

**AIR EMISSION PERMIT NO. 16300087- 003**

**IS ISSUED TO**

LSP - Cottage Grove LP

**LSP COTTAGE GROVE COGENERATION FACILITY**

9525 105th Street Court South  
Cottage Grove, Washington County, MN 55016

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

Permit Type	Application Date
Total Facility Operating Permit	September 15, 1995
Acid Rain Permit	July 10, 1997
Total Facility Operating Permit Reissuance	May 10, 2003

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

**Permit Type:** Federal; Pt 70/Acid Rain/Incorporates Existing NSR Conditions

**Issue Date:** April 20, 2005

**Expiration:** April 20, 2010  
All Title I Conditions do not expire.

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

for Sheryl A. Corrigan  
Commissioner  
Minnesota Pollution Control Agency

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**NOTICE TO THE PERMITTEE:**

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

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

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

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

**PERMIT SHIELD:**

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

## **FACILITY DESCRIPTION:**

LSP is an existing cogeneration facility located at 9525 105th Street Court South, Cottage Grove, Washington County, Minnesota. The present emission facility consists of a nominal 245 Megawatts (MW) combined cycle Combustion Turbine Generator (CTG) designed to provide electrical energy to Northern States Power Company and to supply thermal energy, in the form of steam, to an off-site customer. The CTG, which can burn either natural gas or distillate fuel oil, has a Heat Recovery Steam Generator (HRSG) with a Supplemental Duct Burner. Both units combined have a maximum heat input capacity of 2258 MMBtu/hr. There are two Auxiliary Boilers No. 1 and No. 2; each has a maximum heat input capacity of 114 MMBtu/hr. One Distillate Fuel Oil Storage Tank, one Emergency Fire Pump Diesel Engine, one Emergency Diesel Generator, one Fuel Gas Heater, and Cooling Towers comprise the remaining emission units at the facility.

LSP has an Oxidation Catalyst for control of Carbon Monoxide (CO) emissions in the HRSG and Selective Catalytic Reduction (SCR) for control of Nitrogen Oxides (NO<sub>x</sub>) emissions in the CTG/HRSG. There is a NO<sub>x</sub> Continuous Emissions Monitoring System (CEMS) and a CO CEMS to monitor emissions from the CTG/HRSG. Each auxiliary boiler has a NO<sub>x</sub> Predictive Emissions Monitoring System (PEMS) to determine NO<sub>x</sub> emissions and a Continuous Opacity Monitoring System (COMS) to measure opacity emissions from the unit.

LSP has an approved Total Facility CO CAP limit of 99 tons per year. The CO CAP was agreed to by LSP to avoid classification as a major source according to 40 CFR pt. 51 Appendix S. The Total Facility CO CAP is a Title I Condition that does not expire. Therefore, even though the area is no longer classified as nonattainment, the Total Facility CO CAP remains in the permit. LSP has approved Best Available Control Technology (BACT) limits for Particulate Matter (PM), Particulate Matter less than 10 microns (PM<sub>10</sub>), NO<sub>x</sub>, Volatile Organic Compounds (VOC) and Sulfuric Acid Mist (H<sub>2</sub>SO<sub>4</sub>) emissions; and ambient concentration-based limits for CO, Sulfur Dioxide (SO<sub>2</sub>), NO<sub>x</sub>, and PM<sub>10</sub>. These limits ensure compliance with the Minnesota Ambient Air Quality Standards (MAAQS) and the National Ambient Air Quality Standards (NAAQS). This revision was performed according to Part C - Prevention of Significant Deterioration of Air Quality, of the Title I - Air Pollution Prevention and Control, of the Clean Air Act Amendments of 1990.

This Air Emission Permit No. 16300097-003, supersedes all permits issued to the facility previously. This permit is a Federal Part 70/Acid Rain operating permit with a PSD modification. This permit addresses a certain defined set of applicable requirements.

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

04/20/05

Facility Name: LSP Cottage Grove Cogeneration Facility

Permit Number: 16300087 - 003

**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.**

<b>Subject Item: Total Facility</b>	
<b>What to do</b>	<b>Why to do it</b>
<b>A. EMISSION LIMITS</b>	hdr
Carbon Monoxide: less than or equal to 99.0 tons/year using 365-day Rolling Sum calculated daily.	Title I Condition: to limit total facility CO emissions to less than the major source level in 40 CFR pt. 51 Appendix S; Minn. R. 7007.4000
<b>B. OPERATIONAL REQUIREMENTS</b>	hdr
This facility is subject to US EPA's Acid Rain Program codified at 40 CFR pts. 72, 73, 75, 77, and 78. Certain Acid Rain Program requirements are included in Tables A and/or B of this permit for MPCA tracking purposes. All other Acid Rain Program requirements are referenced in the Phase II Permit Application attached to this permit in Appendix C.	40 CFR Section 72.6(a)(3)
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 control practices and shall include a preventative maintenance program for the equipment and practices, a description of (the minimum but not necessarily the only) corrective actions to be taken to restore the equipment and practices 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 practices, and the records kept to demonstrate plan implementation.	Minn. R. 7007.0800, subp. 14 and Minn. R. 7007.0800, subp. 16(J)
Operation Changes: In any shutdown, breakdown, or deviation the Permittee shall immediately take all practical steps to modify operations to reduce the emission of any regulated air pollutant. The Commissioner may require feasible and practical modifications in the operation to reduce emissions of air pollutants. No emissions units that have an unreasonable shutdown or breakdown frequency of process or control equipment shall be permitted to operate.	Minn. R. 7019.1000, subp. 4
Circumvention: Do not install or use a device or means that conceals or dilutes emissions, which would otherwise violate a federal or state air pollution control rule, without reducing the total amount of pollutant emitted.	Minn. R. 7011.0020
Air Pollution Control Equipment: Operate all pollution control equipment whenever the corresponding process equipment and emission units are operated, unless otherwise noted in Table A.	Minn. R. 7007.0800, subp. 2; Minn. R. 7007.0800, subp. 16(J)
Fugitive Emissions: Do not cause or permit the handling, use, transporting, or storage of any material in a manner which may allow avoidable amounts of particulate matter to become airborne. Comply with all other requirements listed in Minn. R. 7011.0150.	Minn. R. 7011.0150
The Permittee shall comply with the General Conditions listed in Minn. R. 7007.0800, subp. 16.	Minn. R. 7007.0800, subp. 16
Inspections: Upon presentation of credentials and other documents as may be required by law, allow the Agency, or its representative, to enter the Permittee's premises to have access to and copy any records required by this permit, to inspect at reasonable times (which include any time the source is operating) any facilities, equipment, practices or operations, and to sample or monitor any substances or parameters at any location.	Minn. R. 7007.0800, subp. 9(A)
Operating and/or production limits will be placed on emission units based on operating conditions during compliance testing in accordance with Minn. R. 7017.2025.	Minn. R. 7017.2025
Noise: The Permittee shall comply with Minn. R. 7030.0010 to 7030.0080. This is a state-only requirement and pursuant to Minn. R. 7007.1750, it is not enforceable by the EPA administrator or by citizens under the Clean Air Act.	Minn. R. 7030.0010 - 7030.0080
<b>C. TESTING REQUIREMENTS</b>	hdr
Performance Testing: Conduct all performance tests in accordance with Minn. R. ch. 7017 unless otherwise noted in Tables A, B, and/or C. Note that this requirement does not impact those requirements associated with Minn. R. 7030.0010-7030.0080.	Minn. R. ch. 7017

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

04/20/05

Facility Name: LSP Cottage Grove Cogeneration Facility

Permit Number: 16300087 - 003

<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>
<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.</p>	<p>Minn. R. 7017.2025</p>
<p><b>D. MONITORING REQUIREMENTS</b></p>	<p>hdr</p>
<p>Monitoring Equipment: Install or make needed repairs to monitoring equipment within 60 days of issuance of the permit if monitoring equipment is not installed and operational on the date the permit is issued.</p>	<p>Minn. R. 7007.0800, subp. 4(D)</p>
<p>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 a check of the monitoring systems, such as calibration check, and zero and span adjustments. If monitoring records are required, they should reflect any periods of process shutdown or check of the monitoring system.</p>	<p>Minn. R. 7007.0800, subp. 4(D)</p>
<p>Monitoring Equipment Calibration: Annually calibrate all required monitoring equipment (any requirements applying to continuous emission monitors are listed separately in this permit).</p>	<p>Minn. R. 7007.0800, subp. 4(D)</p>
<p>Revision of CO and PM10 Emission Factors, and Fuel Parameters: All CO and PM10 emission factors for which performance testing is required, shall be revised based on the results of each performance test. The Permittee shall use the most-recent performance test-revised emission factor for calculating CO emissions, and the average of the last three test-revised emission factors for calculating PM10 emissions.</p> <p>During the initial operating period (prior to completion of three PM10 emission factor performance tests), the Permittee shall use the average of all available PM10 emission factor performance test results for the emission unit or stack/vent.</p> <p>The use of the updated emission factors shall commence upon receipt of written notification from the MPCA that the performance testing results were valid.</p> <p>The Permittee shall use the most-current fuel parameters determined by fuel sampling or fuel supplier certification, as applicable and as required in Table A of this permit.</p>	<p>Title I Condition: revision of emission factors and fuel parameters used to determine emissions subject to Title I limits; Minn. R. 7007.0800, subp. 2</p>
<p>Averaging Time Period for BACT Emission Limits: The averaging time period for any BACT emission limit in Table A of this permit is 3 hours, unless stated otherwise in this permit.</p>	<p>Minn. R. 7007.0800, subp. 2</p>
<p><b>E. RECORDKEEPING</b></p>	<p>hdr</p>
<p>Recordkeeping: Once each calendar day, calculate and record the total facility CO emissions for the previous calendar day. The daily total facility CO emissions are calculated by summing the calendar-day CO emissions from SV 001, EU 003, EU 004, EU 005, EU 007, and EU 008 for the previous day.</p> <p>Once each calendar day calculate the 365-day rolling sum CO emissions for the total facility. The 365-day rolling sum is calculated each day by summing the daily CO emissions for the previous 365 days.</p>	<p>Title I Condition: monitoring to limit the total facility CO emissions to less than major source level in 40 CFR pt. 51 Appendix S; Minn. R. 7007.4000</p>
<p>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.</p>	<p>Minn. R. 7007.0800, subp. 5(B)</p>
<p>Recordkeeping: Retain all records at the stationary source for a period of five (5) years from the date of monitoring, sample, measurement, or report. Records which must be retained at this location include but are not limited to: all calibration and maintenance records; all original strip-chart recordings for continuous monitoring instrumentation; copies of all reports required by this permit; copies of all fuel certifications and analyses; and records startup, shutdown, and malfunction. Records must conform to the requirements listed in Minn. R. 7007.0800, subp. 5(A).</p>	<p>Minn. R. 7007.0800, subp. 5(C)</p>

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

04/20/05

Facility Name: LSP Cottage Grove Cogeneration Facility

Permit Number: 16300087 - 003

F. REPORTING	hdr
Initial Notification of Deviations Endangering Human Health or the Environment: As soon as possible after discovery, notify orally or by facsimile, the Commissioner or State Duty Officer of any deviation from permit conditions which could endanger human health or the environment.	Minn. R. 7019.1000, subp. 1
Written 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: cause of the deviation; exact dates of the period of the deviation; if the deviation has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the deviation.	Minn. R. 7019.1000, subp. 1
Breakdowns: Notify the Commissioner no later than 24 hours after discovery of a breakdown of more than one hour duration of any process or control equipment if the breakdown causes an increase in the emission of any regulated air pollutant. At the time of notification or as soon thereafter as possible, the permittee shall also notify the Commissioner of the cause of the breakdown and the estimated duration. Notify the Commissioner again when the breakdown is over.  Notification is not required for any emission unit that is monitored by a continuous emission monitor and the applicable limit for the monitored pollutant is not exceeded during the breakdown.	Minn. R. 7019.1000, subp. 2
Shutdowns: Notify the Commissioner at least 24 hours in advance of a planned shutdown and as soon as possible of an unplanned shutdown of any process or control equipment, if the shutdown would cause an increase in the emission of any regulated air pollutant. At the time of notification, notify the Commissioner of the cause of the shutdown and the estimated duration. Notify the Commissioner again when the shutdown is over.  Notification is not required for any emission unit that is monitored by a continuous emission monitor and the applicable limit for the monitored pollutant is not exceeded during the shutdown. Notification is also not required for a shutdown of EU 001 that meets the definition of "Shutdown Mode" under "B. OPERATIONAL LIMITS" in SV 001 in Table A of this permit.	Minn. R. 7019.1000, subp. 3
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)
Application for Permit Amendment: If you need a permit amendment, submit application in accordance with the requirements of Minn. R. 7007.1150 through Minn. R. 7007.1500. Submittal dates vary, depending on the type of amendment needed.	Minn. R. 7007.1150 through Minn. R. 7007.1500
Emission 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. 7019.3010
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**

04/20/05

Facility Name: LSP Cottage Grove Cogeneration Facility

Permit Number: 16300087 - 003

**Subject Item:** GP 001 Auxiliary Boilers #1 and #2

**Associated Items:** EU 003 Auxiliary Boiler #1

EU 004 Auxiliary Boiler #2

What to do	Why to do it
A. OPERATIONAL LIMITS	hdr
Operating Hours: less than or equal to 3,400 hours/year using 365-day Rolling Sum when combusting distillate fuel oil.	Title I Conditions: to restrict SO2 emissions to less than major source status under 40 CFR pt. 51 Appendix S, and to restrict ambient concentrations to less than significant levels in 40 CFR Section 51.165(b)(2); Minn. R. 7007.4000
B. TESTING REQUIREMENTS	hdr
<p>Performance Test: due before end of each year starting 06/01/1998 to measure the CO emission factor for each permitted fuel. Each annual test shall be composed of two separate tests (one for each permitted fuel), conducted on the emission unit that was not tested the previous year, and at an interval not to exceed 12 months between test dates.</p> <p>Testing frequency for each permitted fuel may be relaxed from every 12 months to once every 36 months according to the following equation and conditions:</p> $X = ([A -   (A-T)  ] \times 1/A) \times 100\%$ <p>A = emission factor in Appendix B in this permit T = emission factor measured during testing</p> <p>If X is greater than or equal to 90% for two or more consecutive 12-month performance testing cycles, then the test frequency may be reduced to once every 36 months. If a subsequent performance test results in <math>X &lt; 90\%</math>, the testing frequency shall revert back to the original 12-month basis until subsequent 12-month testing produces two consecutive tests meeting the above criteria for a 36-month test frequency.</p>	<p>Title I Conditions: to verify emission factors used to determine emissions subject to a Title I limit; Minn. R. 7017.2020, subp. 1</p>
<p>CO Test Frequency</p> <p>If the CO emission factor test frequency is reduced from 12 months to once every 36 months (as allowed if "X" is greater than or equal to 90% for two consecutive 12-month CO tests), instead of submitting the CO emission factor performance test notification, the permittee shall submit a notification indicating the 12-month CO test will not be conducted because the criteria have been met. In addition, the notification shall specify the value of "X" for the previous two consecutive 12-month CO emission factor tests.</p> <p>When the permittee provides notification that the 12-month CO test will not be conducted because permit criteria are met for a 36-month test frequency, the test plan, pre-test meeting, test report, and microfiche copy of the test report requirements are waived for that 12-month CO emission factor test.</p>	<p>Minn. R. 7017.2030, subp. 1-4 and Minn. R. 7017.2035, subp. 1-2.</p>
Performance Test: due before end of each year starting 06/01/98 to measure PM10 emissions while combusting natural gas, on the emission unit that was not tested the previous year. Tests shall be conducted at an interval not to exceed 12 months between test dates.	Title I Conditions: to determine emissions subject to Title I limits; Minn. R. 7017.2020, subp. 1
Performance Test: due before end of each 60 months starting 06/01/1997 to measure PM and VOC emissions while combusting natural gas, and to measure PM, PM10 and VOC emissions while combusting distillate oil. Testing will be conducted on the emission unit that was not tested during the previous performance test. Tests shall be conducted at an interval not to exceed 60 months between test dates.	Title I Conditions: to determine emissions subject to Title I limits; Minn. R. 7017.2020, subp. 1
<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>Minn. R. 7017.2030, subp. 1-4 and Minn. R. 7017.2035, subp. 1-2</p>
C. RECORDKEEPING	hdr



**TABLE A: LIMITS AND OTHER REQUIREMENTS**

04/20/05

Facility Name: LSP Cottage Grove Cogeneration Facility

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Record keeping: Once each calendar day, calculate and record the daily GP 001 distillate fuel oil combustion hours, by summing the hours that EU 003 and EU 004 combusted distillate fuel oil during the previous day. Once each calendar day, calculate and record the 365-day rolling sum hours of distillate fuel oil combustion for GP 001 by summing the daily GP 001 distillate fuel oil combustion hours for the previous 365 days.

Title I Conditions: record keeping to restrict SO<sub>2</sub> emissions to less than major source status under 40 CFR pt. 51 Appendix S, and to restrict ambient concentrations to less than significant levels in 40 CFR Section 51.165(b)(2); Minn. R. 7007.4000

# TABLE A: LIMITS AND OTHER REQUIREMENTS

04/20/05

Facility Name: LSP Cottage Grove Cogeneration Facility

Permit Number: 16300087 - 003

**Subject Item:** SV 001

**Associated Items:** EU 001 Combustion Turbine Generator  
EU 002 Supplemental Duct Firing Burners  
MR 001  
MR 002  
MR 003  
MR 006  
MR 007

What to do	Why to do it
A. EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.0089 lbs/million Btu heat input when EU 001 is combusting natural gas.	Title I Condition: 40 CFR section 52.21(j) BACT limit; Minn. R. 7007.3000
Total Particulate Matter: less than or equal to 0.0327 lbs/million Btu heat input when EU 001 is combusting distillate fuel oil.	Title I Condition: 40 CFR section 52.21(j) BACT limit; Minn. R. 7007.3000
Particulate Matter < 10 micron: less than or equal to 0.0089 lbs/million Btu heat input when EU 001 is combusting natural gas.	Title I Condition: 40 CFR Section 52.21(j) BACT limit; Minn. R. 7007.3000
Particulate Matter < 10 micron: less than or equal to 0.0327 lbs/million Btu heat input when EU 001 is combusting distillate fuel oil.	Title I Condition: 40 CFR Section 52.21(j) BACT limit; Minn. R. 7007.3000
Particulate Matter < 10 micron: less than or equal to 73.3 lbs/hour using 24-hour Rolling Average .	Title I Condition: to restrict ambient concentrations to less than significant levels in 40 CFR Section 51.165(b)(2); Minn. R. 7007.4000
Sulfur Dioxide: less than or equal to 99.3 lbs/hour using 3-hour Rolling Average	Title I Condition: to restrict ambient concentrations to less than significant levels in 40 CFR Section 51.165(b)(2); Minn. R. 7007.4000
Sulfur Dioxide: less than or equal to 59.6 lbs/hour using 24-hour Rolling Average	Title I Condition: to restrict ambient concentrations to less than significant levels in 40 CFR Section 51.165(b)(2); Minn. R. 7007.4000
Comply with the applicable Acid Rain emissions limitation for sulfur dioxide.	40 CFR Section 72.9(c)(1)(ii), 40 CFR Section 72.9(g)(4)
Nitrogen Oxides: less than or equal to 4.5 parts per million dry volume at 15 percent oxygen on a 1-hour average basis when EU 001 is combusting natural gas. This limit does not apply during startup or shutdown (as defined under SV 001 in Table A of this permit) of EU 001.	Title I Condition: 40 CFR Section 52.21(j) BACT limit; Minn. R. 7007.3000
Nitrogen Oxides: less than or equal to 36.5 lbs/hour using 30-day Rolling Average when EU 001 is combusting natural gas.	Title I Condition: to restrict ambient concentrations to less than significant levels in 40 CFR Section 51.165(b)(2); Minn. R. 7007.4000
Nitrogen Oxides: less than or equal to 16.0 parts per million dry volume at 15 percent oxygen on a 1-hour average basis when EU 001 is combusting distillate fuel oil. This limit does not apply during startup or shutdown (as defined under SV 001 in Table A of this permit) of EU 001.	Title I Condition: 40 CFR Section 52.21(j) BACT limit; Minn. R. 7007.3000
Nitrogen Oxides: less than or equal to 139.9 lbs/hour using 30-day Rolling Average when EU 001 is combusting distillate fuel oil.	Title I Condition: to restrict ambient concentrations to less than significant levels in 40 CFR Section 51.165(b)(2); Minn. R. 7007.4000
Calculate and record the prorated 30-day rolling average NOx emission limit in lb/hr for SV 001 once each day for the previous 30-day period, when both distillate oil and natural gas were fired during the previous 30-day period, using the following formula:  Limit = $[(Toil * 139.9 \text{ lb/hr}) + [Tgas * 36.5 \text{ lb/hr}]]/\text{total operating hours during the previous 30-day period}$  Toil = total operating hours on distillate fuel oil during the previous 30-day period Tgas = total operating hours on natural gas during the previous 30-day period.	Title I Condition: to restrict ambient concentrations to less than significant levels in 40 CFR Section 51.165(b)(2); Minn. R. 7007.4000
Carbon Monoxide: less than or equal to 1200 lbs/hour using 1-Hour Average	Title I Condition: to restrict ambient concentrations to less than significant levels in 40 CFR Section 51.165(b)(2); Minn. R. 7007.4000
Volatile Organic Compounds: less than or equal to 0.008 lbs/million Btu heat input when EU 001 is combusting natural gas.	Title I Condition: 40 CFR Section 52.21(j) BACT limit; Minn. R. 7007.3000
Volatile Organic Compounds: less than or equal to 0.009 lbs/million Btu heat input when EU001 is combusting distillate fuel oil.	Title I Condition: 40 CFR Section 52.21(j) BACT limit; Minn. R. 7007.3000
Sulfuric Acid Mist: less than or equal to 0.0002 lbs/million Btu heat input when EU 001 is combusting natural gas. The Sulfuric Acid Mist BACT limit is met by complying with the fuel restrictions and fuel sulfur content limits.	Title I Condition: 40 CFR Section 52.21(j) BACT limit; Minn. R. 7007.3000

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

04/20/05

Facility Name: LSP Cottage Grove Cogeneration Facility

Permit Number: 16300087 - 003

Sulfuric Acid Mist: less than or equal to 0.017 lbs/million Btu heat input when EU 001 is combusting distillate fuel oil. The Sulfuric Acid Mist BACT limit shall be met by complying with the fuel restrictions and fuel sulfur content limits.	Title I Condition: 40 CFR Section 52.21(j) BACT limit; Minn. R. 7007.3000
<b>B. OPERATIONAL LIMITS</b>	hdr
EU 001 Fuel Use Restriction: EU 001 fuel is limited to pipeline natural gas as defined in 40 CFR Section 72.2 and distillate fuel oil.	Title I Condition: 40 CFR Section 52.21 BACT limit for PM and sulfuric acid mist; Minn. R. 7007.3000
EU 002 Fuel Use Restriction: EU 002 fuel is restricted to pipeline natural gas only as defined in 40 CFR Section 72.2.	Title I Condition: 40 CFR Section 52.21 BACT limit for PM and sulfuric acid mist; Minn. R. 7007.3000
Sulfur Content of Fuel: less than or equal to 0.05 percent by weight for distillate fuel oil.	Title I Condition: to restrict ambient SO <sub>2</sub> concentrations to less than the significant level in 40 CFR Section 51.165(b)(2); meets requirement in 40 CFR Sections 60.333(b) and 60.43a(b)(2); Minn. R. 7007.4000
Startup Period: Defined as the initial 120 minutes of operation of EU 001 after any time during which operation of EU 001 ceased for more than 60 consecutive minutes.  Shutdown Period: Defined as the final 60 minutes of operation of EU 001 immediately preceding the time that fuel flow is shut off to EU 001.  Operation of EU 001: Defined as whenever there is any fuel flow to EU 001.	Title I Conditions: to restrict ambient CO concentrations to less than significance levels in 40 CFR Section 51.165(b)(2); Minn. R. 7007.4000 & to meet 40 CFR Section 52.21(j) BACT limits for VOC, NO <sub>x</sub> ; Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2
<b>C. POLLUTION CONTROL EQUIPMENT REQUIREMENTS</b>	hdr
Operate and maintain CE 001 and CE 002 at all times that EU 001 and/or EU 002 are operating, except during startup or shutdown.	Title I Conditions: to restrict ambient CO concentrations to less than significance levels in 40 CFR Section 51.165(b)(2); Minn. R. 7007.4000 and to meet 40 CFR Section 52.21(j) BACT limits for VOC and NO <sub>x</sub> ; Minn. R. 7007.3000
Temperature: greater than or equal to 450 degrees F for SV 001 flue gas downstream of CE 001 and upstream of CE 002, except during startup or shutdown.	Title I Condition: SV001 flue gas temperature range limits to restrict ambient CO concentrations less than significant levels in 40 CFR Section 51.165(b)(2); Minn. R. 7007.4000 & to meet 40 CFR Section 52.21(j) BACT limit for VOC; Minn. R. 7007.3000
Monitoring and record keeping of SV 001 flue gas temperature: monitor and record SV 001 flue gas temperature downstream of CE 001 whenever EU 001 is operating, including during startup and shutdown. A minimum of four equally spaced data points shall be used to determine a one-hour average. If EU 001 operates for less than 60 minutes in a one-hour period, use at least one data point for each 15-minute period during which there was any operation, to determine the one-hour average.  SV 001 flue gas temperature will be used as an indicator of CO emissions during SV 001 CO CEM downtime.	Title I Condition: SV 001 flue gas temperature monitoring to restrict ambient CO concentrations less than significant levels in 40 CFR Section 51.165(b)(2); Minn. R. 7007.4000 & to meet 40 CFR Section 52.21(j) BACT limit for VOC; Minn. R. 7007.3000
Monitoring Equipment: The Permittee shall install and maintain thermocouples for measuring the temperatures as required by this permit. The monitoring equipment must be installed, in use, and properly maintained whenever the monitored control equipment is required to be operated.	Minn. R. 7007.0800, subp. 4
The Permittee shall maintain a continuous hard copy readout or computer disk file of the inlet and outlet temperatures	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
CE 001 Inspections: At least once per calendar year, or more frequently if required by the manufacturer specifications, the Permittee shall inspect the control equipment internal and external system components, including but not limited to the refractory, heat exchanger, and electrical systems. The Permittee shall maintain a written record of the inspection and any corrective actions taken resulting from the inspection.	Minn. R. 7007.0800, subp. 4, 5, and 14
CE 002 Inspections: At least once per calendar year, or more frequently if required by the manufacturer specifications, the Permittee shall inspect the control equipment internal and external system components. The Permittee shall maintain a written record of the inspection and any corrective actions taken resulting from the inspection.	Minn. R. 7007.0800, subp. 4, 5, and 14
CE 001 Corrective Actions: If the flue gas temperature downstream of CE 001 and upstream of CE 002 is below the minimum specified by this permit or if the catalytic oxidizer or any of its components are found during the inspections to need repair, the Permittee shall take corrective action as soon as possible. Corrective actions shall return the temperature to at least the permitted minimum 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 catalytic oxidizer. The Permittee shall keep a record of the type and date of any corrective action taken	Minn. R. 7007.0800, subp. 4, 5, and 14

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

04/20/05

Facility Name: LSP Cottage Grove Cogeneration Facility

Permit Number: 16300087 - 003

CE 002 Corrective Actions: If any of the CE 002 components are found during the inspections to need repair, the Permittee shall take corrective action as soon as possible. Corrective actions shall 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 selective catalytic reduction unit. The Permittee shall keep a record of the type and date of any corrective action taken.	Minn. R. 7007.0800, subp. 4, 5, and 14
VOC CAM Requirements: The Permittee shall use the CO CEMS for VOC compliance assurance monitoring. Compliance with the CO limit indicated by the CO CEMS assures that VOC emissions are in compliance with the VOC limit.  The Permittee shall demonstrate this correlation by recording and comparing CO CEMS emissions data during VOC performance testing of SV 001, with results of the VOC testing. The correlation shall be valid only if testing demonstrates that VOC emissions comply with the applicable VOC limit at the same time that CO emissions (measured by the CO CEMS) comply with the applicable CO limit, and the CO CEMS certification testing has been satisfactorily completed.	40 CFR Sections 64.3(a) and 64.6(b)
D. TESTING REQUIREMENTS	hdr
Performance Test: due before end of each year starting 06/01/1998 to measure PM10 emissions and to measure the PM10 emission factor for natural gas. EU 002 shall be operated during all performance tests.  Testing frequency for natural gas may be relaxed from every 12 months to once every 36 months according to the following equation and conditions:  $X = ([A -   (A-T)  ] \times 1/A) \times 100\%$ A = emission factor in Appendix B in this permit T = emission factor measured during testing  If X is greater than or equal to 90% for two or more consecutive 12-month performance testing cycles, then the test frequency may be reduced to once every 36 months. If a subsequent performance test results in $X < 90\%$ , the testing frequency shall revert back to the original 12-month basis until subsequent 12-month testing produces two consecutive tests meeting the above criteria for a 36-month test frequency.	Title I Conditions: to verify emission factor used to determine emissions subject to a Title I limit; Minn. R. 7017.2020, subp. 1
PM10 Test Frequency  If the PM10 emission rate and emission factor test frequency for natural gas is reduced from 12 months to once every 36 months (as allowed if "X" is greater than or equal to 90% for two consecutive 12-month PM10 tests for the same fuel), instead of submitting the PM10 emission factor performance test notification, the permittee shall submit a notification indicating the 12-month PM10 test for natural gas will not be conducted because the criteria have been met. In addition, the notification shall specify the value of "X" for the previous two consecutive 12-month PM10 emission factor tests.  When the permittee provides notification that the 12-month PM10 test will not be conducted because permit criteria are met for a 36-month test frequency, the test plan, pre-test meeting, test report, and microfiche copy of the test report requirements are waived for that 12-month PM10 emission factor test.	Minn. R. 7017.2030, subp. 1
Performance Test: due before end of each 60 months starting 06/01/1997 to measure PM and VOC emissions while EU 001 is combusting natural gas, and PM, PM10 and VOC emissions while EU 001 is combusting distillate oil. EU 002 shall be operated during all performance tests. Tests shall be conducted at intervals not to exceed 60 months between test dates.	Title I Conditions: to determine emissions subject to Title I limits; Minn. R. 7017.2020, subp. 1
Performance Test Notifications and Submittals:  Performance Tests are due as outlined in Tables A and B of the permit. See Table B for additional testing requirements.  Performance Test Notification (written): due 30 days before each Performance Test Performance Test Plan: due 30 days before each Performance Test Performance Test Pre-test Meeting: due 7 days before each Performance Test Performance Test Report: due 45 days after each Performance Test Performance Test Report - Microfiche Copy: due 105 days after each Performance Test	Minn. R. 7017.2030, subp. 1-4 and Minn. R. 7017.2035, subp. 1-2
E. MONITORING REQUIREMENTS	hdr
Monitoring and recordkeeping of fuel usage: when EU 001 and/or EU 002 are combusting fuel, measure the hourly quantity of each fuel combusted with an in-line fuel meter and automatically record the fuel usage, according to the procedures in 40 CFR part 75, Appendix D section 2.1.	Title I Conditions: monitoring and record keeping for Title I limits; 40 CFR pt. 75, Appendix D section 2.1
Each hour, calculate the hourly heat input according to the procedures in 40 CFR pt. 75, Appendix D section 3.4.	40 CFR pt. 75, Appendix D section 3.4

# TABLE A: LIMITS AND OTHER REQUIREMENTS

04/20/05

Facility Name: LSP Cottage Grove Cogeneration Facility

Permit Number: 16300087 - 003

<p>Pipeline Natural Gas Sulfur Content: Maintain records of a purchase contract, tariff sheet, or by a pipeline transportation contract documenting that the natural gas either consists of at least 70 percent methane by volume or have a GCV between 950 and 1100 Btu per scf, and has a sulfur content of less than or equal to 0.5 gr/100 scf.</p> <p>or;</p> <p>Sample the natural gas annually to determine the sulfur content and GCV and/or percentage by volume of methane.</p>	<p>Title I Condition: Monitoring for 40 CFR Section 52.21; BACT limit for H<sub>2</sub>SO<sub>4</sub>; Section 2.3 of Appendix D to 40 CFR Part 75; Minn. R. 7007.3000</p>
<p>Fuel sampling, analysis, and recordkeeping: sample fuel oil (every day that EU 001 combusts fuel oil) and analyze samples as specified in 40 CFR part 75, Appendix D section 2.2. Each analysis must determine at a minimum, the sulfur content in percent by weight, the density, and the high heating value.</p> <p>Determine the heat content (high heating value) of natural gas as specified in 40 CFR pt. 75, Appendix D, section 2.3.</p> <p>Maintain all analysis records for at least 5 years from the date of analysis.</p>	<p>Title I Condition: monitoring fuel parameters to calculate emissions of pollutants subject to Title I Conditions; 40 CFR part 75, Appendix D section 2.2; meets requirements of 40 CFR Section 60.334(h)</p>
<p>NOx and CO CEMS Data: calculate hourly average emission rates from a minimum of 4 equally spaced data points. At least one data point in each 15-minute period shall be used when EU 001 operates less than 60 minutes in a one-hour period. During a one-hour period when routine maintenance or quality assurance activities are conducted, the hourly average shall be determined using a minimum of two data points.</p>	<p>Title I Condition: emissions monitoring for pollutants subject to Title I emission limits</p>
<p>Opacity Monitoring Exemption: The owner or operator of an affected unit that qualifies as gas-fired, as defined in Section 72.2 of this chapter, based on information submitted by the designated representative in the monitoring plan is exempt from the opacity monitoring requirements of this part. Whenever a unit previously categorized as a gas-fired unit is recategorized as another type of unit by changing its fuel mix, the owner or operator shall install, operate, and certify a continuous opacity monitoring system as required by paragraph (a) of this section by December 31 of the following calendar year.</p>	<p>40 CFR Section 75.14(c)</p>
<p>Fuel meter calibration: Calibrate the distillate fuel oil and natural gas flow meters for EU 001 and EU 002, as specified in 40 CFR part 75, Appendix D sections 2.1.5 and 2.1.6.</p>	<p>40 CFR part 75, Appendix D sections 2.1.5 and 2.1.6</p>
<p>Monitoring and recordkeeping for PM<sub>10</sub> emissions: when EU 001 combusts natural gas, calculate the PM<sub>10</sub> emission rate once each hour for the previous hour, using Equation 1 in Appendix B. When EU 001 combusts distillate fuel oil, calculate the PM<sub>10</sub> emission rate once each hour for the previous hour, using Equation 2 in Appendix B.</p> <p>Once each hour, calculate the PM<sub>10</sub> emission rate on a 24-hour rolling average basis, by averaging the previous 24 hourly emission rates determined using Equations 1 and/or 2.</p> <p>The permittee shall include all nonoperating periods when calculating emissions. Record all calculations at the time of calculation.</p>	<p>Title I Condition: monitoring and recordkeeping to restrict ambient PM<sub>10</sub> concentrations to less than significant levels in 40 CFR Section 51.165(b)(2); Minn. R. 7007.4000</p>
<p>Monitoring and recordkeeping for SO<sub>2</sub> emissions: when EU 001 combusts natural gas, calculate the SO<sub>2</sub> emission rate once each hour for the previous hour, using Equation 3 in Appendix B. When EU 001 combusts distillate fuel oil, calculate SO<sub>2</sub> emission rate once each hour for the previous hour, using Equation 4 in Appendix B.</p> <p>Once each hour, calculate the SO<sub>2</sub> emission rate on a 3-hour rolling average basis, by averaging the previous 3 hourly emission rates determined using Equations 3 and/or 4.</p> <p>Once each hour, calculate the SO<sub>2</sub> emission rate on a 24-hour rolling average basis, by averaging the previous 24 hourly emission rates determined using Equations 3 and/or 4.</p> <p>The permittee shall include all nonoperating periods when calculating emissions. Record all calculations at the time of calculation.</p>	<p>Title I Condition: monitoring and recordkeeping to restrict ambient SO<sub>2</sub> concentrations to less than significant levels in 40 CFR Section 51.165(b)(2); Minn. R. 7007.4000; 40 CFR pt. 75, Appendix D section 3</p>
<p>Missing Data Procedures: when sulfur content data is not available, provide substitute data according to the procedures in 40 CFR part 75, Appendix D section 2.4.</p>	<p>40 CFR part 75, Appendix D section 2.4</p>

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

04/20/05

Facility Name: LSP Cottage Grove Cogeneration Facility

Permit Number: 16300087 - 003

<p>Use a NOx CEM to measure NOx emissions from SV 001 in ppm. Calculate hourly emission rates in units of lb/hr and ppm dry volume at 15 percent oxygen.</p> <p>Once each day, the Permittee shall calculate the 30-day rolling average lb/hr NOx emission rate by averaging all hourly lb/hr emission rates from the previous 30-day period.</p> <p>The Permittee shall include all nonoperating periods when calculating emissions. Record all calculations at the time of calculation</p>	<p>Title I Conditions: monitoring for BACT limit &amp; to restrict ambient concentrations to less than significant levels in 40 CFR Section 51.165(b)(2); Minn. R. 7007.4000; meets requirements of 40 CFR Sections 60.47a(c), 60.334(b)</p>
<p>Emissions Monitoring: The owner or operator shall use a CEMS to measure NOx emissions from SV 001 in accordance with 40 CFR Section 75.10.</p>	<p>40 CFR Section 75.10; meets requirements of 40 CFR Sections 60.47a(c), 60.334(b)</p>
<p>Calibrate, maintain, and operate continuous monitoring system, and record the output of the system for measuring nitrogen oxides, and either Oxygen or Carbon dioxide at each location where nitrogen oxides are monitored.</p>	<p>40 CFR Section 60.47a(c) and (d)</p>
<p>Use a CO CEM to measure CO emissions from SV 001. Calculate hourly emission rates in units of lb/hr.</p>	<p>Title I Condition: monitoring to restrict ambient concentrations to less than significant levels in 40 CFR Section 51.165(b)(2); Minn. R. 7007.4000</p>
<p>Calculate the SV 001 daily CO emissions once each day by summing the 24 one-hour average CO emission rates for the previous calendar day. Record the daily emissions sum at the time of calculation.</p>	<p>Title I Condition: monitoring to restrict facility CO emissions to less than the major source level as defined in 40 CFR pt. 51 Appendix S; Minn. R. 7007.4000</p>
<p>Missing CO Data Procedures: If emission data is not available from the CO CEM for a given hour, use substitute CO emission data for each hour of downtime determined as follows:</p> <ol style="list-style-type: none"> <li>1. If temperature upstream of CE 001 is equal to or greater than 450 F during downtime, use the highest CO value measured during the hour before or after downtime.</li> <li>2. If while combusting natural gas the temperature upstream of CE 001 is less than 450 F during downtime, use the highest of the following values: 600 lb/hr, the 1-hour average before downtime, or the 1-hour average after downtime;</li> <li>3. If while combusting distillate oil the temperature upstream of CE 001 is less than 450 F during downtime, use the highest of the following values: 1200 lb/hr, the 1-hour average before downtime, or the 1-hour average after downtime.</li> </ol>	<p>Title I Condition: monitoring to restrict ambient concentrations to less than significant level in 40 CFR Section 51.165(b)(2) and to restrict facility CO emissions to less than major source level in 40 CFR pt. 51 Appendix S; Minn. R. 7007.4000</p>
<p>Daily Calibration error (CE) Test: conduct daily CE testing on all CEMS required by the Acid Rain Program, in accordance with 40 CFR pt. 75, appendix B.</p>	<p>40 CFR pt. 75, Appendix B, section 2.1</p>
<p>Linearity and Leak Check Test (Acid Rain Program): due before end of each calendar quarter starting 11/10/1998 . Conduct a quarterly linearity test on CEMS required by the Acid Rain Program, in accordance with 40 CFR pt. 75, Appendix B.</p>	<p>40 CFR pt. 75, Appendix B, section 2.2</p>
<p>CEMS QA/QC: The owner or operator of an affected facility shall operate, calibrate, and maintain each NOX CEMS according to the QA/QC procedures in 40 CFR pt. 75, appendix B as amended.</p>	<p>40 CFR Section 75.21</p>
<p>CEMS Relative Accuracy Test Audit (RATA): due before end of each calendar year starting 11/10/1998 . If the relative accuracy is 15% or less the next CO CEMS RATA is not due for 24 months. Follow the procedures in 40 CFR pt. 60, Appendix B and Appendix F. For CO CEMS RATA only.</p>	<p>Minn. R. 7007.0800, subp. 2</p>
<p>CO 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 CO CEMS shall be adjusted whenever the CD exceeds twice the specification of 40 CFR pt. 60, Appendix B. 40 CFR pt. 60, Appendix F, shall be used to determine out-of-control periods for CEMS.</p>	<p>Minn. R. 7007.0800, subp. 2; Minn. R. 7017.1000, subp. 5</p>
<p>CEMS Cylinder Gas Audit (CGA): due before end of each calendar half-year starting 11/10/1998 . Conduct CGA at least 3 months apart and not greater than 8 months apart on the CO CEMS. Follow the procedures in 40 CFR pt. 60, Appendix F.</p>	<p>Minn. R. 7007.0800, subp. 2</p>
<p>Cylinder Gas Audit (CGA) Results Summary: due 30 days after end of each calendar half-year following Cylinder Gas Audit (CGA)</p>	<p>Minn. R. 7007.0800, subp. 2</p>
<p>Linearity Test Results Summary: due 30 days after end of each calendar quarter following Linearity and Leak Check Test if performed.</p>	<p>Minn. R. 7007.0800, subp. 2</p>
<p>CEMS Relative Accuracy Test Audit (RATA): due before end of each calendar half-year starting 11/10/1998 (NOx CEMS). Conduct a RATA on all CEMS required by the Acid Rain Program, in accordance with 40 CFR pt. 75, Appendix B. If the RATA results indicate a relative accuracy of less than or equal to 7.5% or if the monitoring system mean value from the RATA, calculated using Equation A-7 in 40 CFR 75, Appendix A, is within +/- 0.015 lb/MMBtu of the reference method mean value, then the next RATA is not required for twelve months.</p>	<p>40 CFR pt. 75, Appendix B, section 2.3</p>
<p>Relative Accuracy Test Audit (RATA) Results Summary: due 30 days after end of each calendar quarter in which the CEMS RATA was conducted.</p>	<p>Minn. R. 7007.0800, subp. 2</p>
<p>CEMS Continuous Operation: Except for system breakdowns, repairs, calibration checks, and zero and span adjustments, all CEMS shall be in continuous operation.</p>	<p>Minn. R. 7007.0800, subp. 2.</p>

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

04/20/05

Facility Name: LSP Cottage Grove Cogeneration Facility

Permit Number: 16300087 - 003

F. RECORDKEEPING	hdr
Recordkeeping: no later than January 30 of each year, calculate and record the annual EU 001 distillate fuel oil heat input as a percent of total SV 001 heat input, for the previous calendar year. No later than January 30 of each calendar year, calculate and record the 3-year rolling average EU 001 distillate fuel oil heat input as a percent of total SV 001 heat input. The 3-year rolling average is determined by summing the EU 001 distillate fuel oil heat input percentages for the previous three years, and dividing by three.	Minn. R. 7007.0800, subp. 4
Hold allowances, as of the allowance transfer deadline, in the unit's compliance subaccount not less than the total annual emissions of sulfur dioxide for the previous calendar year.	40 CFR Section 72.9(c)(1)(i), 40 CFR Section 72.9(g)(4)
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. 7007.0800, subp. 5; and 40 CFR Section 75.50
<p>Recordkeeping for Startups and Shutdowns: The owner or operator shall keep records of the periods of all startups and shutdowns of EU 001.</p> <p>The records shall specify the occurrence and duration of each period of startup and shutdown of EU 001. The records shall also specify the date and time (to the nearest minute), that fuel flow stops to EU 001.</p> <p>Records shall also indicate the occurrence of any malfunction of EU 001, EU 002, CE 001, or CE 002.</p> <p>Records shall also be kept of any time periods during which CE 001 or CE 002 were not in operation, during the operation of EU 001.</p>	Minn. R. 7007.0800, subp. 5
G. REPORTING REQUIREMENTS	hdr
This unit is a new unit as defined in 40 CFR Section 72.2 and therefore is an affected unit according to 40 CFR Section 72.6(a)(3)(i).	40 CFR Section 72.6(a)(3)(i)
Certify Acid Rain Program Submittals: Each submission under the Acid Rain Program shall be submitted, signed, and certified by the designated representative for all sources on behalf of which the submission is made in accordance with 40 CFR Section 72.21.	40 CFR Section 72.21
Relative Accuracy Test Audit (RATA) Notification: due 30 days before CEMS Relative Accuracy Test Audit (RATA)).	Minn. R. 7007.0800, subp. 2

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

04/20/05

Facility Name: LSP Cottage Grove Cogeneration Facility

Permit Number: 16300087 - 003

**Subject Item:** EU 001 Combustion Turbine Generator**Associated Items:** CE 001 Catalytic Afterburner

CE 002 Catalytic Reduction

SV 001

What to do	Why to do it
A. OPERATIONAL LIMITS	hdr
Operating Hours: less than or equal to 1700 hours/year using 365-day Rolling Sum when combusting distillate fuel oil.	Title I Conditions: to restrict SO <sub>2</sub> emissions below major source level in 40 CFR pt. 51 Appendix S, and to restrict ambient SO <sub>2</sub> concentrations according to 40 CFR Section 51.165(b)(2); Minn. R. 7007.4000
Recordkeeping: Once each calendar day, record the total hours that distillate fuel oil was combusted during the previous day. Once each calendar day, calculate and record the 365-day rolling sum hours of distillate fuel oil combustion for EU 001 by summing the daily EU 001 distillate fuel oil combustion hours for the previous 365 days.	Title I Conditions: to restrict SO <sub>2</sub> emissions to less than major source level under 40 CFR pt. 51 Appendix S, and to restrict ambient SO <sub>2</sub> concentrations according to 40 CFR Section 51.165(b)(2); Minn. R. 7007.4000
Nitrogen Oxides: less than or equal to 106.8 parts per million volume dry at 15 percent oxygen when combusting natural gas. This limit is assumed to be met due to the SV 001 NO <sub>x</sub> BACT limit that applies when EU 001 is combusting natural gas.	40 CFR Section 60.332(a)(1)
Nitrogen Oxides: less than or equal to 99.4 parts per million dry volume at 15 percent oxygen when combusting distillate fuel oil. This limit is assumed to be met due to the SV 001 NO <sub>x</sub> BACT limit that applies when EU 001 is combusting distillate fuel oil.	40 CFR Section 60.332(a)(1)
Sulfur Content of Fuel: less than or equal to 0.8 percent by weight (met by SV 001 Title I fuel restriction of natural gas and distillate fuel oil with sulfur content limit of 0.05% by weight).	40 CFR Section 60.333(b)



**TABLE A: LIMITS AND OTHER REQUIREMENTS**

04/20/05

Facility Name: LSP Cottage Grove Cogeneration Facility

Permit Number: 16300087 - 003

**Subject Item:** EU 002 Supplemental Duct Firing Burners**Associated Items:** CE 001 Catalytic Afterburner

CE 002 Catalytic Reduction

SV 001

What to do	Why to do it
Total Particulate Matter: less than or equal to 0.03 lbs/million Btu heat input	40 CFR Section 60.42a(a)(1)
Opacity: less than or equal to 20 percent opacity using 6-minute Average except for one six-minute average per hour of not more than 27 percent opacity.	40 CFR Section 60.42a(b)
Sulfur Dioxide: less than or equal to 0.20 lbs/million Btu heat input using 30-day Rolling Average	40 CFR Section 60.43a(b)(2)
Nitrogen Oxides: less than or equal to 0.20 lbs/million Btu heat input using 30-day Rolling Average	40 CFR Section 60.44a(a)(1)
Recordkeeping: maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of the facility including malfunction of the air pollution control equipment or any periods during which a continuous monitoring system or monitoring device is inoperative.	40 CFR Section 60.7(b) and 40 CFR Section 60.47a(e)

# TABLE A: LIMITS AND OTHER REQUIREMENTS

04/20/05

Facility Name: LSP Cottage Grove Cogeneration Facility

Permit Number: 16300087 - 003

**Subject Item:** EU 003 Auxiliary Boiler #1

**Associated Items:** CE 003 Modified Furnace or Burner Design

CE 005 Flue Gas Recirculation

GP 001 Auxiliary Boilers #1 and #2

MR 004

SV 002

What to do	Why to do it
A. EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.005 lbs/million Btu heat input when EU 003 is combusting natural gas.	Title I Condition: 40 CFR Section 52.21(j) BACT limit; Minn. R. 7007.3000
Total Particulate Matter: less than or equal to 0.061 lbs/million Btu heat input when EU 003 is combusting distillate fuel oil.	Title I Condition: 40 CFR Section 52.21(j) BACT limit; Minn. R. 7007.3000
Particulate Matter < 10 micron: less than or equal to 0.005 lbs/million Btu heat input when EU 003 is combusting natural gas.	Title I Conditions: 40 CFR Section 52.21(j) BACT limit; Minn. R. 7007.3000; and to restrict ambient concentrations to less than significant levels in 40 CFR Section 51.165(b)(2); Minn. R. 7007.4000
Particulate Matter < 10 micron: less than or equal to 0.061 lbs/million Btu heat input when EU 003 is combusting distillate fuel oil.	Title I Conditions: 40 CFR Section 52.21(j) BACT limit; Minn. R. 7007.3000; and to restrict ambient concentrations to less than significant levels in 40 CFR Section 51.165(b)(2); Minn. R. 7007.4000
Opacity: less than or equal to 20 percent opacity except for one 6-minute period per hour of not more than 27 percent opacity. The opacity standard applies at all times except during startup, shutdown, or malfunction. Malfunction means any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner.	40 CFR Sections 60.43b(f), 60.43b(g), and 60.2
Sulfur Dioxide: less than or equal to 5.7 lbs/hour using 1-Hour Average. This limit is more stringent than the limit in 40 CFR 60.42b, NSPS Subp. Db, which also applies at all times.	Title I Condition: to restrict ambient concentrations to less than significant levels in 40 CFR Section 51.165(b)(2); Minn. R. 7007.4000
Nitrogen Oxides: less than or equal to 0.06 lbs/million Btu heat input using 1-Hour Average when EU 003 is combusting natural gas.	Title I Condition: 40 CFR Section 52.21(j) BACT limit; Minn. R. 7007.3000. Meets requirement in 40 CFR Section 60.44b(a)(1)(ii)
Nitrogen Oxides: less than or equal to 6.9 lbs/hour using 30-day Rolling Average when EU 003 is combusting natural gas.	Title I Condition: to restrict ambient concentrations to less than significant levels in 40 CFR Section 51.165(b)(2); Minn. R. 7007.4000
Nitrogen Oxides: less than or equal to 0.12 lbs/million Btu heat input using 1-Hour Average when EU 003 is combusting distillate fuel oil.	Title I Condition: 40 CFR Section 52.21(j) BACT limit; Minn. R. 7007.3000. Meets requirement in 40 CFR Section 60.44b(a)(1)(ii)
Nitrogen Oxides: less than or equal to 13.4 lbs/hour using 30-day Rolling Average when EU 003 is combusting distillate fuel oil.	Title I Condition: to restrict ambient concentrations to less than significant levels in 40 CFR Section 51.165(b)(2); Minn. R. 7007.4000
Calculate and record the prorated 30-day rolling average NOx emission limit for EU 003 once each day for the previous 30-day period, when both distillate oil and natural gas were fired during the previous 30-day period, using the following formula:  Limit = $([Toil * 13.4 \text{ lb/hr}] + [Tgas * 6.9 \text{ lb/hr}]) / \text{total operating hours during the previous 30-day period}$  Toil = total operating hours on distillate fuel oil during the previous 30 days Tgas = total operating hours on natural gas during the previous 30 days	Title I Condition: to restrict ambient concentrations to less than significant levels in 40 CFR Section 51.165(b)(2); Minn. R. 7007.4000
Carbon Monoxide: less than or equal to 5.6 lbs/hour using 1-Hour Average	Title I Condition: to restrict ambient concentrations to less than significant levels in 40 CFR Section 51.165(b)(2); Minn. R. 7007.4000
Volatile Organic Compounds: less than or equal to 0.005 lbs/million Btu heat input when EU 003 is combusting natural gas.	Title I Condition: 40 CFR Section 52.21(j) BACT limit; Minn. R. 7007.3000
Volatile Organic Compounds: less than or equal to 0.03 lbs/million Btu heat input when EU 003 is combusting distillate fuel oil.	Title I Condition: 40 CFR Section 52.21(j) BACT limit; Minn. R. 7007.3000
Sulfuric Acid Mist: less than or equal to 0.00026 lbs/million Btu heat input when EU 003 is combusting natural gas. The Sulfuric Acid Mist BACT limit is met by complying with the fuel restrictions and fuel sulfur content limits.	Title I Condition: 40 CFR Section 52.21(j) BACT limit; Minn. R. 7007.3000
Sulfuric Acid Mist: less than or equal to 0.0025 lbs/million Btu heat input when EU 003 is combusting distillate fuel oil. The Sulfuric Acid Mist BACT limit is met by complying with the fuel restrictions and fuel sulfur content limits.	Title I Condition: 40 CFR Section 52.21(j) BACT limit; Minn. R. 7007.3000

# TABLE A: LIMITS AND OTHER REQUIREMENTS

04/20/05

Facility Name: LSP Cottage Grove Cogeneration Facility

Permit Number: 16300087 - 003

B. OPERATIONAL REQUIREMENTS	hdr
When boiler load is above 25 percent, maintain Oxygen: greater than or equal to 1.7 percent by volume and less than or equal to 10 percent by volume	Title I Condition: 40 CFR Section 52.21(j) BACT limit for Volatile Organic Compounds and Particulate Matter < 10 microns; Minn. R. 7007.3000
The opacity standard applies at all times, except during periods of startup, shutdown, or malfunction.	40 CFR Section 60.43b(g)
The nitrogen oxides standards apply at all times including periods of startup, shutdown, and malfunction.	Minn. R. 7007.0800, subp. 2; meets requirements of 40 CFR Section 60.44b(h)
Fuel Use Restriction: Fuel is limited to pipeline natural gas, as defined in 40 CFR Section 72.2 and distillate fuel oil with a maximum sulfur content of 0.05 percent by weight.	Title I Conditions: fuel type restriction determined as BACT for PM & H2SO4 emissions & to restrict ambient concentrations of SO2 to less than significant levels in 40 CFR Section 51.165(b)(2); Minn. R. 7007.4000. Meets 40 CFR Section 60.42b(j)
Heat Input: less than or equal to 113.1 million Btu's/hour using 8-hour Block Average while combusting natural gas. The eight-hour block average shall be calculated by dividing the heat input by the total operating time in each eight-hour block. Down time of 15 minutes or more is not to be included as operating time. This limit will be amended as specified in Minn. R. 7017.2025 upon completion of subsequent performance tests.	Minn. R. 7017.2025, subp. 3; Operating Limit from Performance Testing
C. MONITORING REQUIREMENTS	hdr
Emissions Monitoring: The owner or operator shall use a COMS to measure opacity emissions from EU 003.	40 CFR Section 60.48b(a)
<p>Pipeline Natural Gas Sulfur Content: Maintain records of a purchase contract, tariff sheet, or by a pipeline transportation contract documenting that the natural gas either consists of at least 70 percent methane by volume or have a GCV between 950 and 1100 Btu per scf, and has a sulfur content of less than or equal to 0.5 gr/100 scf.</p> <p>or;</p> <p>Sample the natural gas annually to determine the sulfur content and GCV and/or percentage by volume of methane.</p>	Title I Condition: Monitoring for 40 CFR Section 52.21 BACT limit for H2SO4; Section 2.3 of Appendix D to 40 CFR Section 75; Minn. R. 7007.3000
<p>Monitoring of fuel parameters: obtain fuel oil supplier receipts for each delivery certifying that the oil meets the definition of distillate oil in 40 CFR Section 60.41b, that the sulfur content does not exceed 0.05% by weight, and specifying the density and high heating value (HHV).</p> <p>As an alternative, determine the sulfur content in percent by weight, HHV, and density of distillate fuel oil by sampling and analyzing fuel oil according to the requirements in 40 CFR pt. 75, Appendix D section 2.2., and obtain fuel supplier receipts for each delivery certifying that the oil meets the definition of distillate oil in 40 CFR Section 60.41b.</p> <p>Obtain HHV of natural gas from the fuel supplier.</p> <p>Maintain records of fuel parameters for a minimum of five years from the date of receipt of parameter information.</p>	Title I Condition: monitoring fuel parameters to calculate emissions of pollutants subject to Title I Conditions; meets requirements of 40 CFR Section 60.49b(r)
Monitoring of Fuel Usage: once each hour, record the EU 003 usage of natural gas (mcf/hr) and distillate fuel oil (gal/hr) during the previous hour. Records shall specify the hour, date, and type of fuel for each hourly fuel usage value.	Title I Conditions: monitoring for BACT pollutants to restrict ambient concentrations according to 40 CFR Section 51.165(b)(2) & to restrict total facility CO emissions below major source level in 40 CFR pt. 51 App. S; Minn. R. 7007.4000
<p>Monitoring and recordkeeping for NOx emissions: The Permittee shall use the Predictive Emissions Monitoring System (PEMS) to measure NOx emissions, according to the plan submitted to the Administrator under 40 CFR Section 60.49b(c). NOx emission rates shall be calculated and recorded for each hour of operation, in units of lb/mmBtu and lb/hr.</p> <p>Once each day, the Permittee shall calculate the 30-day rolling average lb/hr NOx emission rate by averaging all hourly lb/hr emission rates from the previous 30-day period. The permittee shall include all nonoperating periods when calculating emissions.</p> <p>Record all calculations at the time of calculation.</p>	Title I Conditions: emissions monitoring for pollutant subject to a BACT limit, and to restrict ambient concentrations to less than significant levels in 40 CFR Section 51.165(b)(2); Minn. R. 7007.4000; 40 CFR Section 60.49b(c)
<p>Monitoring and recordkeeping for carbon monoxide emissions: when EU 003 is combusting natural gas, calculate the carbon monoxide emission rate on a 1-hour average basis, once each hour, using Equation 5 in Appendix B. When EU 003 is combusting distillate fuel oil, calculate the carbon monoxide emission rate on a 1-hour average basis, once each hour, using Equation 6 in Appendix B.</p> <p>Record all hourly emission rates at the time of calculation.</p>	Title I Condition: emissions monitoring to restrict ambient concentrations to less than significant levels in 40 CFR Section 51.165(b)(2); Minn. R. 7007.4000

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

04/20/05

Facility Name: LSP Cottage Grove Cogeneration Facility

Permit Number: 16300087 - 003

Calculate the EU 003 daily CO emissions once each day by summing the 24 hourly average CO emission rates for the previous calendar day. Record the daily emissions sum at the time of calculation.	Title I Condition: emissions calculation and recordkeeping to restrict facility CO emissions to less than the major source level as defined in 40 CFR pt. 51 Appendix S; Minn. R. 7007.4000
COMS Continuous Operation: Except for system breakdowns, repairs, calibration checks, and zero and span adjustments, all COMS shall be in continuous operation.	Minn. R. 7007.0800, subp. 2
COMS Daily Calibration Drift (CD) Check: The CD shall be quantified and recorded at zero (low-level) and upscale (high-level) opacity at least once daily. The COMS must be adjusted whenever the calibration drift (CD) exceeds twice the specification of PS-1 of 40 CFR 60, Appendix B.	Minn. R. 7017.1000; 40 CFR Section 60.13(d)
COMS Calibration Error Audit: due before end of each calendar half-year following COMS Certification Test. Conduct audits at least 3 months apart but no greater than 8 months apart.	Minn. R. 7007.0800, subp. 2
COMS Calibration Error Audit Results Summary: due 30 days after end of each calendar half-year following COMS Calibration Error Audit.	Minn. R. 7007.0800, subp. 2
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
<b>D. RECORDKEEPING</b>	hdr
Recordkeeping: maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of the 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)
Recordkeeping: maintain records of the type and amount of each fuel combusted each day; calculate the annual capacity factor for each fuel for each calendar quarter. Annual capacity factor is calculated on a 12-month rolling average basis at the end of each calendar month.	40 CFR Section 60.49b(d)
Recordkeeping: The owner or operator must retain records of all COMS monitoring data and support information for a period of five years from the date of the monitoring sample, measurement or report. Records shall be kept at the source.	Minn. R. 7007.0800, subp. 5.
<b>E. PREDICTIVE EMISSIONS MONITORING SYSTEM (PEMS)</b>	hdr
PEMS Monitoring Plan for Nitrogen Oxides. The PEMS Monitoring Plan shall include the required items identified in 40 CFR Section 60.49b(c)(1), (2), and (3). If at any time the Permittee discovers that the approved PEMS Monitoring Plan no longer provides valid emissions data, the Permittee shall make corrections and revise the PEMS Monitoring Plan within 30 days of discovery.	40 CFR Section 60.49b(c); Minn. R. 7007.0800, subp. 2
PEMS Relative Accuracy Test Audit (RATA): due before end of each 24 months following PEMS Certification Test. Each RATA shall be conducted at an interval not to exceed 24 months.	Minn. R. 7007.0800, subp. 2
Relative Accuracy Test Audit (RATA) Notification: due 30 days before PEMS Relative Accuracy Test Audit (RATA).	Minn. R. 7007.0800, 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. 7007.0800, subp. 2
Continuous Operation: Except for system breakdowns, repairs, and calibration checks, the PEMS shall be in continuous operation.	Title I Conditions: monitoring for pollutant subject to a BACT limit & to restrict ambient concentrations to less than significant levels in 40 CFR Section 51.165(b)(2); Minn. R. 7007.4000; 40 CFR Section 60.49b(c); Minn. R. 7007.0800, subp. 2
Recordkeeping: The owner or operator must retain records of all PEMS 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 and include predicted NOx emission rates and the monitored operating conditions, including steam generating unit load, identified in the PEMS Monitoring Plan	40 CFR Sections 60.7(c) and 60.49b(c)(3); Minn. R. 7007.0800, subp. 5

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

04/20/05

Facility Name: LSP Cottage Grove Cogeneration Facility

Permit Number: 16300087 - 003

**Subject Item:** EU 004 Auxiliary Boiler #2**Associated Items:** CE 004 Modified Furnace or Burner Design

CE 006 Flue Gas Recirculation

GP 001 Auxiliary Boilers #1 and #2

MR 005

SV 003

What to do	Why to do it
A. EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.005 lbs/million Btu heat input when EU 004 is combusting natural gas.	Title I Condition: 40 CFR Section 52.21(j) BACT limit; Minn. R. 7007.3000
Total Particulate Matter: less than or equal to 0.061 lbs/million Btu heat input when EU 004 is combusting distillate fuel oil.	Title I Condition: 40 CFR Section 52.21(j) BACT limit; Minn. R. 7007.3000
Particulate Matter < 10 micron: less than or equal to 0.005 lbs/million Btu heat input when EU 004 is combusting natural gas.	Title I Conditions: 40 CFR Section 52.21(j) BACT limit; Minn. R. 7007.3000 and to restrict ambient concentrations to less than significant levels in 40 CFR Section 51.165(b)(2); Minn. R. 7007.4000
Particulate Matter < 10 micron: less than or equal to 0.061 lbs/million Btu heat input when EU 004 is combusting distillate fuel oil.	Title I Conditions: 40 CFR Section 52.21(j) BACT limit; Minn. R. 7007.3000 and to restrict ambient concentrations to less than significant levels in 40 CFR Section 51.165(b)(2); Minn. R. 7007.4000
Opacity: less than or equal to 20 percent opacity except for one 6-minute period per hour of not more than 27 percent opacity. The opacity standard applies at all times except during startup, shutdown, or malfunction. Malfunction means any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner.	40 CFR Sections 60.43b(f), 60.43b(g), and 60.2
Sulfur Dioxide: less than or equal to 5.7 lbs/hour using 1-Hour Average. This limit is more stringent than the limit in 40 CFR 60.42b, NSPS Subp. Db, which also applies at all times.	Title I Condition: to restrict ambient concentrations to less than significant levels in 40 CFR Section 51.165(b)(2); Minn. R. 7007.4000
Nitrogen Oxides: less than or equal to 0.06 lbs/million Btu heat input using 1-Hour Average when EU 004 is combusting natural gas.	Title I Condition: 40 CFR Section 52.21(j) BACT limit; Minn. R. 7007.3000. Meets requirement in 40 CFR Section 60.44b(a)(1)(ii)
Nitrogen Oxides: less than or equal to 6.9 lbs/hour using 30-day Rolling Average when EU 004 is combusting natural gas.	Title I Condition: to restrict ambient concentrations to less than significant levels in 40 CFR Section 51.165(b)(2); Minn. R. 7007.4000
Nitrogen Oxides: less than or equal to 0.12 lbs/million Btu heat input using 1-Hour Average when EU 004 is combusting distillate fuel oil.	Title I Condition: 40 CFR Section 52.21(j) BACT limit; Minn. R. 7007.3000. Meets requirement in 40 CFR Section 60.44b(a)(1)(ii)
Nitrogen Oxides: less than or equal to 13.4 lbs/hour using 30-day Rolling Average when EU 004 is combusting distillate fuel oil.	Title I Condition: to restrict ambient concentrations to less than significant levels in 40 CFR Section 51.165(b)(2); Minn. R. 7007.4000
Calculate and record the prorated 30-day rolling average NOx emission limit for EU 004 once each day for the previous 30-day period, when both distillate oil and natural gas were fired during the previous 30-day period, using the following formula:  Limit = $([Toil * 13.4 \text{ lb/hr}] + [Tgas * 6.9 \text{ lb/hr}]) / \text{total operating hours during the previous 30-day period}$  Toil = total operating hours on distillate fuel oil during the previous 30 days Tgas = total operating hours on natural gas during the previous 30 days	Title I Condition: to restrict ambient concentrations to less than significant levels in 40 CFR Section 51.165(b)(2); Minn. R. 7007.4000
Carbon Monoxide: less than or equal to 5.6 lbs/hour using 1-Hour Average	Title I Condition: to restrict ambient concentrations to less than significant levels in 40 CFR Section 51.165(b)(2); Minn. R. 7007.4000
Volatile Organic Compounds: less than or equal to 0.005 lbs/million Btu heat input when EU 004 is combusting natural gas	Title I Condition: 40 CFR Section 52.21(j) BACT limit; Minn. R. 7007.3000
Volatile Organic Compounds: less than or equal to 0.03 lbs/million Btu heat input when EU 004 is combusting distillate fuel oil.	Title I Condition: 40 CFR Section 52.21(j) BACT limit; Minn. R. 7007.3000
Sulfuric Acid Mist: less than or equal to 0.00026 lbs/million Btu heat input when EU 004 is combusting natural gas. The Sulfuric Acid Mist BACT limit is met by complying with the fuel restrictions and fuel sulfur content limits.	Title I Condition: 40 CFR Section 52.21(j) BACT limit; Minn. R. 7007.3000
Sulfuric Acid Mist: less than or equal to 0.0025 lbs/million Btu heat input when EU 004 is combusting distillate fuel oil. The Sulfuric Acid Mist BACT limit is met by complying with the fuel restrictions and fuel sulfur content limits.	Title I Condition: 40 CFR Section 52.21(j) BACT limit; Minn. R. 7007.3000

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

04/20/05

Facility Name: LSP Cottage Grove Cogeneration Facility

Permit Number: 16300087 - 003

B. OPERATIONAL REQUIREMENTS	hdr
When boiler load is above 25 percent, maintain Oxygen: greater than or equal to 1.7 percent by volume and less than or equal to 10 percent by volume	Title I Condition: 40 CFR Section 52.21(j) BACT limit for Volatile Organic Compounds and Particulate Matter < 10 microns; Minn. R. 7007.3000
The opacity standard applies at all times, except during periods of startup, shutdown, or malfunction.	40 CFR Section 60.43b(g)
The nitrogen oxides standards apply at all times including periods of startup, shutdown, and malfunction.	Minn. R. 7007.0800, subp. 2; meets requirements of 40 CFR Section 60.44b(h)
Fuel Use Restriction: Fuel is limited to pipeline natural gas, as defined in 40 CFR Section 72.2 and distillate fuel oil with a maximum sulfur content of 0.05 percent by weight.	Title I Conditions: fuel type restriction determined as BACT for PM and sulfuric acid emissions, and to restrict ambient concentrations of SO <sub>2</sub> to less than significant levels in 40 CFR Section 51.165(b)(2); Minn. R. 7007.4000; meets 40 CFR 60.42b(j)
Heat Input: less than or equal to 114.8 million Btu's/hour using 8-hour Block Average while combusting natural gas. The eight-hour block average shall be calculated by dividing the heat input by the total operating time in each eight-hour block. Down time of 15 minutes or more is not to be included as operating time. This limit will be amended as specified in Minn. R. 7017.2025 upon completion of subsequent performance tests.	Minn. R. 7017.2025, subp. 3; Operating Limit from Performance Testing
C. MONITORING REQUIREMENTS	hdr
Emissions Monitoring: The owner or operator shall use a COMS to measure opacity emissions from EU 004.	40 CFR Section 60.48b(a)
<p>Pipeline Natural Gas Sulfur Content: Maintain records of a purchase contract, tariff sheet, or by a pipeline transportation contract documenting that the natural gas either consists of at least 70 percent methane by volume or have a GCV between 950 and 1100 Btu per scf, and has a sulfur content of less than or equal to 0.5 gr/100 scf.</p> <p>or;</p> <p>Sample the natural gas annually to determine the sulfur content and GCV and/or percentage by volume of methane.</p>	Title I Condition: Monitoring for 40 CFR Section 52.21 BACT limit for H <sub>2</sub> SO <sub>4</sub> ; Minn. R. 7007.4000; Section 2.3 of Appendix D to 40 CFR Section 75; Minn. R. 7007.3000
<p>Monitoring of fuel parameters: obtain fuel oil supplier receipts for each delivery certifying that the oil meets the definition of distillate oil in 40 CFR Section 60.41b, that the sulfur content does not exceed 0.05% by weight, and specifying the density and high heating value (HHV).</p> <p>As an alternative, determine the sulfur content in percent by weight, HHV, and density of distillate fuel oil by sampling and analyzing fuel oil according to the requirements in 40 CFR pt. 75, Appendix D section 2.2., and obtain fuel supplier receipts certifying that the oil meets the definition of distillate oil in 40 CFR Section 60.41b.</p> <p>Obtain HHV of natural gas from the fuel supplier.</p> <p>Maintain records of fuel parameters for a minimum of five years from the date of receipt of parameter information.</p>	Title I Condition: monitoring fuel parameters to calculate emissions of pollutants subject to Title I Conditions; meets requirements of 40 CFR Section 60.49b(r)
Monitoring of Fuel Usage: once each hour, record the EU 004 usage of natural gas (mcf/hr) and distillate fuel oil (gal/hr) during the previous hour. Records shall specify the hour, date, and type of fuel for each hourly fuel usage value.	Title I Conditions: monitoring for: BACT pollutants, to restrict ambient concentrations according to 40 CFR Section 51.165(b)(2), and to restrict total facility CO emissions below major source level in 40 CFR pt. 51 App. S; Minn. R. 7007.4000
<p>Monitoring and recordkeeping for NO<sub>x</sub> emissions: The Permittee shall use the Predictive Emissions Monitoring System (PEMS) to measure NO<sub>x</sub> emissions, according to the plan submitted to the Administrator under 40 CFR Section 60.49b(c). NO<sub>x</sub> emission rates shall be calculated and recorded for each hour of operation, in units of lb/mmBtu and lb/hr.</p> <p>Once each day, the Permittee shall calculate the 30-day rolling average lb/hr NO<sub>x</sub> emission rate by averaging all hourly lb/hr emission rates from the previous 30-day period. The permittee shall include all nonoperating periods when calculating emissions.</p> <p>Record all calculations at the time of calculation.</p>	Title I Conditions: emissions monitoring for pollutant subject to a BACT limit, and to restrict ambient concentrations to less than significant levels in 40 CFR Section 51.165(b)(2); Minn. R. 7007.4000; 40 CFR Section 60.49b(c)
<p>Monitoring and recordkeeping for carbon monoxide emissions: when EU 004 is combusting natural gas, calculate the carbon monoxide emission rate on a 1-hour average basis, once each hour, using Equation 5 in Appendix B. When EU 004 is combusting distillate fuel oil, calculate the carbon monoxide emission rate on a 1-hour average basis, once each hour, using Equation 6 in Appendix B.</p> <p>Record all hourly emission rates at the time of calculation.</p>	Title I Condition: emissions monitoring to restrict ambient concentrations to less than significant levels in 40 CFR Section 51.165(b)(2); Minn. R. 7007.4000

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

04/20/05

Facility Name: LSP Cottage Grove Cogeneration Facility

Permit Number: 16300087 - 003

Calculate the EU 004 daily CO emissions once each day by summing the 24 hourly average CO emission rates for the previous calendar day. Record the daily emissions sum at the time of calculation.	Title I Condition: emissions calculation and recordkeeping to restrict facility CO emissions to less than the major source level as defined in 40 CFR pt. 51 Appendix S; Minn. R. 7007.4000
COMS Continuous Operation: Except for system breakdowns, repairs, calibration checks, and zero and span adjustments, all COMS shall be in continuous operation.	Minn. R. 7007.0800, subp. 2
COMS Daily Calibration Drift (CD) Check: The CD shall be quantified and recorded at zero (low-level) and upscale (high-level) opacity at least once daily. The COMS must be adjusted whenever the calibration drift (CD) exceeds twice the specification of PS-1 of 40 CFR 60, Appendix B.	Minn. R. 7017.1000; 40 CFR Section 60.13(d)
COMS Calibration Error Audit: due before end of each calendar half-year following COMS Certification Test. Conduct audits at least 3 months apart but no greater than 8 months apart.	Minn. R. 7007.0800, subp. 2
COMS Calibration Error Audit Results Summary: due 30 days after end of each calendar half-year following COMS Calibration Error Audit.	Minn. R. 7007.0800, subp. 2
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
<b>D. RECORDKEEPING</b>	hdr
Recordkeeping: maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of the 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)
Recordkeeping: maintain records of the type and amount of each fuel combusted each day; calculate the annual capacity factor for each fuel for each calendar quarter. Annual capacity factor is calculated on a 12-month rolling average basis at the end of each calendar month.	40 CFR Section 60.49b(d)
Recordkeeping: The owner or operator must retain records of all COMS monitoring data and support information for a period of five years from the date of the monitoring sample, measurement or report. Records shall be kept at the source.	Minn. R. 7007.0800, subp. 5.
<b>E. PREDICTIVE EMISSIONS MONITORING SYSTEM (PEMS)</b>	hdr
PEMS Monitoring Plan for Nitrogen Oxides. The PEMS Monitoring Plan shall include the required items identified in 40 CFR Section 60.49b(c)(1), (2), and (3). If at any time the Permittee discovers that the approved PEMS Monitoring Plan no longer provides valid emissions data, the Permittee shall make corrections and revise the PEMS Monitoring Plan within 30 days of discovery.	40 CFR Section 60.49b(c); Minn. R. 7007.0800, subp. 2
PEMS Relative Accuracy Test Audit (RATA): due before end of each 24 months following PEMS Certification Test. Each RATA shall be conducted at an interval not to exceed 24 months.	Minn. R. 7007.0800, subp. 2
Relative Accuracy Test Audit (RATA) Notification: due 30 days before PEMS Relative Accuracy Test Audit (RATA).	Minn. R. 7007.0800, 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. 7007.0800, subp. 2
Continuous Operation: Except for system breakdowns, repairs, and calibration checks, the PEMS shall be in continuous operation.	Title I Conditions: emissions monitoring for BACT limits, and to restrict ambient concentrations to less than significant levels in 40 CFR Section 51.165(b)(2); Minn. R. 7007.4000; 40 CFR Section 60.49b(c); Minn. R. 7007.0800, subp. 2
Recordkeeping: The owner or operator must retain records of all PEMS 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 and include predicted NOx emission rates and the monitored operating conditions, including steam generating unit load, identified in the PEMS Monitoring Plan	40 CFR Sections 60.7(c) and 60.49b(c)(3); Minn. R. 7007.0800, subp. 5

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

04/20/05

Facility Name: LSP Cottage Grove Cogeneration Facility

Permit Number: 16300087 - 003

**Subject Item:** EU 005 Emergency Fire Pump Diesel Engine**Associated Items:** CE 007 Other

CE 008 Other

SV 004

What to do	Why to do it
<b>A. EMISSION LIMITS</b>	hdr
Total Particulate Matter: less than or equal to 0.26 lbs/million Btu heat input	Title I Condition: 40 CFR Section 52.21(j) BACT limit; Minn. R. 7007.3000
Particulate Matter < 10 micron: less than or equal to 0.26 lbs/million Btu heat input	Title I Condition: 40 CFR Section 52.21(j) BACT limit; Minn. R. 7007.3000; and to restrict ambient concentrations to less than significant levels in 40 CFR Section 51.165(b)(2); Minn. R. 7007.4000
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 0.14 lbs/hour . This limit is more stringent than the limit in Minn. R. 7011.2300, subp. 2, which also applies at all times.	Title I Condition: to restrict ambient concentrations to less than significant levels in 40 CFR Section 51.165(b)(2); Minn. R. 7007.4000
Nitrogen Oxides: less than or equal to 1.85 lbs/million Btu heat input	Title I Condition: 40 CFR Section 52.21(j) BACT limit; Minn. R. 7007.3000; and to restrict ambient concentrations to less than significant levels in 40 CFR Section 51.165(b)(2); Minn. R. 7007.4000
Carbon Monoxide: less than or equal to 5.0 lbs/hour using 1-Hour Average	Title I Condition: to restrict ambient concentrations to less than significant levels in 40 CFR Section 51.165(b)(2); Minn. R. 7007.4000
Volatile Organic Compounds: less than or equal to 0.71 lbs/million Btu heat input	Title I Condition: 40 CFR Section 52.21(j) BACT limit; Minn. R. 7007.3000
Sulfuric Acid Mist: less than or equal to 0.0017 lbs/million Btu heat input	Title I Condition: 40 CFR Section 52.21(j) BACT limit; Minn. R. 7007.3000
<b>B. OPERATIONAL LIMITS</b>	hdr
Fuel use is limited to distillate oil with a maximum sulfur content of 0.05 percent by weight.	Title I Condition: 40 CFR Section 52.21(j) BACT for PM10 & H2SO4; & to restrict ambient SO2 concentrations to less than significant levels in 40 CFR Section 51.165(b)(2); Minn. R. 7007.3000 & .4000; meets requirement of Minn. R. 7011.2300, subp. 2
Operating Hours: less than or equal to 150 hours/year using 365-day Rolling Sum, calculated daily.	Title I Condition: 40 CFR pt. 51, Appendix S to avoid classification as a major source for SO2; Minn. R. 7007.4000
<b>C. MONITORING REQUIREMENTS</b>	hdr
Monitoring of fuel parameters: obtain distillate fuel oil vendor certification for each delivery stating that the sulfur content does not exceed 0.05% by weight, and specifying the density and high heating value (HHV). As an alternative, determine the sulfur content in percent by weight, HHV, and density of distillate fuel oil by sampling and analyzing fuel oil according to the requirements in 40 CFR pt. 75, Appendix D section 2.2.	Title I Condition: monitoring fuel parameters to calculate emissions of pollutants subject to Title I Conditions
Maintain records of fuel parameters for a minimum of five years from the date of receipt of parameter information.	
Recordkeeping: record total hours of operation, once each day for the previous calendar day. Once each day, calculate and record the 365-day rolling sum hours of operation by summing the daily hours of operation for the previous 365 days.	Title I Conditions: recordkeeping to restrict ambient SO2 concentrations to less than significant levels in 40 CFR Section 51.165(b)(2), and to avoid classification as a major source for SO2 under 40 CFR pt. 51, Appendix S; Minn. R. 7007.4000
Monitoring and recordkeeping: once each hour calculate the EU 005 carbon monoxide emissions (in lb/hr), using Equation 7 in Appendix B. Once each day, calculate and record the EU 005 carbon monoxide emissions for the previous calendar day (in lb/day) by summing the 24 one-hour emission rates determined by Equation 7, from the previous day.	Title I Condition: monitoring and recordkeeping to restrict ambient concentrations to less than significant levels in 40 CFR Section 51.165(b)(2); Minn. R. 7007.4000



**TABLE A: LIMITS AND OTHER REQUIREMENTS**

04/20/05

Facility Name: LSP Cottage Grove Cogeneration Facility

Permit Number: 16300087 - 003

**Subject Item:** EU 006 Distillate Oil Storage Tank Vents**Associated Items:** SV 005

What to do	Why to do it
Vapor Pressure: less than or equal to 3.5 kPa to avoid requirements of 40 CFR pt. 60 subpart Kb.	40 CFR Section 60.110b(c)
Monitoring and Recordkeeping: The owner or operator shall permanently keep readily accessible records showing the dimensions of each storage vessel and an analysis showing the capacity of each storage vessel.	40 CFR Section 60.116b(a) and (b)

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

04/20/05

Facility Name: LSP Cottage Grove Cogeneration Facility

Permit Number: 16300087 - 003

**Subject Item:** EU 007 Emergency Diesel Generator**Associated Items:** SV 006

What to do	Why to do it
Sulfur Content of Fuel: less than or equal to 0.05 percent by weight	Minn. R. 7007.0800, subp. 2; meets Minn. R. 7011.2300, subp. 2
Sulfur Dioxide: less than or equal to 0.5 lbs/million Btu heat input . The sulfur dioxide emission limit is met by complying with the fuel sulfur content limit. Uncontrolled potential emissions are equal to 0.05 lbs/million Btu heat input.	Minn. R. 7011.2300, subp. 2
Opacity: less than or equal to 20 percent opacity once operating temperatures have been obtained.	Minn. R. 7011.2300, subp. 1
Fuel use is limited to distillate fuel oil.	Minn. R. 7007.0800, subp. 2
Recordkeeping: once each hour calculate the EU 007 carbon monoxide emissions (in lb/hr) using Equation 8 in Appendix B. Once each day, calculate and record the EU 007 carbon monoxide emissions for the previous calendar day (in lb/day) by summing the 24 one-hour emission rates determined by Equation 8, from the previous day.	Title I Condition: recordkeeping to avoid classification as a major source under 40 CFR part 51, Appendix S; Minn. R. 7007.4000

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

04/20/05

Facility Name: LSP Cottage Grove Cogeneration Facility

Permit Number: 16300087 - 003

**Subject Item:** EU 008 Fuel Gas Heater**Associated Items:** SV 007

What to do	Why to do it
Fuel use is limited to natural gas.	Minn. R. 7007.0800, subp. 2; ensures EU 008 meets PM limit in 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.	Minn. R. 7011.0515, subp. 2
Recordkeeping: once each hour calculate and record the EU 008 carbon monoxide emissions (in lb/hr) using Equation 9 in Appendix B. Once each day, calculate and record the EU 008 carbon monoxide emissions for the previous calendar day (in lb/day) by summing the 24 one-hour emission rates determined with Equation 9, from the previous day.	Title I Condition: recordkeeping to avoid classification as a major source under 40 CFR part 51, Appendix S; Minn. R. 7007.4000

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

04/20/05

Facility Name: LSP Cottage Grove Cogeneration Facility

Permit Number: 16300087 - 003

**Subject Item: FS 001 Cooling Tower**

<b>What to do</b>	<b>Why to do it</b>
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011. 0735. Potential emissions based on equipment capacity are approximately 7.53 lb/hr.	Minn. R. 7011.0715, subp. 1(A)
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0715, subp. 1(B)

## TABLE B: SUBMITTALS

04/20/05

Facility Name: LSP Cottage Grove Cogeneration Facility  
Permit Number: 16300087 - 003

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

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

Send any application for a permit or permit amendment to:

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

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

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

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

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

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

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

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

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

**TABLE B: ONE TIME SUBMITTALS OR NOTIFICATIONS**

04/20/05

Facility Name: LSP Cottage Grove Cogeneration Facility

Permit Number: 16300087 - 003

What to send	When to send	Portion of Facility Affected
Application for Permit Reissuance	due 180 days before expiration of Existing Permit	Total Facility
Application for Permit Reissuance	due 180 days before expiration of Existing Permit. This is the application for Acid Rain Permit Reissuance. The deadline is actually 6 months prior to permit expiration. Note that this deadline may differ from the deadline for application for Part 70 permit reissuance.	Total Facility

**TABLE B: RECURRENT SUBMITTALS**

04/20/05

Facility Name: LSP Cottage Grove Cogeneration Facility

Permit Number: 16300087 - 003

What to send	When to send	Portion of Facility Affected
Acid Rain Program Electronically Submitted Quarterly Report	due 30 days after end of each calendar quarter starting 01/01/2000	SV001
Excess Emissions/Downtime Reports (EER's)	due 30 days after end of each calendar quarter starting 11/10/1998 (Submit Deviations Reporting Form DRF-1 as amended). The EER must contain all of the information requested in 40 CFR Section 60.7(c). 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. NOx and CO CEMS	SV001
Excess Emissions/Downtime Reports (EER's)	due 30 days after end of each calendar quarter starting 11/10/1998 (Submit Deviations Reporting Form DRF-1 as amended). The EER must contain all of the information requested in 40 CFR Section 60.7(c) for the PEMS. 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.	EU003
Excess Emissions/Downtime Reports (EER's)	due 30 days after end of each calendar quarter starting 11/10/1998 (Submit Deviations Reporting Form DRF-1 as amended). The EER must contain all of the information requested in 40 CFR Section 60.7(c) for the PEMS. 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.	EU004
Quarterly Report	due 30 days after end of each calendar quarter starting 11/10/1998 certifying that all fuel oil combusted met the definition of distillate oil in 40 CFR Section 60.41b.	EU003
Quarterly Report	due 30 days after end of each calendar quarter starting 11/10/1998 certifying that all fuel oil combusted met the definition of distillate oil in 40 CFR Section 60.41b.	EU004
Semiannual Deviations Report	due 30 days after end of each calendar half-year starting 11/10/1998 . The first report of each calendar year covers January 1 - June 30. The second report of each calendar year covers July 1 - December 31.	Total Facility
Compliance Certification Report (Acid Rain Program)	due 60 days after end of each calendar year starting 01/01/2000. The first reporting year will be the year 2000 for the Acid Rain Program in accordance with 40 CFR Section 72.90(a). The report shall be submitted by the designated representative and include all information required by 40 CFR Section 72.90(b) and (c).	SV001
Compliance Certification	due 30 days after end of each calendar year starting 11/10/1998 (for the previous calendar year). To be submitted on a form approved by the Commissioner. The report covers all deviations experienced during the calendar year.	Total Facility

## APPENDIX MATERIAL

Facility Name: LSP Cottage Grove Cogeneration Facility  
Permit Number: 16300087-003

### APPENDIX B

**These equations are used to demonstrate compliance with limits listed in Table A of this permit.**

**Equation 1** for calculation of SV 001 PM<sub>10</sub> emissions when EU 001 combusts natural gas:

$$E_{PM10} = F \cdot HV \cdot EF$$

where:

- $E_{PM10}$  = Hourly PM<sub>10</sub> emission rate from CTG/HRSG on gas firing mode, lb/hr.
- $F$  = Natural gas combusted during previous hour in CTG/HRSG, scf/hr.
- $HV$  = Natural gas heating value, MMBtu/scf (HHV).
- $EF$  = PM<sub>10</sub> Emission Factor for natural gas firing, lb/MMBtu; based on the most recently approved performance test.

**Equation 2** for calculation of SV 001 PM<sub>10</sub> emissions when EU 001 combusts fuel oil:

$$E_{PM10} = (F \cdot HV_O + F_{HRSG} \cdot HV_G) \cdot EF$$

where:

- $E_{PM10}$  = Hourly PM<sub>10</sub> emission rate from CTG/HRSG on fuel oil firing mode, lb/hr.
- $F$  = Distillate fuel oil combusted during previous hour in CTG, gal/hr.
- $F_{HRSG}$  = Natural gas combusted in the HRSG during the previous hour, scf/hr.
- $HV_O$  = Distillate fuel oil heating value, MMBtu/gal (HHV).
- $HV_G$  = Natural gas heating value, MMBtu/scf (HHV).
- $EF$  = PM<sub>10</sub> Emission Factor for distillate fuel oil firing in CTG, lb/MMBtu; based on the most recently approved performance test.

**Equation 3** for calculation of SV 001 SO<sub>2</sub> emissions when EU 001 combusts natural gas:

$$E_{SO2} = F \cdot HV \cdot 0.0006$$

where:

- $E_{SO2}$  = Hourly SO<sub>2</sub> emission rate from CTG/HRSG on gas firing mode, lb/hr.
- $F$  = Natural gas combusted during previous hour in CTG/HRSG, scf/hr.
- $HV$  = Natural gas heating value, MMBtu/scf (HHV).



**0.0006\*** = SO<sub>2</sub> Emission Factor for natural gas firing, lb/MMBtu.

\* Emission factor based on 40 CFR Part 75, Appendix D, Table D-5

**Equation 4** for calculation of SV 001 SO<sub>2</sub> emissions when EU 001 combusts fuel oil:

$$E_{SO_2} = F \cdot D_{OIL} \cdot 2.0 \cdot S_{OIL} / 100 - (F \cdot HV_o \cdot 0.00655 \cdot 64 / 98) + F_{HRSG} \cdot HV_G \cdot 0.0006$$

where:

**E<sub>SO2</sub>** = Hourly SO<sub>2</sub> emission rate from CTG in oil-firing mode, lb/hr.

**F** = Distillate fuel oil combusted during previous hour in CTG, gal/hr.

**D<sub>OIL</sub>** = Distillate fuel oil density, lb/gal.

**2.0** = Ratio of molecular weight of SO<sub>2</sub> to that of elemental sulfur.

**S<sub>OIL</sub>** = Sulfur content of oil, on a weight percent basis.

**64/98** = Ratio of molecular weight of SO<sub>2</sub> to that of H<sub>2</sub>SO<sub>4</sub>.

**F<sub>HRSG</sub>** = Natural gas combusted in the HRSG during the previous hour, scf/hr.

**HV<sub>o</sub>** = Higher heat value (HHV) for distillate fuel oil, MMBtu/gal.

**HV<sub>G</sub>** = Higher heat value (HHV) for natural gas, MMBtu/scf.

**0.0006\*** = SO<sub>2</sub> Emission Factor for natural gas firing, lb/MMBtu.

**0.00655\*** = H<sub>2</sub>SO<sub>4</sub> Emission Factor for distillate fuel oil firing, lb/MMBtu.

\* Emission factor based on 40 CFR Part 75, Appendix D, Table D-5

\* Emission factor based on performance test (September 20-26, 1997)

**Equation 5** for calculation of EU 003 and 004 CO emissions from natural gas combustion:

$$E_{CO} = F \cdot HV \cdot EF$$

where:

**E<sub>co</sub>** = Hourly CO emission rate from auxiliary boiler, lb/hr.

**F** = Natural gas combusted during previous hour in auxiliary boiler, scf/hr.

**HV** = Natural gas heating value, MMBtu/scf (HHV).

**EF** = CO emission factor for natural gas firing, lb/MMBtu; based on the most recently approved performance test.

**Equation 6** for calculation of EU 003 and 004 CO emissions from fuel oil combustion:

$$E_{CO} = F \cdot HV \cdot EF$$

where:

**E<sub>co</sub>** = Hourly CO emission rate from auxiliary boiler, lb/hr.

**F** = Distillate fuel oil combusted during previous hour in auxiliary boiler,

gal/hr.

**HV** = Distillate fuel oil heating value, MMBtu/gal (HHV).

**EF** = CO emission factor for Distillate fuel oil firing, lb/MMBtu; based on the most recently approved performance test.

**Equation 7** for calculation of EU 005 CO emissions:

$$E_{CO} = 19.71 \cdot HV \cdot 0.57$$

where:

**E<sub>CO</sub>** = Hourly CO emission rate from fire pump diesel engine, lb/hr.

**19.71** = Distillate fuel oil combusted during previous hour in engine, gal/hr.

**HV** = Distillate fuel oil heating value, MMBtu/gal (HHV).

**0.57\*** = CO emission factor for Distillate fuel oil firing, lb/MMBtu.

\* Emission factor based on manufacturer's specification

**Equation 8** for calculation of EU 007 CO emissions:

$$E_{CO} = 13.6 \cdot HV \cdot 0.55$$

where:

**E<sub>CO</sub>** = Hourly CO emission rate from emergency generator diesel engine, lb/hr.

**13.6** = Distillate fuel oil combusted during previous hour in emergency generator diesel engine, gal/hr. This is the maximum design rate.

**HV** = Distillate fuel oil heating value, MMBtu/gal (HHV).

**0.55\*** = CO emission factor for Distillate fuel oil firing, lb/MMBtu.

\* Emission factor based on manufacturer's specification

**Equation 9** for calculation of EU 008 CO emissions:

$$E_{CO} = 4,046 \cdot HV \cdot 0.033$$

where:

**E<sub>CO</sub>** = Hourly CO emission rate from fuel gas heater, lb/hr.

**4,046** = Natural gas combusted during previous hour in fuel gas heater, scf/hr. This is the maximum design rate.

**HV** = Natural gas heating value, MMBtu/scf (HHV).

**0.033\*** = CO emission factor for natural gas firing, lb/MMBtu.

\* Emission factor based on manufacturer's specification

## **APPENDIX C**

### **ACID RAIN PERMIT APPLICATION**

**TECHNICAL SUPPORT DOCUMENT**  
**For**  
**DRAFT/PROPOSED AIR EMISSION PERMIT NO. 16300087-003**

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

**1. General Information**

**1.1. Applicant and Stationary Source Location:**

Owner/Operator Address	Facility Address (SIC Code: 4911)
LSP-Cottage Grove, L.P. 9525 105th Street Court South Cottage Grove, MN 55016	LSP-Cottage Grove, L.P. 9525 105th Street Court South Cottage Grove, MN 55016 Washington County

**1.2. Description of the facility**

LSP-Cottage Grove, L.P. (LSP) has submitted a reissuance application for a Total Facility air emission permit as required by Minnesota Rules chapter (Minn. R. ch.) 7007. Minn. R. ch. 7007 implements Title V operating permit of the federal Clean Air Act as amended 1990. LSP is in the steam-electric source category subject to the Prevention of Significant Deterioration (PSD) 100 ton/yr major source level for attainment pollutants.

The reissuance application, dated May 10, 2003 was received on May 15, 2003. Additional information was received on June 3, 2004 and June 10, 2004 in response to the MPCA contractor's information requests. Additional information included data for cooling tower and paved road calculations and a proposed compliance plan for monitoring compliance with the H<sub>2</sub>SO<sub>4</sub> BACT limits.

This permit supersedes all previously issued air emission permits for this stationary source.

LSP is an existing cogeneration facility located at 9525 105th Street Court South, Cottage Grove, Washington County, Minnesota. The present emission facility consists of a nominal 245 Megawatts (MW) combined cycle Combustion Turbine Generator (CTG) designed to provide electrical energy to Northern States Power Company and to supply thermal energy, in the form of steam, to an off-site customer. The CTG, which can burn either natural gas or distillate fuel oil, has a Heat Recovery Steam Generator (HRSG) with a Supplemental Duct Burner. Both units combined have a maximum heat input capacity of 2258 MMBtu/hr. There are two Auxiliary Boilers No. 1 and No. 2; each has a maximum heat input capacity of 114 MMBtu/hr. One Distillate Fuel Oil Storage Tank, one Emergency Fire Pump Diesel Engine, one Emergency Diesel Generator, one Fuel Gas Heater, and Cooling Towers comprise the

remaining emission units at the facility. LSP has an Oxidation Catalyst for control of Carbon Monoxide (CO) emissions in the HRSG and Selective Catalytic Reduction (SCR) for control of Nitrogen Oxides (NO<sub>x</sub>) emissions in the CTG/HRSG. LSP also uses water injection when combusting fuel oil. The CTG uses dry low-NO<sub>x</sub> combustion when combusting natural gas and can operate in lean pre-mix mode after startup when combusting natural gas. There is a NO<sub>x</sub> Continuous Emissions Monitoring System (CEMS) and a CO CEMS to monitor emissions from the CTG/HRSG. Each auxiliary boiler has a NO<sub>x</sub> Predictive Emissions Monitoring System (PEMS) to determine NO<sub>x</sub> emissions and a Continuous Opacity Monitoring System (COMS) to measure opacity emissions from the unit.

LSP has an approved Total Facility CO CAP limit of 99 tons per year. The CO CAP was agreed to by LSP to avoid classification as a major source according to 40 CFR pt. 51 Appendix S. The Total Facility CO CAP is a Title I Condition that does not expire. Therefore, even though the area is no longer classified as nonattainment, the Total Facility CO CAP remains in the permit. LSP has approved Best Available Control Technology (BACT) limits for Particulate Matter (PM), Particulate Matter less than 10 microns (PM<sub>10</sub>), NO<sub>x</sub>, Volatile Organic Compounds (VOC) and sulfuric acid mist (H<sub>2</sub>SO<sub>4</sub>) emissions; and ambient concentration-based limits for CO, sulfur dioxide (SO<sub>2</sub>), NO<sub>x</sub>, and PM<sub>10</sub>. These limits ensure compliance with the Minnesota Ambient Air Quality Standards (MAAQS) and the National Ambient Air Quality Standards (NAAQS). This revision was performed according to Part C - Prevention of Significant Deterioration of Air Quality, of the Title I - Air Pollution Prevention and Control, of the Clean Air Act Amendments of 1990.

### **1.3. Description of changes authorized by this Permit issuance:**

Below is a summary of changes authorized by this permit. The existing facility is Major under federal Prevention of Significant Deterioration (PSD) New Source Review (NSR) Regulations since the potential annual emissions of PM, PM<sub>10</sub>, NO<sub>x</sub> are greater than 100 tons per year each.

#### **Revised Compliance Demonstration for H<sub>2</sub>SO<sub>4</sub> BACT Emission Limits**

LSP and MPCA agreed to remove the performance testing requirements for the H<sub>2</sub>SO<sub>4</sub> BACT limits. EPA Method 8 test results were inaccurate due to the low emission levels of sulfur compounds. On February 6, 2003, the MPCA approved LSP's methodology for determining compliance with the H<sub>2</sub>SO<sub>4</sub> emission limits using Equation D-1h from Part 75, Appendix D, Section 2.3.2.1.1. The approved methodology uses the total sulfur in natural gas and the ratio of H<sub>2</sub>SO<sub>4</sub> to SO<sub>2</sub> emissions based on Attachment B of the TSD to calculate H<sub>2</sub>SO<sub>4</sub> emissions. According to Part 75, Appendix D, Table D-5, if pipeline natural gas with a total sulfur content less than or equal to 0.5 gr/100 scf is used, then the facility is allowed to use 0.0006 lbs SO<sub>2</sub>/MMBtu to calculate SO<sub>2</sub> emissions. This emission factor was approved by the MPCA and used to calculate emissions in Attachment B of the TSD. If 0.0006 lbs/MMBtu is used to calculate SO<sub>2</sub> emissions and the ratio of H<sub>2</sub>SO<sub>4</sub> emissions to SO<sub>2</sub> emissions from Attachment B of the TSD is used; the H<sub>2</sub>SO<sub>4</sub> emissions will always be equal to or less than the calculated BACT limits. Therefore, LSP will be able to maintain compliance with the H<sub>2</sub>SO<sub>4</sub> BACT emission limits while firing natural gas by meeting fuel restriction limits and sulfur content limits. This requirement is consistent with the H<sub>2</sub>SO<sub>4</sub> compliance demonstration requirements in the draft Air Emission Permit No. 13100071-001 for the proposed Faribault Energy Park, LLC facility.

According to Attachment B of the TSD, the distillate fuel oil sulfur content limit of 0.05 percent by weight was used to calculate limited potential emissions of SO<sub>2</sub>. Therefore, LSP will be able to maintain compliance with the H<sub>2</sub>SO<sub>4</sub> BACT emission limits while firing distillate fuel oil by meeting fuel restriction limits and sulfur content limits.

#### **Performance Testing Operating Limits**

Operating limits were established by the MPCA based on operating conditions achieved during performance tests. The following operating limits have been added as permit conditions pursuant to Minn. R. 7017.2025, subp. 3.

<b>Emission Unit</b>	<b>Date of Applicable Performance Test</b>	<b>Operating Limit</b>	<b>Averaging Method</b>
Combustion Turbine (EU 001)	June 25 – 28, 2001	2047 MMBtu/hr on natural gas 2033 MMBtu/hr on fuel oil	Eight-Hour Block Average: Divide applicable heat input or steam production by total operating time in each eight-hour block. Down time of 15 or more minutes is not to be included as operating time.
Auxiliary Boiler #1 (EU 003)	September 19, 2001	113.1 MMBtu/hr on natural gas	
Auxiliary Boiler #2 (EU 004)	August 19, 2002	114.8 MMBtu/hr on natural gas	

The operating limits for the combustion turbine based on the June 25 through June 28, 2001 performance testing have not been added as permit conditions, because the most recent performance tests have been conducted at greater than or equal to 90 percent of capacity. In order to be consistent with the operating limit established for Auxiliary Boiler #1, the steam production limit for Auxiliary Boiler #2 has not been added to the permit. The heat input limits should be reasonable to ensure compliance.

#### **Performance Testing Frequency**

LSP and MPCA agreed to change the performance testing frequency requirement for the CTG while firing fuel oil. According to LSP's historical data, the majority of the CTG operation on fuel oil is because of the performance testing. Over 62 percent of the fuel oil burned over the last four years was only for performance testing purposes. Therefore, in order to reduce emissions and based on LSP's historical record of demonstrating compliance, the PM<sub>10</sub> performance testing frequency requirement in the permit for the CTG while firing fuel oil has been changed to five years. This is consistent with the performance testing frequency requirement for measuring PM and VOC emissions while firing fuel oil. The performance testing frequency for measuring PM<sub>10</sub> emissions from the CTG while firing natural gas has not been changed.

#### 1.4 Description of all permits issued.

This facility has a Total Facility (TFP) permit. Previous permits authorizing construction and modification, and amendments to those permits, are listed below:

Permit Number and Issuance Date	Action Authorized
Air Emission Permit No. 16300087-002, Administrative Amendment, dated June 19, 2000	Allowed the MPCA to streamline the tracking of the Performance Test (PT) and/or Continuous Monitoring System (CMS) requirements. Certain PT and/or CMS requirements were moved from Table B to Table A of the permit.
Air Emission Permit No. 16300087-001 (Delta numbering), issued on November 10, 1998	This permit authorized revised Best Available Control Technology (BACT) limits for Particulate Matter (PM), Particulate Matter less than 10 microns (PM <sub>10</sub> ), NO <sub>x</sub> , Volatile Organic Compounds (VOC) and Sulfuric Acid Mist (H <sub>2</sub> SO <sub>4</sub> ) emitted from the facility. This permit also authorized revised ambient concentration-based limits for CO, Sulfur Dioxide (SO <sub>2</sub> ), NO <sub>x</sub> , and PM <sub>10</sub> . The revision of these limits ensured compliance with the Minnesota Ambient Air Quality Standards (MAAQS) and National Ambient Air Quality Standards (NAAQS). This revision was performed according to Part C - Prevention of Significant Deterioration of Air Quality-, of the Title I - Air Pollution Prevention and Control -, of the Clean Air Act Amendments of 1990.
Air Emission Permit No. 16300087-002, Amendment No. 2 (pre-Delta numbering) issued on May 15, 1997	The permit amendment authorized installation of two new sources: an emergency diesel generator and one fuel gas heater. The permit also authorized changing the original CO limit on the Combustion Turbine Generator and Duct firing burner (CTG/HRSG) of 57 ton per year based on a 365-day rolling sum basis to a Facility limit of 99 ton per year CO cap based on a 365-day rolling sum basis. The permit modified some stack testing requirements for the diesel engine and simplified the compliance equations used to determine emissions from the diesel engine on the fire pump. A revision of the compliance equation for sulfur dioxide emissions from the CTG/HRSG (SV 001) was also made to account for sulfur dioxide converted to and emitted as sulfuric acid mist.
Air Emission Permit No. 16300087-002, Amendment No. 1 (pre-Delta numbering) issued on May 23, 1995.	The permit amendment changed the effective date of the previously issued total facility permit to May 15, 1995.
Air Emission Permit No. 16300087-001, (pre-Delta numbering) issued on March 1, 1995	A PSD permit issued to construct and operate a new electricity and steam cogeneration production facility in Cottage Grove. At the time of issuance of this permit, the area in which this facility is located, was classified nonattainment for SO <sub>2</sub> and CO. The permit limits SO <sub>2</sub> and CO emissions from the CTG/HRSG and its associated duct burner to hourly amounts in lb/hr. In addition, the maximum CO emissions from the two sources were limited to 57 tpy on a daily rolling 365 day sum basis. Two identical auxiliary steam boilers were also authorized by the permit. A diesel engine driven fire pump was also authorized. Sulfur in the fuel burned in the diesel engine driven fire pump was restricted.

### 1.5. Facility Emissions

**Table 1. Total Facility Potential to Emit Summary\***

EU #	SV #	Emission Unit Description	PM tpy	PM <sub>10</sub> tpy	SO <sub>2</sub> tpy	NO <sub>x</sub> tpy	VOC tpy	CO tpy	Sulfuric Acid mist tpy	Max HAP-Single tpy	Total HAPs tpy
001	001	Combustion Turbine Generator (CTG)	117.24	117.24	77.98	216.2	71.22	96.91	17.8	5.45	9.81
002	001	Supplemental Duct Firing Burner	10.53	10.53	0.71	18.92	9.46	10.88	0.237	2.09	2.19
003	002	Boiler 1	7.92	7.92	5.22	35.77	4.92	20.85	0.25	0.88	0.97
004	003	Boiler 2	7.92	7.92	5.22	35.77	4.92	20.85	0.25	0.88	0.97
005	004	Fire Pump Diesel Engine	0.05	0.05	0.014	0.37	0.14	0.37	3.4E-4	--	--
007	006	Emergency Diesel Generator	0.0038	0.0038	0.0023	0.097	2.5E-3	0.026	--	--	--
008	007	Fuel Gas Heater	0.186	0.186	0.011	1.86	0.13	0.61	--	--	--
FS	001	Cooling Towers	32.98	8.25	--	--	--	--	--	--	--
<b>Total Facility Limited Potential emissions *</b>			177	152	89	309	91	99***	18.5	5.67	13.94
<b>Total Facility Actual Emissions**</b>			4.8	8.7	2.0	39.2	11.2	50.7			

\* These are the limited potential emissions from column 3 in GI-07 except that they have been verified and corrected as need be by MPCA staff. The emissions data do not include emissions during startup and shutdown, which may be higher.

\*\* 2002 Total Facility Actual Emissions.

\*\*\* Total Facility CO CAP emissions of 99 tons per year.

**Table 2. Facility (TF) and Permit Classification**

The following is the summary of the classification of the total facility emissions:

Classification	Major/Affected Source	Synthetic Minor*	Minor*
PSD (list pollutant)	NO <sub>x</sub> , PM, PM <sub>10</sub> , VOC, H <sub>2</sub> SO <sub>4</sub>		
NAAR (list pollutant)**		CO (99 TPY CAP), SO <sub>2</sub>	
Part 70 Permit Program (list pollutant)	NO <sub>x</sub> , PM <sub>10</sub>	VOC, CO (99 TPY CAP), SO <sub>2</sub>	
Part 63 NESHAP			X

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

\*\* There are no longer any Nonattainment areas in the state; however, the limits taken by the facility to remain synthetic minor for Nonattainment remain in place.



## **2. Regulatory and/or Statutory Basis**

### **New Source Review**

The facility is an existing major source under New Source Review regulations. No changes are authorized by this reissuance permit.

The facility has an approved Total Facility CO CAP limit of 99 tons per year. The CO CAP was agreed to by LSP to avoid classification as a major source according to 40 CFR pt. 51 Appendix S. The Total Facility CO CAP is a Title I Condition that does not expire. Therefore, even though the area is no longer classified as nonattainment, the Total Facility CO CAP remains in the permit.

### **Part 70 Permit Program**

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

### **New Source Performance Standards (NSPS)**

#### **40 CFR 60 Subpart Da - Standards of Performance for Electric Utility Steam Generating Units**

EU 002 is subject to the requirements of 40 CFR pt. 60, Subp. Da. The Permittee has a waiver from the EPA for NO<sub>x</sub> performance testing and monitoring for 40 CFR Part 60, Subpart Da - Standards of Performance for Electric Utility Steam Generating Units.

#### **40 CFR 60 Subpart Db - Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units**

EU 003 and EU 004 are subject to 40 CFR pt. 60 Subpart Db. The Permittee has approval from EPA to use Predictive Emissions Monitoring System (PEMS) in place of Continuous Emissions Monitoring System (CEMS) to measure NO<sub>x</sub> emissions. In accordance with 40 CFR 60.42b(j), EU 003 and EU 004 are exempt from the SO<sub>2</sub> emission limit because the boilers fire fuel oil that contains less than 0.5 percent sulfur by weight.

#### **40 CFR Part 60, Subpart GG - Standards of Performance for Stationary Gas Turbines**

EU 001 is subject to 40 CFR Part 60 of the New Source Performance Standards, Subpart GG - Standards of Performance for Stationary Gas Turbine. Please note that the July 24, 1995 EPA letter granted a waiver to specific requirements in Subpart GG, but did not determine that these specific requirements were inapplicable to EU 001.

The EPA waiver letter dated July 24, 1998 states: (Please note that the content of the EPA letter is in Bold)

**“Request 1: A waiver for NO<sub>x</sub> and SO<sub>2</sub> performance testing, monitoring, recordkeeping and reporting requirements of 40 CFR Part 60, Subpart GG - Standards of Performance for Stationary Gas Turbines. The source will be using a NO<sub>x</sub> Continuous Emissions Monitor System (CEMS) to demonstrate compliance with 40 CFR § 60.334. The permitting authority has set the NO<sub>x</sub> emission limit at 4.5 ppm<sub>dv</sub> for the combustion turbine generator. In addition, the source will conduct the fuel monitoring and sampling in accordance with procedures specified in Title IV “Acid Rain”, 40 CFR Part 75, to determine the sulfur content of the fuel. The permitted fuel sulfur content limit is 0.05 percent by weight.**

**Response 1a:** Your request for a waiver for NO<sub>x</sub> performance testing, recordkeeping, reporting and monitoring requirements is approved with the following additional requirements:

1. The source shall meet all applicable continuous emission monitoring requirements as specified in 40 CFR Part 75.
2. The source shall meet the requirements of 40 CFR § 60.7 (c) and §60.334 (c). These excess emission reports shall be submitted to the State and Regional Offices.  
This approval is based on the assumption that:

1. The proposed monitoring of NO<sub>x</sub> on an hourly average basis using the CEMS, is equal to or more stringent than monitoring the water to fuel ratio as required by Subpart GG.
2. There is sufficient certainty that if the combined effluent meets the permitting authority's more restrictive emission limit of 4.5 ppm<sub>dv</sub> (percent by volume at 15 percent oxygen and on a dry basis), then the emission from the gas turbine is also below the NSPS limit.

**Response 1b:** Your request for alternative SO<sub>2</sub> monitoring and sampling, as outlined in 40 CFR Part 75, Appendix D- Optional SO<sub>2</sub> Emissions Data Protocol for Gas-Fired and Oil-Fired Units, is approved. The permitted fuel sulfur content limit of 0.05 percent by weight is more stringent than the NSPS GG sulfur content requirement of 0.8 percent by weight. This approval is based on the assumption that:

1. The proposed fuel monitoring and sampling, in accordance with procedures specified in 40 CFR Part 75, Appendix D of the Title IV "Acid Rain" to determine the sulfur content of the fuel, is equal or more restrictive than the test method specified under 40 CFR 60.335.

As it is stated above that applicability of 40 CFR § 60.330 to 60.335 (Subpart GG) is met by following the more restrictive requirements under 40 CFR Part 75 for NO<sub>x</sub> and 40 CFR Part 75, Appendix D of the Title IV for SO<sub>2</sub>."

The performance testing, monitoring, recordkeeping, and reporting requirements of Subpart GG are all met by these requirements as written in SV 001. The Subpart GG requirements are not inapplicable, but have only been waived as stated above by the EPA letter dated July 24, 1995. Please note that requirements written to demonstrate compliance with Subpart GG are federally enforceable.

#### **Compliance Assurance Monitoring (CAM)**

The facility uses selective catalytic reduction, DLN, and/or water injection for NO<sub>x</sub> control, and an oxidation catalyst for CO and VOC control. CAM does not apply to the facility for NO<sub>x</sub> and CO. EU001 has add-on air pollution control equipment for NO<sub>x</sub>, CO, and VOCs and has potential uncontrolled emissions greater than 100 tons per year of NO<sub>x</sub>, CO, and VOCs. EU001 has continuous compliance monitoring specified in the permit for NO<sub>x</sub> and CO. There are no specific continuous compliance monitoring requirements for VOC emissions, therefore EU 001 is subject to CAM requirements for VOC under 40 CFR pt. 64.

VOC emissions from combustion correlate with CO emissions. Therefore, the continuous compliance monitoring requirements for CO emissions meet the requirements for monitoring VOC emissions. The Permittee shall use the CO CEMS for VOC compliance assurance monitoring. Compliance with the CO limit indicated by the CO CEMS assures that VOC emissions are in compliance with the VOC limit.

The Permittee shall demonstrate this correlation by recording and comparing CO CEMS emissions data during VOC performance testing of SV 001, with results of the VOC testing. The correlation shall be valid only if testing demonstrates that VOC emissions comply with the applicable VOC limit at the same time that CO emissions (measured by the CO CEMS) comply with the applicable CO limit, and the CO CEMS certification testing has been satisfactorily completed.

#### **National Emission Standards for Hazardous Air Pollutants (NESHAP)**

The facility is a non-major source under 40 CFR pt. 63. Therefore, no NESHAPs apply.

#### **Acid Rain Program**

The facility is subject to the Acid Rain Program under 40 CFR pt. 72.

#### **Minnesota State Rules**

Portions of the facility are subject to the following Minnesota Standards of Performance:

- Minn. R. 7011.0515 Standards of Performance for New Indirect Heating Equipment
- Minn. R. 7011.0715 Standards of Performance for Post-1969 Industrial Process Equipment
- Minn. R. 7011.2300 Standards of Performance for Stationary Internal Combustion Engines

The following is a summary of the regulatory overview for this facility.

**Table 3. Regulatory Overview of Facility**

<b>EU, GRP, or SV #</b>	<b>Applicable Regulations</b>	<b>Comments</b>
Total Facility	General Requirements, Minn. R. chs. 7002, 7007, 7009, 7011, 7019, 7030, 40 CFR pt. 51, Appendix S	This section of Table A of the permit contains requirements that apply to all facilities in Minnesota, and also contains source-wide limits which limit the total amount of certain pollutants which can be emitted from the entire facility.
GP 001	40 CFR § 51.165(b)(2),	Operational hour limit to restrict SO <sub>2</sub> emissions below major source level and to restrict ambient SO <sub>2</sub> concentrations.
SV 001	40 CFR § 52.21(j) BACT limit  40 CFR § 51.165(b)(2),  40 CFR § 72.6, 72.21, 72.90, 72.30, 40 CFR § 75.50, 75.64 40 CFR pt 75, Appendix B, D	BACT limits set for NO <sub>x</sub> , PM, PM <sub>10</sub> , VOC, Sulfuric Acid Mist.  Ambient concentration-based limits for CO, SO <sub>2</sub> , NO <sub>x</sub> and PM <sub>10</sub> .  Acid Rain requirements

<b>EU, GRP, or SV #</b>	<b>Applicable Regulations</b>	<b>Comments</b>
EU 001	40 CFR pt 51 Appendix S  40 CFR § 60.332(a)(1) and 63.333(b)  40 CFR pt. 60 Subp. GG	Operational hour limit to restrict SO <sub>2</sub> emissions below major source level and to restrict ambient SO <sub>2</sub> concentrations.  NSPS NO <sub>x</sub> emission limits, subp. GG  U.S. Environmental Protection Agency (EPA) approved a waiver for subp. GG, Standards of Performance for Stationary Gas Turbines.
EU 002	40 CFR pt. 60 Subp. Da	Standards of Performance for Electric Utility Steam Generating Unit for which construction commenced after September 18, 1978
EU 003 & EU 004	40 CFR pt. 60 Subp. Db 40 CFR § 52.21(j),  40 CFR § 51.165(b)(2)  40 CFR § 60.49b(c); Minn. R. 7007.0800, subp. 2	Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units.  BACT limits set for PM, PM <sub>10</sub> , NO <sub>x</sub> , VOC and Sulfuric Acid Mist.  Ambient concentration-based limits for CO, SO <sub>2</sub> , NO <sub>x</sub> and PM <sub>10</sub> .  PEMS requirements to predict NO <sub>x</sub> emission rates.
EU 005	40 CFR § 52.21(j) BACT  40 CFR § 51.165(b)(2)  40 CFR pt 51 Appendix S	BACT limits set for PM, PM <sub>10</sub> , NO <sub>x</sub> , VOC and Sulfuric Acid Mist.  Ambient concentration-based limits for CO, SO <sub>2</sub> , NO <sub>x</sub> and PM <sub>10</sub> .  Operational hour limit to restrict SO <sub>2</sub> emissions below major source level and to restrict ambient SO <sub>2</sub> concentrations
EU 006	40 CFR pt. 60 Subp. Kb	Standards of Performance for Volatile Organic Liquid Storage Vessels
EU 007	40 CFR pt. 51, Appendix S	Recordkeeping for CO to avoid classification as major source.
EU 008	40 CFR pt. 51, Appendix S	Recordkeeping for CO to avoid classification as major source.

### 3. Technical Information

#### 3.1 Calculation of Potential to Emit

Attachment A and Attachment B include detailed emission calculations for the facility. Adding emission calculations for HAPs and the cooling towers is the only change to the emission calculations from the existing Air Emission Permit No. 16300087-002. The emission calculations for cooling towers are based

on the Total Dissolved Solids (TDS) and the drift rate obtained from LSP. The HAP potential emission calculations are based on AP-42 emission factors. See Attachment B for detailed HAP and cooling tower emission calculations.

### **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**

<b>Emission Unit or Group</b>	<b>Requirement (basis)</b>	<b>Additional Monitoring</b>	<b>Discussion</b>
Total Facility	CO $\leq$ 99 tons per year, on a 365-day rolling basis (limit to avoid NSR)	Re-occurring performance testing, daily recordkeeping, daily calculations	The daily total facility CO emissions are calculated by summing the calendar-day CO emissions from SV 001, EU 003, EU 004, EU 005, EU 007, and EU 008. Due to startup and shutdown emissions, 365-day rolling limits are reasonable for this Facility.
GP 001 Auxiliary Boilers: EU 003 and EU 004	Operating Hours: $\leq$ 3,400 hrs/yr, 365-day rolling sum when combusting distillate fuel oil (limit to avoid NSR and to keep ambient impacts less than SILs)	Daily recordkeeping and calculations	Due to daily operational variability, 365-day rolling limits are reasonable for this Facility.
SV 001 (EU 001 & EU 002) Combustion Turbine Generator and Supplemental Duct Firing Burners	PM lb/mmBtu limits (BACT limit) PM <sub>10</sub> lb/mmBtu limits (BACT limit) PM <sub>10</sub> : $\leq$ 73.3 lbs/hr, 24-hour Rolling Average. (limit to keep ambient impacts less than SILs)	Re-occurring performance testing.  Monitoring and recordkeeping for PM <sub>10</sub> lb/hr emissions. PM <sub>10</sub> emissions calculated hourly using fuel usage information and emission factors derived from performance testing.	Due to the averaging time of the ambient significant impact level, the 24-hour rolling average is reasonable for this Facility.
SV 001	SO <sub>2</sub> : $\leq$ 99.3 lbs/hr, 3-hour Rolling Average; $\leq$ 59.6 lbs/hr, 24-hour Rolling Average. (limit to keep ambient impacts less than SILs)	Monitoring and recordkeeping for SO <sub>2</sub> emissions; on hourly basis, calculate SO <sub>2</sub> emission rate based on fuel information (e.g. sulfur content and HHV) and fuel usage.	Due to the averaging time of the ambient significant impact level, the 3-hour and 24-hour rolling average is reasonable for this Facility.

<b>Emission Unit or Group</b>	<b>Requirement (basis)</b>	<b>Additional Monitoring</b>	<b>Discussion</b>
SV 001	<p>NO<sub>x</sub>: ≤ 4.5 ppm, 1-hr average, when burning natural gas; ≤ 16.0 ppm, 1-hr average, when burning distillate fuel oil (BACT limit)</p> <p>NO<sub>x</sub> lb/hr limit, prorated for fuel, 30-day rolling average, (limit to keep ambient impacts less than SILs); permit includes calculation method to determine prorated NO<sub>x</sub> lb/hr limit</p>	CEMS to measure NO <sub>x</sub> emissions in ppm, and lb/hr. Monitoring and recordkeeping for NO <sub>x</sub> emissions (30-day rolling average); on daily basis, calculate NO <sub>x</sub> emissions based on CEMS data, fuel usage and operating hour data.	Due to the annual averaging time of the ambient significant impact level, the 30-day rolling average is reasonable for this Facility.
SV 001	CO: ≤1200 lbs/hr, 1-Hour Average (limit to keep ambient impacts less than SILs)	<p>CEMS to measure CO emissions from SV 001. Calculate hourly emission rates in units of lb/hr.</p> <p>SV 001 daily CO emissions (to use in total facility CAP calculations) are calculated daily by summing the 24 one-hour average CO emission rates.</p>	Due to the averaging time of the ambient significant impact level, using the CEM to calculate the hourly emission rate is reasonable for this Facility.
SV 001	VOC: ≤ 0.008 lb/mmBtu when burning natural gas; ≤ 0.009 lb/mmBtu when burning distillate fuel oil (BACT limit)	Re-occurring performance testing.	
SV 001	Sulfuric Acid Mist: ≤ 0.0002 lb/mmBtu when burning natural gas; ≤ 0.017 lb/mmBtu when burning distillate fuel oil (BACT limit)	These limits are satisfied by maintaining compliance with the fuel restrictions and fuel usage limits	Monitoring of fuel sulfur content is a direct measure of SO <sub>2</sub> emissions and an indirect measure of H <sub>2</sub> SO <sub>4</sub> because H <sub>2</sub> SO <sub>4</sub> emissions are dependent on sulfur content of fuel
SV 001	Sulfur content of distillate fuel oil: ≤ 0.05%	Fuel sampling	Monitoring of fuel sulfur content is a direct measure of SO <sub>2</sub> emissions

<b>Emission Unit or Group</b>	<b>Requirement (basis)</b>	<b>Additional Monitoring</b>	<b>Discussion</b>
SV 001	Production limit (heat input) based on test results	8-hour block average calculation based on fuel usage and heating value of fuel	
EU 001 Combustion Turbine Generator	Operating Hours: $\leq 1,700$ hours/year, 365-day rolling sum when combusting distillate fuel oil (limit avoid NSR and to keep ambient impacts less than SILs)	Recordkeeping: Daily calculation of EU 001 distillate fuel oil combustion hours.	Due to daily operational variability, 365-day rolling limits are reasonable for this Facility.
EU 001	$\text{NO}_x$ : $\leq 106.8$ ppm, when burning natural gas; $\leq 99.4$ ppm, when burning distillate fuel oil (NSPS, Subp. GG limit)	CEMS	SV 001 limits stricter; meeting limits there ensures EU 001 limits are met
EU 001	Sulfur content of distillate fuel oil: $\leq 0.8\%$ (NSPS, Subp. GG limit)	Fuel sampling	Monitoring of fuel sulfur content is a direct measure of $\text{SO}_2$ emissions
EU 002 Supplemental Duct Firing Burners	PM, Opacity, $\text{NO}_x$ , $\text{SO}_2$ limits (NSPS Subp. Da limits)	Compliance with the opacity limit will be assured through good combustion practices and the fuel usage restriction of natural gas only  PM, $\text{NO}_x$ , and $\text{SO}_2$ monitoring requirements listed for SV 001.	Initial performance testing completed August 22-27, 1997  SV 001 limits are stricter for PM, $\text{NO}_x$ , and $\text{SO}_2$ ; meeting limits there ensures EU 002 limits are met
EU 003, EU 004 Auxiliary Boiler #1 & #2	PM, $\text{PM}_{10}$ limits in lb/mmBtu; different limits for different fuels (BACT, limit to keep ambient impacts less than SILs)	Re-occurring performance testing.	Performance test requirements listed at GP 001
EU 003, EU 004	Opacity: $\leq 20\%$ with exception (NSPS, Subp. Db limit)	COMS	
EU 003, EU 004	$\text{SO}_2$ : $\leq 5.7$ lbs/hr (limit to keep ambient impacts less than SILs)	This limit is satisfied by maintaining compliance with the fuel restrictions and fuel usage limits	Monitoring of fuel sulfur content is a direct measure of $\text{SO}_2$ emissions



Emission Unit or Group	Requirement (basis)	Additional Monitoring	Discussion
EU 003, EU 004	NO <sub>x</sub> limits in lb/mmBtu, 1-hr ave.; different limits for different fuels (BACT; more stringent than NSPS, Subp. Db limit)  NO <sub>x</sub> lb/hr limit, prorated for fuel; 30-day rolling average, when burning distillate fuel oil (limit to keep ambient impacts less than SILs)	PEMS	Due to the annual averaging time of the ambient significant impact level, the 30-day rolling average is reasonable for this Facility.
EU 003, EU 004	CO: $\leq 5.6$ lbs/hour using 1-Hour Average (limit to keep ambient impacts less than SILs)	Monitoring and recordkeeping for carbon monoxide emissions. Calculate the carbon monoxide emission rate on a 1-hour average basis	Due to the averaging time of the ambient significant impact level, using calculating the hourly emission rate is reasonable for this Facility.
EU 003, EU 004	VOC: $\leq 0.005$ lb/mmBtu when burning natural gas; $\leq 0.03$ lb/mmBtu when burning distillate fuel oil (BACT limit)	Re-occurring performance testing.	Performance test requirements listed at GP 001
EU 003, EU 004	Sulfuric Acid Mist: $\leq 0.000026$ lb/mmBtu when burning natural gas; $\leq 0.0025$ lb/mmBtu when burning distillate fuel oil (BACT limit)	These limits are satisfied by maintaining compliance with the fuel restrictions and fuel usage limits.	Monitoring of fuel sulfur content is a direct measure of SO <sub>2</sub> emissions and an indirect measure of H <sub>2</sub> SO <sub>4</sub> because H <sub>2</sub> SO <sub>4</sub> emissions are dependent on sulfur content of fuel.
EU 003, EU 004	%O <sub>2</sub> (BACT limit)	Monitored with Westinghouse Distributive Processing Family (WDPF) and recorded with SV 001 CEMS DAHS	Oxygen restriction to promote better combustion, to aid in control of VOC, PM <sub>10</sub>
EU 003, 004	Production limit (heat input) based on test results	8-hour block average calculation based on fuel usage and heating value of fuel	

<b>Emission Unit or Group</b>	<b>Requirement (basis)</b>	<b>Additional Monitoring</b>	<b>Discussion</b>
EU 005 Emergency Fire Pump Diesel Engine	PM, PM <sub>10</sub> , VOC, Sulfuric Acid Mist lb/mmBtu limits(BACT) Opacity: $\leq 20\%$ (Minn. R. 7011.2300)	PTE of emission units is less than emission limits by design	No additional monitoring or testing warranted due to small size and emergency nature of operation.
	SO <sub>2</sub> , CO lb/hr limits (limit to keep ambient impacts less than SILs; Minn. R. 7011.2300 also applies for SO <sub>2</sub> ) NO <sub>x</sub> : $\leq 1.85$ lb/mmBtu (BACT, and limit to keep ambient impacts less than SILs)	PTE of emission units is less than emission limits by design	No additional monitoring or testing warranted due to small size and emergency nature of operation.  CO emissions for CO total facility cap calculated based on hours of operation
EU 005	Fuel use limited to distillate oil, with sulfur content $\leq 0.05\%$	Recordkeeping; fuel certification or fuel analysis	Monitoring of fuel sulfur content is a direct measure of SO <sub>2</sub> emissions
EU 005	Operating Hours: $\leq 150$ hours of operation/year using 365-day rolling sum (limit to avoid NSR)	Daily calculation of 365 day rolling sum	Operating hour limit to ensure use is strictly emergency
EU 006 Distillate Oil Storage Tank Vents	Vapor Pressure: $\leq 3.5$ kPa	Keep records of product stored and true vapor pressure	
EU 007 Emergency Diesel Generator	SO <sub>2</sub> and Opacity: Minn. R. 7011.2300 Fuel use limited to distillate oil, with sulfur content $\leq 0.05\%$	PTE of emission units is less than emission limits by design	No periodic monitoring is needed, since the likelihood of the limits not being met is very low. EPA allows the use of 500 operating hours in calculating the annual PTE for emergency-use equipment; the PTE is then small.

<b>Emission Unit or Group</b>	<b>Requirement (basis)</b>	<b>Additional Monitoring</b>	<b>Discussion</b>
EU 008 Fuel Gas Heater	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. 7011.0515, subp. 2)	Fuel use restriction	Compliance with the opacity limit will be assured through good combustion practices and the fuel usage restriction of natural gas only
FS 001 Cooling Tower	Opacity: < 20 %. PM emissions $\leq$ 1479 lbs/hr (limits based on 3.3E+07 lbs/hr makeup water flow)	None	The potential to emit (uncontrolled) of FS 001 is approximately 7.53 lbs/hr. Therefore, the Minn. R. 7011.0730, Table 1 limit is more than 196 times the potential to emit.

### **3.2 Insignificant Activities**

LSP has several operations which are classified as insignificant activities. Documentation of emission calculations are included in Attachment F. There are no periodic monitoring requirements for the insignificant activities required to be listed below.

<b>Insignificant Activity Description</b>	<b>Minn. R. 7007.1300 Citation</b>	<b>Comments</b>
Fugitive Dust from Paved Roads	Subp. 3(I) for PM <sub>10</sub> emissions and Subp. 4(B) for PM emissions	Worst-case potential emissions are based on firing only distillate fuel oil during natural gas curtailment
Parts Washer	Subp. 3.H(1)	VOC usage is less than 200 gallons per year

### **3.3 Compliance History**

The Facility is currently in compliance with all applicable air emission permit requirements based the review of MPCA's files. Previous noncompliance issues related to testing have been resolved with the MPCA. A history of the compliance issues is summarized below.

<b>Emission Unit</b>	<b>Pollutant</b>	<b>Date of Initial Test Showing Non-Compliance</b>	<b>Date of Re-Test Showing Compliance</b>
Combustion Turbine and Duct Burners (SV 001)	H <sub>2</sub> SO <sub>4</sub> while combusting natural gas	May 6 – May 23, 2002	February 6, 2003, approval letter from MPCA for compliance monitoring methodology

Auxiliary Boiler #1 (EU 003)	PM <sub>10</sub> while combusting natural gas	June 26-27, 2001	September 19, 2001
	PM <sub>10</sub> while combusting natural gas	May 14, 2003	August 28, 2003
Auxiliary Boiler #2 (EU 004)	PM <sub>10</sub> while combusting natural gas	May 6 – May 23, 2002	August 19, 2002
	H <sub>2</sub> SO <sub>4</sub> while combusting natural gas	May 6 – May 23, 2002	February 6, 2003, approval letter from MPCA for compliance monitoring methodology
	H <sub>2</sub> SO <sub>4</sub> while combusting fuel oil	May 6 – May 23, 2002	February 6, 2003, approval letter from MPCA for compliance monitoring methodology

Except for the change described in Section 1.3 of this TSD, no change to the performance testing frequency in the permit is required, based on the performance test results.

### 3.4 Cooling Tower

Although the Minnesota Industrial Process Equipment Rule potentially applies to the cooling tower it would not be possible to demonstrate compliance with the rule. The cooling towers are fugitive emission sources that are not ‘vented’ like a typical industrial process. Even though the process rate is related to water (which is normally excluded by rule), a hypothetical calculation of maximum allowable emissions was completed using Minn. R. 7011.0730, Table 1. The cooling towers are in compliance with the Industrial Process Equipment Rule because calculated maximum potential emissions are less than the calculated allowable emissions. The Industrial Process Equipment Rule also has a 20 percent opacity limit. However, the cooling tower plume consists of water, which is not included in opacity observations. There are no other applicable requirements for the cooling towers.

At the time of the initial construction permit and Part 70 permit issuance, the MPCA’s practice was not to include an evaluation of emissions from cooling towers. To date, the air dispersion modeling analyses completed for LSP has not included fugitive PM<sub>10</sub> emissions and the predicted ambient impacts have been below the PSD Significant Impact Levels (SIL) for PM<sub>10</sub>. However, the initial air dispersion modeling approval from Dennis Becker of MPCA included a discussion of fugitive emission impacts. Mr. Becker did some conservative modeling analyses of fugitive PM<sub>10</sub> emissions and determined that the impacts would not cause or contribute to an exceedance of the National or Minnesota Ambient Air Quality Standards (NAAQS/MAAQS). Therefore, it is unlikely that emissions from the cooling towers would cause or contribute to an exceedance of the National or Minnesota Ambient Air Quality Standards (NAAQS/MAAQS).

## 4. Comments Received

Public Notice Period: December 7, 2004 – January 5, 2005

EPA 45-day Review Period: February 14, 2005 – March 26, 2005

Two comment letters were received during the public notice period. Copies of the letters and the MPCA responses are attached to this document. The comments received did include comments on any applicable requirements of the permit. Changes to the permit were made as a result of the comments and are summarized in the response letter to LSP.

The revised permit was sent to EPA for their 45-day review on February 9, 2005. Comments were not received from EPA during their review period. No further changes to the permit have been made.

## **5. Conclusion**

Based on the information provided by the Permittee, the MPCA has reasonable assurance that the proposed operation of the emission facility, as described in the Air Emission Permit No. 16300087-003, and this TSD, will not cause or contribute to a violation of applicable federal regulations and Minnesota Rules.

Staff Members on Permit Team:

Paula Connell, Majors and Remediation Division  
Ed Hoefs/Luke Taylor, Wenck Associates, Inc. (Contractors)  
Marshall Cole (peer review)  
Scott Parr (enforcement)

Attachments: CD-01 for Air Permit No. 16300087 -003  
Facility description  
Emissions calculations