 40 CFR 89.112(a)
Non-Methane Hydrocarbons plus Nitrogen Oxides: Total combined exhaust emissions of non-methane hydrocarbons plus nitrogen oxides shall not exceed: 6.4 grams per kilowatt-hour for a > 560 kW generator (EU 150) 4.0 grams per kilowatt-hour for a $450 \leq \text{kW} \leq 560$ generator (EU 146).	40 CFR 60.4202(a)(2); 40 CFR 89.112(a)
Particulate Matter: Exhaust emissions of particulate matter shall not exceed 0.20 grams per kilowatt-hour.	40 CFR 60.4202(a)(2); 40 CFR 89.112(a)
Operating Conditions	
Fuel Type: Diesel fuel must meet the requirements of 40 CFR 80.510(a), which requires that diesel fuel have a maximum sulfur content of 500 parts per million and either a minimum cetaine index of 40 or a maximum aromatic content of 35 volume percent. This rule is applicable beginning October 1, 2007. If the generator was manufactured before 2011, the Permittee may petition the Administrator for approval to use existing non-compliant diesel fuel inventories for up to six months or until exhausted, whichever comes first. If additional time is needed, the Permittee must submit a new application to the Administrator.	40 CFR 60.4207(a); 40 CFR 60.4207(c); 40 CFR 80.510(a)
Fuel Type: Diesel fuel must meet the requirements of 40 CFR 80.510(b), which requires that diesel fuel have a maximum sulfur content of 15 parts per million and either a minimum cetaine index of 40 or a maximum aromatic content of 35 volume percent. This rule is applicable beginning October 1, 2010. If the generator was manufactured before 2011, the Permittee may petition the Administrator for approval to use existing non-compliant diesel fuel inventories for up to six months or until exhausted, whichever comes first. If additional time is needed, the Permittee must submit a new application to the Administrator.	40 CFR 60.4207(a); 40 CFR 60.4207(c); 40 CFR 80.510(b)
Emission Standards: The Permittee shall operate and maintain the unit in accordance with the standards as required by 40 CFR 60.4205, according to the manufacturer's written instructions, or according to procedures developed by the owner or operator that are approved by the engine manufacturer, for the entire life of the engine. Settings for the unit may not be changed unless permitted by the manufacturer.	40 CFR 60.4206; 40 CFR 60.4211(a)
Operating Limitations: The Permittee may operate the emergency engine for the purpose of maintenance checks and readiness testing provided that the tests are recommended by Federal, State, or local government; the manufacturer; the vendor; or the insurance company associated with the engine. Maintenance checks and readiness testing for the emergency engines is limited to 100 hours per year. Anyone may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing. A petition is not required if the owner or operator maintains records indicating that the Federal, State, or local standards require maintenance and testing of emergency ICE beyond 100 hours per year. There is no time limit on the use of emergency stationary ICE in emergency situations. Any operation other than emergency operation, maintenance, and testing, as permitted, is prohibited.	40 CFR 60.4211(e)
Performance Testing (Optional): If the Permittee conducts performance tests, the tests must be completed in accordance with 40 CFR 60.4212(a) – (d).	40 CFR 60.4212
Operating Limitations: After December 31, 2008, the Permittee may not install stationary CI ICE that do not meet applicable requirements for 2007 model year engines.	40 CFR 60.4208(a)
Monitoring Requirements	
Monitoring – Hours of Operation: The engine shall contain a non-resettable hour meter prior to startup of engine.	40 CFR 60.4209(a)
Compliance Requirements	
Compliance Demonstration: The Permittee must demonstrate compliance by purchasing an engine certified to conform with the emission standards listed in 40 CFR 60.4205(b) for the same model year and maximum engine power. The engine must be installed and configured according to manufacturer's specifications.	40 CFR 60.4211(c)
Recordkeeping Requirements	
The Permittee shall maintain records of the operation of the engine in emergency service that are recorded through the non-resettable hour meter. The record must include the time of operation and the reason the generator was in operation during that time. This requirement is applicable when using a generator whose model year is 2011 or later.	40 CFR 60.4214(b)

TECHNICAL SUPPORT DOCUMENT
For
AIR EMISSION PERMIT NO. 05301050-005

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 determination to issue the permit.

1. General Information

1.1 Applicant and Stationary Source Location:

Owner/Operator Address	Stationary Source/Address (SIC Code: 8221)
Board of Regents 202 Morrill Hall, Minneapolis, MN	Thompson Center for Environmental Management 501 23 rd Avenue SE, Minneapolis, MN 55455
Contact: Andrew Phelan	Phone: 612-626-7744

1.2 Description of the Facility

The University of Minnesota is a teaching and research institution with two campuses in the Twin Cities: the Minneapolis campus and the St. Paul campus. The two campuses are approximately three miles apart and are connected by a transit way 80 feet wide owned by the University. The Facility covers an area of approximately 1154 acres and contains approximately 22,000,000 gross square feet of buildings overall. The Facility employs approximately 15,000 people and serves a population of 40,000 full time and 11,000 part time students. The Facility owns and operates, or contracts with other parties who operate, a variety of facilities that support its teaching and research functions.

1.3 Description of the Activities Allowed by this Permit Action

This permit action is a moderate amendment to a Part 70 permit to authorize the construction and operation two diesel emergency generators (EU 154, 155) and two boilers (EU 156, 157) at the new Cancer/Cardio Research Facility. These units qualify for a moderate amendment because the potential emissions are below significant thresholds. These generators are subject to 40 CFR pt. 60, subp. IIII and 40 CFR pt. 63, subp. ZZZZ. The boilers are subject to 40 CFR pt. 60, subp. Dc.

1.4 Facility Emissions

Table 1. Non-Title I Emissions Increase Summary

Pollutant	Total Facility PTE		Net Change		Minor Mod	Moderate Mod	PSD Mod	Type of Amendment
	Proposed	Current			Thresholds	Thresholds	Thresholds	
	(tpy)	(tpy)	(tpy)	(lb/hr)	(lb/hr ≥)	(lb/hr ≥)	(tpy ≥)	
PM	105.0	103.9	1.05	1.49	--	--	--	N/A
PM ₁₀	103.9	102.9	1.05	1.49	0.855	3.42	15	Minor
PM _{2.5} ¹	N/A	N/A	1.05	1.49	--	--	--	N/A
NO _x	981.7	961.9	19.8	43.6	2.28	9.13	40	Moderate
SO ₂	277.3	277.3	0.07	0.06	2.28	9.13	40	Insignificant
CO	361.9	348.2	13.7	25.0	5.70	22.80	100	Moderate
VOC	40.3	39.6	0.73	1.0	2.28	9.13	40	Insignificant
CO ₂ e ¹	N/A	N/A	12,809	--	--	--	75,000	N/A

¹Total Facility PTE calculations for PM_{2.5} and CO₂e will be completed with the reissuance of the permit

Table 2. 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

The facility is an existing major source under New Source Review regulations. The changes authorized by this permit do not trigger PSD modification thresholds as indicated in Table 1.

Part 70 Permit Program

The facility is a major source under the Part 70 permit program. The changes authorized by this permit require a moderate amendment to the Part 70 permit.

New Source Performance Standards (NSPS)

There is a NSPS, 40 CFR pt. 60, Subp. IIII, for Stationary Compression Ignition Internal Combustion Engines which is applicable to the emergency generators at this facility modified or reconstructed after July 11, 2005 or manufactured after April 1, 2006.

There is a NSPS, 40 CFR pt. 60, Subp. Dc, for Small Industrial-Commercial-Institutional Steam Generating Units which is applicable to the new boilers.

National Emission Standards for Hazardous Air Pollutants (NESHAP)

40 CFR pt. 63, Subp. ZZZZ, for Stationary Reciprocating Internal Combustion Engines (RICE) applies to new RICE constructed at an area source.

Minnesota State Rules

Affected portions of the facility are subject to the following Minnesota Standards of Performance:

- Minn. R. 7011.2300 Standards of Performance for Stationary Internal Combustion Engines

Table 3. Regulatory Overview of Units Affected by the Modification/Permit Amendment

Unit	Applicable Regulations	Comments
GP 015	40 CFR pt. 63, subp. ZZZZ 40 CFR pt. 60, subp. IIII Minn. R. 7011.2300 Minn. R. 7007.0800, subp. 2	Subpart ZZZZ – NESHAPs for Stationary RICE apply to new RICE at an area source. Subpart IIII—Standards of Performance for Stationary Compression Ignition Internal Combustion Engines applies to all generators brought on site manufactured after April 1, 2006.
EU 156 EU 157	40 CFR pt. 60, subp. Dc Minn. R. 7011.0570	Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units.

3. Technical Information

3.1 Emissions Increase Analysis

Table 1 of this TSD summarizes the emissions increases due to this permit action using the data supplied by the Permittee in their amendment applications. Calculation spreadsheets are stored in Delta.

3.2 Periodic Monitoring

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

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

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

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

Table 4. Periodic Monitoring

EU/GP	Requirement (basis)	Additional Monitoring	Discussion
GP 015	< 500 hours per year of operation for each emergency generator	Engines subject to 40 CFR pt. 60, subp. IIII shall contain a non-resettable hour meter prior to startup of engine.	Limit based on EPA memorandum entitled "Calculating Potential to Emit (PTE) for Emergency Generators", dated September 6, 1995. Records kept showing hours of operation. Compliance with 40 CFR pt. 63, subp. ZZZZ is demonstrated by meeting the requirements of 40 CFR pt. 60, subp. IIII.
EU 156 EU 157	Fuel use Records		Natural Gas boilers comply by maintaining records of the amount of fuel used each month.

3.3 Permit Organization

In general, the permit meets the MPCA Delta Guidance for ordering and grouping of requirements. One area where this permit deviates slightly from Delta guidance is in the use of appendices. While appendices are fully enforceable parts of the permit, in general, any requirement that the MPCA thinks should be tracked (e.g., limits, submittals, etc.), should be in Table A or B. The main reason is that the appendices are word processing sections and are not part of the tracking system. Violation of the appendices can be enforced, but the computer system will not automatically generate the necessary enforcement notices or documents. Staff must generate these.

Deviation from normal format: GP 015 for emergency generators references requirements that are listed in Appendix C. This approach was used because 40 CFR pt. 63 Subp. IIII contains different requirements for units based on their manufacture date.

3.4 Comments Received

EPA 45-day Review Period: March 8, 2011 – April 22, 2011

No comments were received during the review period.

4. Permit Fee Assessment

Attachment 3 to this TSD contains the MPCA's assessment of Application and Additional Points used to determine the permit application fee for this permit action as required by Minn. R. 7002.0019. The permit includes the review of one NESHAP, and two NSPSs that were triggered by the modification authorized by the amendment applications.

5. Conclusion

Based on the information provided by The University of Minnesota – Twin Cities, the MPCA has reasonable assurance that the operation of the emission facility, as described in the Air Emission Permit No. 05301050-005, and this TSD, will not cause or contribute to a violation of applicable federal regulations and Minnesota Rules.

Staff Members on Permit Team: Trevor Shearen (permit writer/engineer)
Brent Rohne (enforcement)
Curt Stock (stack testing)
Kelsey Suddard (peer reviewer)

AQ File No. 86TC; DQ 3275

Attachments: 1. Emission Calculation Spreadsheets (in Delta)
2. Facility Description and CD-01 Forms (in Delta)
3. Points Calculator (in Delta)