

**AIR EMISSION PERMIT NO. 16300087- 001**

**IS ISSUED TO**

**LSP - Cottage Grove, L. P.**

**LSP COTTAGE GROVE COGENERATION FACILITY**

9525 105<sup>th</sup> Street Court South  
Cottage Grove, Washington County, Minnesota 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

This permit authorizes the Permittee to operate and to modify 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 as defined in the state air pollution control rules unless the term is explicitly defined in the permit.

**Permit Type:** Federal Part 70/Acid Rain; PSD/NSR

**Issue Date:** November 10, 1998

**Expiration:** November 10, 2003  
All Title I Conditions do not expire.

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Michael J. Sandusky  
Division Manager  
Air Quality Division

for Peder A. Larson  
Commissioner  
Minnesota Pollution Control Agency

RBD:lao

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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. Certain requirements which have been determined not to apply are listed in Table A of this permit.

**FACILITY DESCRIPTION:**

LSP - Cottage Grove, L.P. (LSP) is an existing cogeneration facility. The present emission facility consists of a nominal 245 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. Two Distillate Fuel Oil Storage Tanks, one Emergency Fire Pump Diesel Engine, one Emergency Diesel Generator, and one Fuel Gas Heater comprise the remaining emission units at the facility.

LSP has an Oxidation Catalyst control for CO emissions in the HRSG and a selective catalytic reduction control for 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 to determine NO<sub>x</sub> emissions and a continuous opacity monitoring system on their stack to measure opacity emissions from the unit.

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 part 51 Appendix S. This permit reauthorizes a Total Facility CO CAP limit of 99 tons per year.

The existing facility is Major under federal PSD (Prevention of Significant Deterioration), NSR (New Source Review) Regulations. This permit authorizes revised Best Available Control Technology (BACT) limits for Particulate Matter (PM), Particulate Matter less than 10 microns (PM<sub>10</sub>), Nitrogen Oxides (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 authorizes revised ambient concentration-based limits for Carbon Monoxide (CO), Sulfur Dioxide (SO<sub>2</sub>), NO<sub>x</sub>, and PM<sub>10</sub>. The revision of these limits ensure 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.

This Air Emission Permit No. 16300097-001 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**

11/10/98

Facility Name: LSP Cottage Grove Cogeneration Facility

Permit Number: 16300087 - 001

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

<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
<b>B. OPERATIONAL REQUIREMENTS</b>	hdr
Operation and Maintenance Plan: Retain at the stationary source an operation and maintenance plan for all air pollution control equipment.	Minn. R. 7007.0800, subp. 14 and Minn. R. 7007.0800, subp. 16(J)
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
<b>D. MONITORING REQUIREMENTS</b>	hdr
Monitoring Equipment: Install or make needed repairs to monitoring equipment within 60 days of issuance of the permit if monitoring equipment is not installed and operational on the date the permit is issued.	Minn. R. 7007.0800, subp. 4(D)
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.	Minn. R. 7007.0800, subp. 4(D)
Monitoring Equipment Calibration: Annually calibrate all required monitoring equipment (any requirements applying to continuous emission monitors are listed separately in this permit).	Minn. R. 7007.0800, subp. 4(D)

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

11/10/98

Facility Name: LSP Cottage Grove Cogeneration Facility

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<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</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>
<p><b>F. REPORTING</b></p>	<p>hdr</p>
<p>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.</p>	<p>Minn. R. 7019.1000, subp. 1</p>
<p>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.</p>	<p>Minn. R. 7019.1000, subp. 1</p>
<p>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.</p> <p>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.</p>	<p>Minn. R. 7019.1000, subp. 2</p>

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

11/10/98

Facility Name: LSP Cottage Grove Cogeneration Facility

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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 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**

11/10/98

Facility Name: LSP Cottage Grove Cogeneration Facility

Permit Number: 16300087 - 001

**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
<b>A. OPERATIONAL LIMITS</b>	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 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)
<b>B. TESTING REQUIREMENTS</b>	hdr
Performance Test: due before end of each year starting 06/01/98 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.	Title I Conditions: to verify emission factors used to determine emissions subject to a Title I limit; Minn. R. 7017.2020, subp. 1
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:  $X = ([A -   (A - T)  ] \times 1/A) \times 100\%$ A = emission factor in Attachment A 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.	
Performance Test Pre-test Meeting: due 7 days before end of each year starting 06/01/98 (7 days before each CO Performance Test). See Table B for additional performance test requirements.	Minn. R. 7017.2030, subp. 4
Performance Test: due before end of each year starting 06/01/98 to measure PM <sub>10</sub> 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 Pre-test Meeting: due 7 days before end of each year starting 06/01/98 (7 days before each PM <sub>10</sub> Performance Test while combusting natural gas).	Minn. R. 7017.2030, subp. 4
Performance Test: due before end of each 60 months starting 06/01/97 to measure PM, VOC, and H <sub>2</sub> SO <sub>4</sub> emissions while combusting natural gas, and to measure PM, PM <sub>10</sub> , VOC, and H <sub>2</sub> SO <sub>4</sub> 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
Performance Test Pre-test Meeting: due 7 days before end of each 60 months starting 06/01/97 (7 days before each Performance Test to measure PM, VOC, and H <sub>2</sub> SO <sub>4</sub> emissions while combusting natural gas, and 7 days before each Performance Test to measure PM, PM <sub>10</sub> , VOC, and H <sub>2</sub> SO <sub>4</sub> emissions while combusting distillate oil).	Minn. R. 7017.2030, subp. 4
<b>C. RECORDKEEPING</b>	hdr
Record keeping: Once each calendar day, calculate and record the daily GP 001 distillate fuel oil combustion hours, by summing the hours that EU 001 and EU 002 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)



**TABLE A: LIMITS AND OTHER REQUIREMENTS**

11/10/98

Facility Name: LSP Cottage Grove Cogeneration Facility

Permit Number: 16300087 - 001

**Subject Item: SV 001**

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

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
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
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.
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.
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)
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)
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)
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
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)
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
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)
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:  $\text{Limit} = ([\text{Toil} * 139.9 \text{ lb/hr}] + [\text{Tgas} * 36.5 \text{ lb/hr}]) / \text{total operating hours during the previous 30-day period}$  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)
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)
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
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
Sulfuric Acid Mist: less than or equal to 0.0002 lbs/million Btu heat input when EU 001 is combusting natural gas.	Title I Condition: 40 CFR Section 52.21(j) BACT limit

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

11/10/98

Facility Name: LSP Cottage Grove Cogeneration Facility

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Sulfuric Acid Mist: less than or equal to 0.017 lbs/million Btu heat input when EU 001 is combusting distillate fuel oil.	Title I Condition: 40 CFR Section 52.21(j) BACT limit
<b>B. OPERATIONAL LIMITS</b>	hdr
EU 001 Fuel Use Restriction: EU 001 fuel is limited to natural gas and distillate fuel oil.	Title I Condition: 40 CFR Section 52.21 BACT limit for PM and sulfuric acid mist
EU 002 Fuel Use Restriction: EU 002 fuel is restricted to natural gas only.	Title I Condition: 40 CFR Section 52.21 BACT limit for PM and sulfuric acid mist
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)
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.	Minn. R. 7007.0800, subp. 2
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.	
<b>C. POLLUTION CONTROL EQUIPMENT REQUIREMENTS</b>	hdr
Operate 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), and to meet 40 CFR Section 52.21(j) BACT limits for VOC and NO <sub>x</sub>
Temperature: greater than or equal to 450 degrees F for SV 001 flue gas downstream of CE 001 and upstream of CE 002.	Title I Condition: SV 001 flue gas temperature range limits to restrict ambient CO concentrations to less than significant levels in 40 CFR Section 51.165(b)(2), and to meet 40 CFR Section 52.21(j) BACT limit for VOC
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.	Title I Condition: SV 001 flue gas temperature monitoring to restrict ambient CO concentrations to less than significant levels in 40 CFR Section 51.165(b)(2); and to meet 40 CFR Section 52.21(j) BACT limit for VOC
SV 001 flue gas temperature will be used as an indicator of CO emissions during SV 001 CO CEM downtime.	
<b>D. TESTING REQUIREMENTS</b>	hdr
Performance Test: due before end of each year starting 06/01/98 to measure the PM <sub>10</sub> emission factor for each permitted fuel. Each annual test shall be composed of two separate tests (one for each permitted fuel). EU 002 shall be operated during all performance tests.	Title I Conditions: to verify emission factor used to determine emissions subject to a Title I limit; Minn. R. 7017.2020, subp. 1
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:  $X = ([A -  A - T ] \times 1/A) \times 100\%$ A = emission factor in Attachment A 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.	
Performance Test Pre-test Meeting: due 7 days before end of each year starting 06/01/98 (7 days before each PM <sub>10</sub> Performance Test). See Table B for additional performance test requirements.	
Performance Test: due before end of each 60 months starting 06/01/97 to measure PM, VOC, and H <sub>2</sub> SO <sub>4</sub> emissions while EU 001 is combusting natural gas, and PM, VOC, and H <sub>2</sub> SO <sub>4</sub> 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 Pre-test Meeting: due 7 days before end of each 60 months starting 06/01/97 (7 days before each Performance Test to measure PM, VOC, and H <sub>2</sub> SO <sub>4</sub> while EU 001 is combusting natural gas, and 7 days before each Performance Test to measure PM, VOC, and H <sub>2</sub> SO <sub>4</sub> emissions while EU 001 is combusting distillate oil).	Minn. R. 7017.2030, subp. 4

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

11/10/98

Facility Name: LSP Cottage Grove Cogeneration Facility

Permit Number: 16300087 - 001

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 5.5.	40 CFR pt. 75, Appendix D section 5.5
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.  Determine the heat content (high heating value) of natural gas as specified in 40 CFR pt. 75, Appendix D, section 2.3.  Maintain all analysis records for at least 5 years from the date of analysis.	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(b)
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.	Title I Condition: emissions monitoring for pollutants subject to Title I emission limits
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.	40 CFR Section 75.14(c)
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.	40 CFR part 75, Appendix D sections 2.1.5 and 2.1.6
Monitoring and recordkeeping for PM10 emissions: when EU 001 combusts natural gas, calculate the PM10 emission rate once each hour for the previous hour, using Equation 1 in Attachment A. When EU 001 combusts distillate fuel oil, calculate the PM10 emission rate once each hour for the previous hour, using Equation 2 in Attachment A.  Once each hour, calculate the PM10 emission rate on a 24-hour rolling average basis, by averaging the previous 24 hourly emission rates determined using Equations 1 and/or 2.  The permittee shall include all nonoperating periods when calculating emissions. Record all calculations at the time of calculation.	Title I Condition: monitoring and recordkeeping to restrict ambient PM10 concentrations to less than significant levels in 40 CFR Section 51.165(b)(2)
Monitoring and recordkeeping for SO2 emissions: when EU 001 combusts natural gas, calculate the SO2 emission rate once each hour for the previous hour, using Equation 3 in Attachment A. When EU 001 combusts distillate fuel oil, calculate SO2 emission rate once each hour for the previous hour, using Equation 4 in Attachment A.  Once each hour, calculate the SO2 emission rate on a 3-hour rolling average basis, by averaging the previous 3 hourly emission rates determined using Equations 3 and/or 4.  Once each hour, calculate the SO2 emission rate on a 24-hour rolling average basis, by averaging the previous 24 hourly emission rates determined using Equations 3 and/or 4.  The permittee shall include all nonoperating periods when calculating emissions. Record all calculations at the time of calculation.	Title I Condition: monitoring and recordkeeping to restrict ambient SO2 concentrations to less than significant levels in 40 CFR Section 51.165(b)(2); 40 CFR pt. 75, Appendix D section 3
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.	40 CFR part 75, Appendix D section 2.4
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.  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. Record all calculations at the time of calculation	Title I Conditions: 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); meets requirements of 40 CFR Sections 60.47a(c), 60.334(a), and 60.335

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

11/10/98

Facility Name: LSP Cottage Grove Cogeneration Facility

Permit Number: 16300087 - 001

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.	40 CFR Section 75.10; meets requirements of 40 CFR Sections 60.47a(c), 60.334(a), and 60.335
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.	40 CFR Section 60.47a(c) and (d)
Use a CO CEM to measure CO emissions from SV 001. Calculate hourly emission rates in units of lb/hr.	Title I Condition: monitoring to restrict ambient concentrations to less than significant levels in 40 CFR Section 51.165(b)(2)
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.	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
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:  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. 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; 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.	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
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.	40 CFR pt. 75, Appendix B, section 2.1
Linearity and Leak Check Test (Acid Rain Program): due before end of each calendar quarter following Permit Issuance. Conduct a quarterly linearity test on CEMS required by the Acid Rain Program, in accordance with 40 CFR pt. 75, Appendix B.	40 CFR pt. 75, Appendix B, section 2.2
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.	40 CFR Section 75.21
CEMS Relative Accuracy Test Audit (RATA): due before end of each calendar year following Permit Issuance. If the relative accuracy is 15% or less the next 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.	Minn. R. 7007.0800, subp. 2
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.	Minn. R. 7007.0800, subp. 2; Minn. R. 7017.1000, subp. 5
CEMS Cylinder Gas Audit (CGA): due before end of each calendar half-year following Permit Issuance. Conduct CGA at least 3 months apart and not greater than 8 months apart on the CO CEMS. Follow the procedures in 40 CFR pt. 60, Appendix F.	Minn. R. 7007.0800, subp. 2
CEMS Relative Accuracy Test Audit (RATA): due before end of each calendar half-year following Permit Issuance. 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 7.5% or less, the next RATA is not required for twelve months. NOx CEMS	40 CFR pt. 75, Appendix B, section 2.3
CEMS Continuous Operation: Except for system breakdowns, repairs, calibration checks, and zero and span adjustments, all CEMS shall be in continuous operation.	Minn. R. 7007.0800, subp. 2.
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

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

11/10/98

Facility Name: LSP Cottage Grove Cogeneration Facility

Permit Number: 16300087 - 001

<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>	<p>Minn. R. 7007.0800, subp. 5</p>
<p>G. REPORTING REQUIREMENTS</p>	<p>hdr</p>
<p>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).</p>	<p>40 CFR Section 72.6(a)(3)(i)</p>
<p>The Permittee shall submit a complete Phase II Acid Rain permit application governing this unit to the permitting authority at least 24 months before the later of January 1, 2000 or the date on which the unit commences operation. The Permittee shall not operate the source or unit without a permit that states its Acid Rain program requirements.</p>	<p>40 CFR Section 72.30</p>
<p>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.</p>	<p>40 CFR Section 72.21</p>

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

11/10/98

Facility Name: LSP Cottage Grove Cogeneration Facility

Permit Number: 16300087 - 001

**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)
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)
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**

11/10/98

Facility Name: LSP Cottage Grove Cogeneration Facility

Permit Number: 16300087 - 001

**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**

11/10/98

Facility Name: LSP Cottage Grove Cogeneration Facility

Permit Number: 16300087 - 001

**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
<b>A. EMISSION LIMITS</b>	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
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
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, and to restrict ambient concentrations to less than significant levels in 40 CFR Section 51.165(b)(2)
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, and to restrict ambient concentrations to less than significant levels in 40 CFR Section 51.165(b)(2)
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	Title I Condition: to restrict ambient concentrations to less than significant levels in 40 CFR Section 51.165(b)(2)
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; 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)
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; 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)
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)
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)
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
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
Sulfuric Acid Mist: less than or equal to 0.000026 lbs/million Btu heat input when EU 003 is combusting natural gas.	Title I Condition: 40 CFR Section 52.21(j) BACT limit
Sulfuric Acid Mist: less than or equal to 0.0025 lbs/million Btu heat input when EU 003 is combusting distillate fuel oil.	Title I Condition: 40 CFR Section 52.21(j) BACT limit
<b>B. OPERATIONAL REQUIREMENTS</b>	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
The opacity standard applies at all times, except during periods of startup, shutdown, or malfunction.	40 CFR Section 60.43b(g)



**TABLE A: LIMITS AND OTHER REQUIREMENTS**

11/10/98

Facility Name: LSP Cottage Grove Cogeneration Facility

Permit Number: 16300087 - 001

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 natural gas, 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); meets 40 CFR Section 60.42b(j)
<b>C. MONITORING REQUIREMENTS</b>	hdr
Emissions Monitoring: The owner or operator shall use a COMS to measure opacity emissions from EU 003.	40 CFR Section 60.48b(a)
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).  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.  Obtain HHV of natural gas from the fuel supplier.  Maintain records of fuel parameters for a minimum of five years from the date of receipt of parameter information.	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/recordkeeping 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
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.  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.  Record all calculations at the time of calculation.	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); 40 CFR Section 60.49b(c)
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 Attachment A. 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 Attachment A.  Record all hourly emission rates at the time of calculation.	Title I Condition: emissions monitoring to restrict ambient concentrations to less than significant levels in 40 CFR Section 51.165(b)(2)
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
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 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)

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

11/10/98

Facility Name: LSP Cottage Grove Cogeneration Facility

Permit Number: 16300087 - 001

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.
E. PREDICTIVE EMISSIONS MONITORING SYSTEM (PEMS)	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
Continuous Operation: Except for system breakdowns, repairs, and calibration checks, the PEMS shall be in continuous operation.	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); 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**

11/10/98

Facility Name: LSP Cottage Grove Cogeneration Facility

Permit Number: 16300087 - 001

**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
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
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, and to restrict ambient concentrations to less than significant levels in 40 CFR Section 51.165(b)(2)
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, and to restrict ambient concentrations to less than significant levels in 40 CFR Section 51.165(b)(2)
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	Title I Condition: to restrict ambient concentrations to less than significant levels in 40 CFR Section 51.165(b)(2)
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; 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)
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; 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)
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)
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)
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
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
Sulfuric Acid Mist: less than or equal to 0.000026 lbs/million Btu heat input when EU 004 is combusting natural gas.	Title I Condition: 40 CFR Section 52.21(j) BACT limit
Sulfuric Acid Mist: less than or equal to 0.0025 lbs/million Btu heat input when EU 004 is combusting distillate fuel oil.	Title I Condition: 40 CFR Section 52.21(j) BACT limit
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
The opacity standard applies at all times, except during periods of startup, shutdown, or malfunction.	40 CFR Section 60.43b(g)

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

11/10/98

Facility Name: LSP Cottage Grove Cogeneration Facility

Permit Number: 16300087 - 001

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 natural gas, 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); meets 40 CFR 60.42b(j)
<b>C. MONITORING REQUIREMENTS</b>	hdr
Emissions Monitoring: The owner or operator shall use a COMS to measure opacity emissions from EU 004.	40 CFR Section 60.48b(a)
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).  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.  Obtain HHV of natural gas from the fuel supplier.  Maintain records of fuel parameters for a minimum of five years from the date of receipt of parameter information.	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/ recordkeeping 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
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.  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.  Record all calculations at the time of calculation.	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); 40 CFR Section 60.49b(c)
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 Attachment A. 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 Attachment A.  Record all hourly emission rates at the time of calculation.	Title I Condition: emissions monitoring to restrict ambient concentrations to less than significant levels in 40 CFR Section 51.165(b)(2)
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
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 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)

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

11/10/98

Facility Name: LSP Cottage Grove Cogeneration Facility

Permit Number: 16300087 - 001

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.
E. PREDICTIVE EMISSIONS MONITORING SYSTEM (PEMS)	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
Continuous Operation: Except for system breakdowns, repairs, and calibration checks, the PEMS shall be in continuous operation.	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); 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**

11/10/98

Facility Name: LSP Cottage Grove Cogeneration Facility

Permit Number: 16300087 - 001

**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
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, and to restrict ambient concentrations to less than significant levels in 40 CFR Section 51.165(b)(2)
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	Title I Condition: to restrict ambient concentrations to less than significant levels in 40 CFR Section 51.165(b)(2)
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, and to restrict ambient concentrations to less than significant levels in 40 CFR Section 51.165(b)(2)
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)
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
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
<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 determination for PM10 and H2SO4, and, to restrict ambient SO2 concentrations to less than significant levels in 40 CFR Section 51.165(b)(2); 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.
<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
Monitoring and recordkeeping: once each hour calculate the EU 005 carbon monoxide emissions (in lb/hr), using Equation 7 in Attachment A. 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)

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

11/10/98

Facility Name: LSP Cottage Grove Cogeneration Facility

Permit Number: 16300087 - 001

**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**

11/10/98

Facility Name: LSP Cottage Grove Cogeneration Facility

Permit Number: 16300087 - 001

**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
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 Attachment A. 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



**TABLE A: LIMITS AND OTHER REQUIREMENTS**

11/10/98

Facility Name: LSP Cottage Grove Cogeneration Facility

Permit Number: 16300087 - 001

**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 as allowed in Minn. R. 7011.0515.	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 Attachment A. 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

## TABLE B: SUBMITTALS

11/10/98

Facility Name: LSP Cottage Grove Cogeneration Facility  
Permit Number: 16300087 - 001

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

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

Send any application for a permit or permit amendment to:

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

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

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

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

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

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

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

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

11/10/98

Facility Name: LSP Cottage Grove Cogeneration Facility

Permit Number: 16300087 - 001

<b>What to send</b>	<b>When to send</b>	<b>Portion of Facility Affected</b>
Acid Rain Application for Permit Reissuance	due 180 days before expiration of Existing Permit	SV001
Application for Permit Reissuance	due 180 days before expiration of Existing Permit	Total Facility
Relative Accuracy Test Audit (RATA) Notification	due 30 days before CEMS Relative Accuracy Test Audit (RATA) For NOx and CO CEMS RATA.	SV001
Relative Accuracy Test Audit (RATA) Notification	due 30 days before PEMS Relative Accuracy Test Audit (RATA)	EU003, EU004
Relative Accuracy Test Audit (RATA) Results Summary	due 30 days after end of the calendar quarter in which the Audit was performed .	EU003, EU004

**TABLE B: RECURRENT SUBMITTALS**

11/10/98

Facility Name: LSP Cottage Grove Cogeneration Facility

Permit Number: 16300087 - 001

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 following Permit Issuance (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 following Permit Issuance (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, EU004
Linearity Test Results Summary	due 30 days after end of each calendar quarter following Linearity and Leak Check Test (Acid Rain Program) if performed. NOx CEMS	SV001
Quarterly Report	due 30 days after end of each calendar quarter following Permit Issuance certifying that all fuel oil combusted met the definition of distillate oil in 40 CFR Section 60.41b.	EU003, EU004
Relative Accuracy Test Audit (RATA) Results Summary	due 30 days after end of each calendar quarter following CEMS Relative Accuracy Test Audit (RATA) in which the CEMS RATA was conducted. For NOx and CO CEMS RATA.	SV001
COMS Calibration Error Audit Results Summary	due 30 days after end of each calendar half-year following COMS Calibration Error Audit	EU003, EU004
Cylinder Gas Audit (CGA) Results Summary	due 30 days after end of each calendar half-year following CEMS Cylinder Gas Audit (CGA) CO CEMS	SV001
Semiannual Deviations Report	due 30 days after end of each calendar half-year following Permit Issuance. 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 following Permit Issuance (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
Emissions 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.	Total Facility

**TABLE B: RECURRENT SUBMITTALS**

11/10/98

Facility Name: LSP Cottage Grove Cogeneration Facility

Permit Number: 16300087 - 001

Performance Test Notification (written)	<p>due 30 days before end of each year starting 06/01/98 (30 days before each CO Performance Test).</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>	GP001
Performance Test Notification (written)	<p>due 30 days before end of each year starting 06/01/98 (30 days before each PM10 Performance Test while combusting natural gas).</p>	GP001
Performance Test Notification (written)	<p>due 30 days before end of each year starting 06/01/98 (30 days before each PM10 Performance Test).</p> <p>If the PM10 emission factor test frequency (for a specific fuel) 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 that specific fuel 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 for that specific fuel.</p> <p>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.</p>	SV001
Performance Test Plan	<p>due 30 days before end of each year starting 06/01/98 (30 days before each CO Performance Test).</p>	GP001
Performance Test Plan	<p>due 30 days before end of each year starting 06/01/98 (30 days before each PM10 Performance Test while combusting natural gas).</p>	GP001
Performance Test Plan	<p>due 30 days before end of each year starting 06/01/98 (30 days before each PM10 Performance Test)</p>	SV001
Performance Test Report - Microfiche Copy	<p>due 105 days after end of each year starting 06/01/98 (105 days after each CO Performance Test).</p>	GP001
Performance Test Report - Microfiche Copy	<p>due 105 days after end of each year starting 06/01/98 (105 days after each PM10 Performance Test while combusting natural gas).</p>	GP001

**TABLE B: RECURRENT SUBMITTALS**

11/10/98

Facility Name: LSP Cottage Grove Cogeneration Facility

Permit Number: 16300087 - 001

Performance Test Report - Microfiche Copy	due 105 days after end of each year starting 06/01/98 (105 days after each PM10 Performance Test)	SV001
Performance Test Report	due 45 days after end of each year starting 06/01/98 (45 days after each CO Performance Test).	GP001
Performance Test Report	due 45 days after end of each year starting 06/01/98 (45 days after each PM10 Performance Test while combusting natural gas).	GP001
Performance Test Report	due 45 days after end of each year starting 06/01/98 (45 days after each PM10 Performance Test)	SV001
Performance Test Notification (written)	due 30 days before end of each 60 months starting 06/01/97 (30 days before each Performance Test to measure PM, VOC, and H2SO4 emissions while combusting natural gas, and 30 days before each Performance Test to measure PM, PM10, VOC, and H2SO4 emissions while combusting distillate oil).	GP001
Performance Test Notification (written)	due 30 days before end of each 60 months starting 06/01/97 (30 days before each Performance Test to measure PM, VOC, and H2SO4 while EU 001 is combusting natural gas, and 30 days before each Performance Test to measure PM, VOC, and H2SO4 emissions while EU 001 is combusting distillate oil).	SV001
Performance Test Plan	due 30 days before end of each 60 months starting 06/01/97 (30 days before each Performance Test to measure PM, VOC, and H2SO4 emissions while combusting natural gas, and 30 days before each Performance Test to measure PM, PM10, VOC, and H2SO4 emissions while combusting distillate oil).	GP001
Performance Test Plan	due 30 days before end of each 60 months starting 06/01/97 (30 days before each Performance Test to measure PM, VOC, and H2SO4 while EU 001 is combusting natural gas, and 30 days before each Performance Test to measure PM, VOC, and H2SO4 emissions while EU 001 is combusting distillate oil).	SV001
Performance Test Report - Microfiche Copy	due 105 days after end of each 60 months starting 06/01/97 (105 days after each Performance Test to measure PM, VOC, and H2SO4 emissions while combusting natural gas, and 105 days after each Performance Test to measure PM, PM10, VOC, and H2SO4 emissions while combusting distillate oil).	GP001
Performance Test Report - Microfiche Copy	due 105 days after end of each 60 months starting 06/01/97 (105 days after each Performance Test to measure PM, VOC, and H2SO4 while EU 001 is combusting natural gas, and 105 days after each Performance Test to measure PM, VOC, and H2SO4 emissions while EU 001 is combusting distillate oil).	SV001
Performance Test Report	due 45 days after end of each 60 months starting 06/01/97 (45 days after each Performance Test to measure PM, VOC, and H2SO4 emissions while combusting natural gas, and 45 days after each Performance Test to measure PM, PM10, VOC, and H2SO4 emissions while combusting distillate oil).	GP001

**TABLE B: RECURRENT SUBMITTALS**

11/10/98

Facility Name: LSP Cottage Grove Cogeneration Facility  
Permit Number: 16300087 - 001

Performance Test Report	due 45 days after end of each 60 months starting 06/01/97 (45 days after each Performance Test to measure PM, VOC, and H2SO4 while EU 001 is combusting natural gas, and 45 days after each Performance Test to measure PM, VOC, and H2SO4 emissions while EU 001 is combusting distillate oil).	SV001
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**TECHNICAL SUPPORT DOCUMENT**  
**For**  
**AIR EMISSION PERMIT NO. 16300087-001**

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

**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, Minnesota 55016	LSP-Cottage Grove, L.P. 9525 105th Street Court South Cottage Grove, Minnesota 55016

**1.2. Description of the facility**

LSP-Cottage Grove, L.P. (**LSP**) has submitted an 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. The Title V operating permit application was originally received on September 15, 1995. Many subsequent submittals were received in response to additional information requests from the MPCA. Further information was requested and received on March 17, 1998.

This permit supersedes all previously issued 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. Two Distillate Fuel Oil Storage Tanks, one Emergency Fire Pump Diesel Engine, one Emergency Diesel Generator, and one Fuel Gas Heater comprise the remaining emission units at the facility.



LSP has an Oxidation Catalyst control for Carbon Monoxide (CO) emissions in the HRSG and a Selective Catalytic Reduction (SCR) control for 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.

The emission units at the facility which are authorized by this total facility permit are listed in the CD-01 forms of the operating permit.

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. During the development of the Title V permit, LSP requested revision of 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 revision of ambient concentration-based limits for **CO**, sulfur dioxide (**SO<sub>2</sub>**), **NO<sub>x</sub>**, and **PM<sub>10</sub>**. Revisions of 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.

#### a) BACT limits for EU 001 and EU 002 per 40 CFR § 52.21(j):

Emission Unit, SV, or GP	Previously approved limits	Limits approved by this permit on a continuous basis	Performance Test Results (August 23,23, 25 ,26 and 27, 1997)
<b>S/V 001 Combustion Turbine Generator combusting Natural Gas , Duct Burner operating</b>	PM: 10.7 lb/hr (24 hr rolling average)	PM: 0.0089 lb/MMBtu <sup>1</sup>	PM: 0.003124 lb/MMBtu
	PM <sub>10</sub> : 10.7 lb/hr	PM <sub>10</sub> : 0.0089 lb/MMBtu <sup>2</sup>	PM: 0.003033 lb/MMBtu
	NO <sub>x</sub> : 4.5 ppm (1-hr average)	NO <sub>x</sub> : 4.5 ppm dv @ 15%O <sub>2</sub> (1-hr average) <sup>4</sup>	NO <sub>x</sub> : 3.11 ppm dv @ 15%O <sub>2</sub>
	VOC: 19.0 lb/hr (30-day rolling average)	VOC: 0.008 lb/MMBtu <sup>3</sup>	VOC: 0.00168 lb/MMBtu
	H <sub>2</sub> SO <sub>4</sub> : 0.37 lb/hr (30-day rolling average)	H <sub>2</sub> SO <sub>4</sub> : 0.0002 lb/MMBtu <sup>3</sup>	H <sub>2</sub> SO <sub>4</sub> : 0.000113 lb/MMBtu

## 1.3. a continuation

Emission Unit, SV, or GP	Previously approved limits	Limits approved by this permit on a continuous basis	Performance Test Results (August 23,23, 25 ,26 and 27, 1997)
<b>S/V 001 Combustion Turbine Generator combusting Distillate fuel oil, Duct Burner operating</b>	PM: 57.5 lb/hr (24-hr rolling average)  PM <sub>10</sub> : 57.5 lb/hr (24-hr rolling average)  NO <sub>x</sub> : 16 ppm (1-hr average)  VOC: 20.9 lb/hr (30-day rolling average)  H <sub>2</sub> SO <sub>4</sub> : 29.3 lb/hr (30-day rolling average)	PM: 0.0327 lb/MMBtu <sup>1</sup>  PM <sub>10</sub> : 0.0327 lb/MMBtu <sup>2</sup>  NO <sub>x</sub> : 16 ppmdv@ 15%O <sub>2</sub> (1-hr average) <sup>4</sup>  VOC: 0.009 lb/MMBtu <sup>3</sup>  H <sub>2</sub> SO <sub>4</sub> : 0.017 lb/MMBtu <sup>3</sup>	PM: 0.00435lb/MMBtu  PM: 0.01834lb/MMBtu  NO <sub>x</sub> : 14.66 ppmdv @ 15%O <sub>2</sub> ppm (1-hr average) VOC: 0.00062 lb/MMBtu  H <sub>2</sub> SO <sub>4</sub> : 0.00655 lb/MMBtu

1 Limit set using a maximum emissions which were determined to result in ambient air increment increases less than the allowable. Limit also shown not to violate NAAQS or MAAQS.

2 EPA policy considers emissions of PM<sub>10</sub> to be equal to or less than PM

3 Equivalent to the previously approved hourly limits, therefore considered enforceable as a practical matter.

4 NO<sub>x</sub> is not based on a continuous basis. This limit is based on 1-hr average.

**b) Limits for S/V 001 to restrict air ambient concentrations to less than significant impact levels per 40 CFR Section 51.165(b)(2):**

Emission Unit, SV, or GP	Previously approved limits	Limits approved by this permit	Performance Test Results (August 22,23,25,26 and 27, 1997)
<b>S/V 001 Combustion Turbine combusting Natural Gas , Duct Burner operating</b>	NO <sub>x</sub> : 36.5 lb/hr  SO <sub>2</sub> : 1.3 lb/hr  CO: 20.7 lb/hr (1-hr average)	NO <sub>x</sub> : 36.5 lb/hr (30-day rolling average) <sup>3</sup> SO <sub>2</sub> : 99.3 lb/hr (3-hr rolling average) <sup>4</sup> CO: 1200 lb/hr (1-hr average) <sup>5</sup>	NO <sub>x</sub> : 26.2 lb/hr  SO <sub>2</sub> : 68.3 lb/hr  CO: 514 lb/hr
<b>S/V 001 Combustion Turbine Generator combusting Distillate Fuel Oil, Duct Burner operating</b>	PM: 57.5 lb/hr (24-hr rolling average) PM <sub>10</sub> : 57.5 lb/hr (24-hr rolling average) NO <sub>x</sub> : 139.9 lb/hr (30 day rolling average) SO <sub>2</sub> : 59.6 lb/hr (24-hr rolling average) CO: 38.0 lb/hr (1-hr average)	none  PM <sub>10</sub> : 73.3 lb/hr (24-hr rolling average) <sup>3</sup> NO <sub>x</sub> : 139.9 lb/hr (30-day rolling average) <sup>3</sup> SO <sub>2</sub> : 59.6 lb/hr (24-hr rolling average) CO: 1200 lb/hr (1-hr average) <sup>5</sup>	7.56 lb/hr <sup>1</sup>  PM <sub>10</sub> : 31.90 lb/hr (24-hr rolling average) <sup>2</sup> NO <sub>x</sub> : 115.1 lb/hr (30-day rolling average) SO <sub>2</sub> : 50.35 lb/hr (calculated from fuel analysis) CO: 1102 lb/hr (calculated)

Footnotes to 1.3.b

- 1 Filterable particulate and organic condensibles
- 2 PM<sub>10</sub> as determined by U.S. EPA Methods 201A and 202
- 3 Limits is equivalent to the limit in 1.3 (a)
- 4 Previous limit miscalculated
- 5 1-hr startup emission rate shown not to violate a NAAQS or MAAQS.

**c) BACT Emission Limits for EU 003 and EU 004 per 40 CFR § 52.21 (j):**

<b>Emission Unit</b>	<b>Previously approved limits</b>	<b>Limits approved by this permit on a continuous basis</b>	<b>Performance Test Results (May, 1997)</b>
<b>EU 003 and EU 004 Auxiliary Boiler No. 1 and Auxiliary Boiler No. 2 combusting natural gas at a rate of : 114 MMBtu/hr</b>	PM: 0.60 lb/hr (24-hr rolling average)  PM <sub>10</sub> : 0.60 lb/hr (24-hr rolling average)  NO <sub>x</sub> : 6.9 lb/hr (30-day rolling average)  VOC: 0.60 lb/hr (30-day rolling average)  H <sub>2</sub> SO <sub>4</sub> : 0.003 lb/hr (30-day rolling average)	PM: 0.005 lb/MMBtu <sup>1</sup>  PM <sub>10</sub> : 0.005 lb/MMBtu <sup>1</sup>  NO <sub>x</sub> : 0.06 lb/MMBtu <sup>2</sup>  VOC: 0.005 lb/MMBtu <sup>1</sup>  H <sub>2</sub> SO <sub>4</sub> : 0.000026 lb/MMBtu <sup>1</sup>	PM: 0.002 lb/MMBtu    PM: 0.0045 lb/MMBtu   VOC: 0.00009 lb/MMBtu  H <sub>2</sub> SO <sub>4</sub> : 0.000009 lb/MMBtu
<b>EU 003 and EU 004 Auxiliary Boiler No. 1 and Auxiliary Boiler No. 2 combusting distillate fuel oil at a rate of: 104 MMBtu/hr</b>	PM: 7.0 lb/hr (24 hr rolling average)  PM <sub>10</sub> : 7.0 lb/hr  NO <sub>x</sub> : 0.12 lb/MMBtu (1-hr average)  VOC: 3.3 lb/hr (30-day rolling average)  H <sub>2</sub> SO <sub>4</sub> : 0.26 lb/hr (30-day rolling average)	PM: 0.061 lb/MMBtu <sup>1</sup>  PM <sub>10</sub> : 0.061 lb/MMBtu <sup>1</sup>  NO <sub>x</sub> : 0.12 lb/MMBtu (1 hr-average) <sup>2</sup>  VOC: 0.03 lb/MMBtu <sup>1</sup>  H <sub>2</sub> SO <sub>4</sub> : 0.0025 lb/MMBtu <sup>1</sup>	PM: 0.0019 lb/MMBtu   PM <sub>10</sub> : 0.0046 lb/MMBtu  NO <sub>x</sub> : Limit measured by a PEMS  VOC: 0.00077 lb/MMBtu  H <sub>2</sub> SO <sub>4</sub> : 0.00001 lb/MMBtu

- 1 Equivalent to the previously approved hourly limits, therefore considered enforceable as a practical matter.
- 2 Limit measured by a PEMS

**d) Limits for EU 003 and EU 004 to restrict air ambient concentrations to less than significant impact levels per 40 CFR § 51.165(b)(2) :**

<b>Emission Unit, SV, or GP</b>	<b>Previously approved limits</b>	<b>Limits approved by this permit</b>	<b>Performance Test Results (May, 1997)</b>
<b>EU 003 and EU 004 Auxiliary Boiler No. 1 and Auxiliary Boiler No. 2 combusting natural gas at a rate of: 114 MMBtu/hr</b>	PM: 0.60 lb/hr (24- hr rolling average)  PM <sub>10</sub> : 0.60 lb/hr (24- hr rolling average)  SO <sub>2</sub> : 5.7 lb/hour  NO <sub>x</sub> : 6.9 lb/hr (30-day rolling average)  CO: 4.6 lb/hr (natural gas)	PM <sub>10</sub> : 0.005 lb/MMBtu <sup>1</sup> (24-hr rolling average)  SO <sub>2</sub> : 5.7 lb/hour (1-hr average)  NO <sub>x</sub> : 6.9 lb/hr (30-day rolling average) <sup>2</sup>  CO: 5.6 lb/hr (natural gas and/or distillate fuel oil) <sup>3</sup> (1-hr average)	PM <sub>10</sub> : 0.0045 lb/MMBtu  SO <sub>2</sub> : 0.00061 lb/hour  NO <sub>x</sub> : Limit determined by a PEMS  CO: 1.84 lb/hr
<b>EU 003 and EU 004 Auxiliary Boiler No. 1 and Auxiliary Boiler No. 2 combusting distillate fuel oil at a rate of: 104 MMBtu/hr</b>	PM: 7.0 lb/hr (24- hr rolling average)  PM <sub>10</sub> : 7.0 lb/hr (24- hr rolling average)  SO <sub>2</sub> : 5.7 lb/hour  NO <sub>x</sub> : 13.4 lb/hr (30-day rolling average)  CO: 5.6 lb/hr (1- hr average)	PM <sub>10</sub> : 0.061 lb/MMBtu <sup>1</sup>  SO <sub>2</sub> : 5.7 lb/hour (1-hr average)  NO <sub>x</sub> : 13.4 lb/hr (30-day rolling average) <sup>2</sup>  CO: 5.6 lb/hr (1-hr average) <sup>3</sup>	PM <sub>10</sub> : 0.0046 lb/MMBtu  SO <sub>2</sub> : use fuel data  NO <sub>x</sub> : Limit determined by a PEMS  CO: 1.84 lb/hr

<sup>1</sup> Limit is equivalent to the limit in 1.3 c

<sup>2</sup> Limit is equivalent to the limit in 1.3 c

<sup>3</sup> Limit set for both natural gas and distillate fuel oil.

**e) BACT Emission Limits for EU 005 per 40 CFR § 52.21(j):**

<b>Emission Unit</b>	<b>Previously approved limits</b>	<b>Limits approved by this permit</b>	<b>Test Results Manufacturer's specification</b>
<b>Emergency Fire Pump Diesel Engine with a design input capacity of 2.7 MMBtu/hr</b>	PM: 0.7 lb/hr (24 hr rolling average)	PM: 0.26 lb/MMBtu <sup>1</sup>	PM: 0.043 lb/MMBtu
	PM <sub>10</sub> : 0.7 lb/hr	PM <sub>10</sub> : 0.26 lb/MMBtu <sup>1</sup>	PM <sub>10</sub> : 0.043 lb/MMBtu
	NO <sub>x</sub> : 5.0 lb/hr (30-day rolling average)	NO <sub>x</sub> : 1.85 lb/MMBtu <sup>1</sup>	NO <sub>x</sub> : 1.13 lb/MMBtu
	VOC: 1.9 lb/hr (30-day rolling average)	VOC: 0.71 lb/MMBtu <sup>1</sup>	VOC: 0.71 lb/MMBtu
	H <sub>2</sub> SO <sub>4</sub> : 0.0046 lb/hr (30-day rolling average)	H <sub>2</sub> SO <sub>4</sub> : 0.0017 lb/MMBtu <sup>1</sup>	H <sub>2</sub> SO <sub>4</sub> : 0.0017 lb/MMBtu

<sup>1</sup> Equivalent to the previously approved hourly limits, therefore considered enforceable as a practical matter.

**f) Limits for EU 005 to restrict air ambient concentrations to less than significant impact levels per 40 CFR 51.165(b)(2):**

<b>Emission Unit, SV, or GP</b>	<b>Previously approved limits</b>	<b>Limits approved by this permit</b>	<b>Test Results Manufacturer's specification</b>
<b>Emergency Fire Pump Diesel Engine with a design heat input capacity of 2.7 MMBtu/hr</b>	PM: 0.7 lb/hr (24 hr rolling average)	PM: 0.26 lb/MMBtu <sup>1</sup>	PM: 0.043 lb/MMBtu
	PM <sub>10</sub> : 0.7 lb/hr	PM <sub>10</sub> : 0.26 lb/MMBtu <sup>1</sup>	PM <sub>10</sub> : 0.043 lb/MMBtu
	NO <sub>x</sub> : 5.0 lb/hr (30-day rolling average)	NO <sub>x</sub> : 1.85 lb/MMBtu <sup>1</sup>	NO <sub>x</sub> : 1.13 lb/MMBtu
	SO <sub>2</sub> : 0.14 lb/hr (3-hr rolling average)	SO <sub>2</sub> : 0.14 lb/hr	SO <sub>2</sub> : 0.071 lb/MMBtu @ 0.05%S
	CO: 5.0 lb/hr (1-hr average)	CO: 5.0 lb/hr (1-hr average) <sup>1</sup>	CO: 0.57 lb/hr

<sup>1</sup> Limit is equivalent to the limit in 1.3 e

### 1.3.1. Revision of the CO emission limit

**Request:** LSP has indicated to the MPCA that the Oxidation Catalyst control device for CO in the HRSG is not operational (and thus the 1-hr CO concentration limit in the current construction permit is not consistently met) during unit startup period in which the HRSG and catalyst are heated up to temperatures required before significant oxidation of CO to CO<sub>2</sub> commences. In addition, the CO emissions from the combustion turbine, during certain stages of the unit startup, are much higher than during normal operation. Therefore, LSP requested a revision to the one hour average CO limit of 20.7 lb/hr to 1,200 lb/hr.

**Response:** LSP, their consultant Black and Veatch and the MPCA met in November 1997 to discuss the results of the startup problem and the possibility of an exemption during startup. After the meeting and based on the technical difficulties during startup period, the MPCA decided to grant a revision to the permit allowing a 1 hour average CO emission limit to 1,200 lb/hour at all times to account for the higher emissions during the startup period.

The MPCA decision granting the revised CO one hour average emission limit of 1,200 lb/hour, which applies during all operating times and for all fuels, has been incorporated into the Title V permit. The decision was based on the following:

To demonstrate that the facility will still restrict ambient concentrations to below significant levels with the higher CO emission limit; Black & Veatch conducted an Ambient Air Quality Impact Analysis on the facility's emissions; assuming the CO emission rate of 1,200 lb/hr from the CTG and HRSG unit. This analysis is included in Attachment C of this TSD. The modeling results show that the maximum facility impacts from CO emissions of 1,200 lb/hr are below the Significant Impacts Levels (SIL). Table 3 of Attachment C lists the results of the air dispersion modeling, for each averaging period and fuel type, along with the applicable SILs. The results demonstrate that the maximum model predicted concentrations for averaging periods (one hour and eight hour) are less than the applicable SILs. Therefore, the revised limit for CO for the CTG/HRSG will not cause nor significantly contribute to a violation of MAAQS or NAAQS.

### 1.3.2. NO<sub>x</sub> limit exemption during startup/shutdown and startup/shutdown definitions:

**Request 1 :** LSP has indicated to the MPCA that the Selective Catalytic Reduction (SCR) NO<sub>x</sub> control system in the HRSG is not operational (and thus the one-hour NO<sub>x</sub> concentration limit is not consistently met) during unit startup period when the HRSG and SCR device are warming up to temperature, prior to commencing ammonia injection needed to promote the reduction of NO<sub>x</sub> to molecular nitrogen (N<sub>2</sub>). LSP with the assistance of Black and Veatch have conducted a detailed assessment of the unit conditions and NO<sub>x</sub> (and CO) emission profiles during startup/shutdown periods.

LSP, Black and Veatch and the MPCA met in November 1997 to discuss the possibility of an exemption from NO<sub>x</sub> emission limits during startup period.

**Response 1 :** The MPCA decided to grant an exemption from the one-hour average NO<sub>x</sub> concentration limit during startup period of two hours. The MPCA also requested that a definition of “startup period” be proposed and incorporated into the Title V permit.

**Request 2 :** A similar situation of high NO<sub>x</sub> levels is a problem with high combustion temperature turbines and SCR system during unit shutdown period. LSP accepted the MPCA decision of an exemption for startup period, and is also requesting that the exemption be granted for shutdown period for reasons similar to those regarding the startup period.

Based on the results of the startup/shutdown profile investigations, LSP requested that the exemptions be for a two-hour startup period and one hour shutdown period.

**Response 2 :** The MPCA has also approved an exemption for one-hour average NO<sub>x</sub> concentration limit during the shutdown period of 1 hour.

**The MPCA has approved the following definitions for startup and shutdown:**

Startup Period: is defined as the initial 120 minutes of operation of the CTG (EU 001) after any time during which operation of EU 001 has ceased for more than 60 consecutive minutes.

Shutdown Period: is defined as the final 60 minutes of operation of the CTG (EU 001) immediately preceding the time that fuel flow is shut off to the CTG.

Operation of the CTG (EU 001): is defined as whenever there is any fuel flow to the CTG.

The appropriate references to startup period exemption have been incorporated into the Title V permit.

### **1.3.3. Revised PM and PM<sub>10</sub> BACT emission limits:**

**Request:** LSP requested that the maximum allowable PM and PM<sub>10</sub> emission level during gas firing in the SV 001 be increased to 0.0089 LB/MMBtu to ensure compliance with an adequate margin of safety. The requested emission limit corresponds to an emission rate of approximately 20 lb/hour. Stack test results of this unit, conducted on August, 1997, have necessitated an increase in the emission limit, in order to have an adequate margin of safety to ensure compliance. The increase in this emission limit does not affect the predicted maximum air quality impacts from the

facility because these were based on the higher emission limit when oil is fired (which is not being changed). Thus, the increase in the gas fired emission limit is a matter of BACT compliance. The PM and PM<sub>10</sub> emissions are the lowest possible with the combustion turbine and pollution controls being utilized on the unit. No additional controls for the reduction of PM and PM<sub>10</sub> are practical. Thus, the limit of 0.0089 lb/MMBtu still represents use of BACT.

The PM<sub>10</sub> limit in terms of lb/MMBtu is a BACT limit only, and is not set to restrict ambient concentration to less than SILs. The only PM<sub>10</sub> limit which is set to restrict ambient concentration to less than SILs is 73.3 lb/hr. The emission originally level assumed in dispersion modeling, for the unit, to determine maximum 24-hour average PM<sub>10</sub> SIPs was 57.5 lb./hour, this limit was erroneously used because it corresponds to an emission rate when oil is fired with a Sulfur Content of 0.03 percent. The new emission limit does not increase the maximum particulate emission rate from the source (73.3 lb/hr), when oil is fired. Thus, the maximum 24-hour average particulate air quality impacts of the source do not increase from that shown in the construction permit application because; it was assumed in that part of the analysis that the source could not operate for a 24-hour period firing oil. However, the maximum annual average particulate impact predicted for the source will increase. This is because the impact prediction modeling was made with an assumption, for annual averages, that the combustion turbine would operate firing oil for the maximum allowable hours each year (1,700 hours) and would operate firing gas for the balance of the time each year (7060 hours). Thus the total allowable emission limit of 20 lb/hour PM<sub>10</sub> in the gas fired mode.

The Table A on Attachment D of this TSD summarizes the changes in the allowable particulate emissions and predicted impacts associates with increasing the gas fired particulate emission limit to 20 lb/hour. As is shown in the table, even with the increase in the annual particulate emission level, the predicted particulate air quality impacts from the facility are well below the applicable SILs.

**Response:** The MPCA granted the revised PM<sub>10</sub> BACT emission limit of 0.0089 lb/MMBTU (20 lb/hr) which has been shown as a BACT emission limit and not to violate a NAAQS or MAAQS. The limit has been incorporated into the Title V permit.



**1.3.4. Identification of EU 007 and EU 008 as insignificant units:**

LSP and MPCA agreed to identify EU 007 (Emergency Diesel Generator) and EU 008 (Fuel Gas Heater) as insignificant sources not subject to Title I conditions. The Title V permit contains a Title I condition for carbon monoxide emissions from these two units to show compliance for the total facility CO CAP of 99 tons per year on a 365-day rolling sum.

**1.3.5. Revised BACT limits for PM, PM<sub>10</sub>, VOC and H<sub>2</sub>SO<sub>4</sub>**

The MPCA has decided to have BACT limits for PM/PM<sub>10</sub>, VOC, and H<sub>2</sub>SO<sub>4</sub> for SV 001, EU 003, EU 004, EU 005 in terms of lb/MMBtu instead of lb/hr. The appropriate emission limits in terms of lb/MMBtu have been incorporated into the Title V permit. The limits expressed in lb/MMBtu are equivalent to the previously approved hourly limit, and therefore are considered enforceable on a continuous basis as a practical matter per 40 CFR § 52.21(j) to restrict these emission as BACT.

**1.3.6. Modification of Emission Calculation Equations**

The Permittee is authorized to use the revised PM<sub>10</sub>, SO<sub>2</sub> and CO equations for the existing units. The Permittee is authorized to determine compliance with the total facility CO CAP emission limit of 99 tons per year by using CO emission factors specified in Attachment A.

**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:

Air Emission Permit No. 16300087-004, Amendment No. 2 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.

## 1.4 continuation

Air Emission Permit No. 16300087-002, Amendment No. 1 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, 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	Lead Pb tpy	Sulfuric Acid mist tpy
001	001	Combustion Turbine Generator (CTG)	117.24	117.24	77.98	216.2	71.22	96.91	--	17.8
002	001	Supplemental Duct Firing Burner	10.53	10.53	0.71	18.92	9.46	10.88		0.237
003	002	Boiler 1	7.92	7.92	5.22	35.77	4.92	20.85	8.5E-4	0.25
004	003	Boiler 2	7.92	7.92	5.22	35.77	4.92	20.85	8.5E-4	0.25
005	004	Fire Pump Diesel Engine	0.05	0.05	0.014	0.37	0.14	0.37	8.5E-4	3.4E-4
007	006	Emergency Diesel Generator	0.0038	0.0038	0.0023	0.097	2.5E-3	0.026	8.5E-4	--
008	007	Fuel Gas Heater	0.186	0.186	0.011	1.86	0.13	0.61	--	--
<b>Total Facility Limited Potential emissions *</b>			144	144	89	309	91	99***	3.4E-4	18.5
<b>Total Facility Actual Emissions**</b>			5.1	9.1	7.1	55.2	2.3	21.9	--	1.6

\*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.

\*\* 1997 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:

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

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

### 1.6 Calculation of a 365-day rolling sum:

#### **Determining Compliance with the Facility CO Limit Based on a 365-Day Rolling Sum:**

The Permittee shall comply with the Facility 99 ton-per-year CO CAP on a 365-day rolling sum basis. To determine compliance with the CO Limit, the Permittee shall calculate the 365-day emission rolling sum once each day, as follows:

Starting on the effective date (the 366th day of on-line operation at design condition) for the Facility 99 ton-per-year CO CAP, the Permittee shall sum the daily Facility CO emissions for the previous 365 days. On each successive day, the Permittee shall calculate a new 365-day rolling sum by dropping the Facility's oldest daily CO emission from the rolling sum and adding the Facility's CO emissions for the previous day. This procedure is repeated each day, and the total sum is compared with the CO CAP limit.

## 2. Regulatory and/or Statutory Basis

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

EU, GRP, or SV #	Applicable Regulations	Comments
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. General requirements include recordkeeping and monitoring related to the CO CAP limits. Reporting requirements are contained in Table B of the permit.
GP 001	40 CFR §51.165(b)(2),  Minn. R. 7017.2020, Minn. R. 7017.2030, subp.1, subp. 2, subp. 4  Minn. R. 7017.2035, subp. 1, subp 2	EU 003 and EU 004 are limited to burn No. 2 distillate fuel oil for 1700 hour per year each to restrict SO <sub>2</sub> emissions to less than significant levels. Recordkeeping requirement associated with this Title I condition.  Testing requirements  Performance test report requirements

Regulatory and/or statutory basis continuation:

SV 001	40 CFR §52.21(j) BACT limit	BACT limits set for NO <sub>x</sub> , PM, PM <sub>10</sub> , VOC, Sulfuric Acid Mist.
	40 CFR § 51.165(b)(2),	Ambient concentration-based limits for CO, SO <sub>2</sub> , NO <sub>x</sub> and PM <sub>10</sub> .
	40 CFR § 72.6,72.21, 72.90,72.30, 40 CFR § 75.50, 75.64 40 CFR part 75, Appendix B, Appendix D	Acid Rain requirements
	Minn. R. 7007.0800, subp. 2	Definition of Startup and Shutdown
	40 CFR § 51.165(b)(2) and 40 CFR § 52.21(j) BACT	Pollution control equipment requirement to operate CE 001 and CE 002 to restrict concentrations to less than significant levels and to meet BACT limits for VOC and NO <sub>x</sub> .
	40 CFR § 51.165(b)(2) and 40 CFR § 52.21(j) BACT	Temperature requirement for CE 001 and CE 002.
	40 CFR § 51.165(b)(2) and 40 CFR § 52.21(j) BACT	NO <sub>x</sub> CEMS CO CEMS
	40 CFR § 72.9(c)(1)(i), 40 CFR § 72.9(g)(4)	Acid Rain hold allowances

Regulatory and/or statutory basis continuation:

EU 001	40 CFR pt 51 Appendix S  40 CFR § 60.332(a)(1) and 63.333(b)  40 CFR 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 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 60 Subp. Db 40 CFR 40.44b(a)(1)(ii)  40 CFR 52.21(j),  40 CFR §51.165(b)(2)  Minn. R. 7007.0800, subp. 2; 40 CFR § 60.13(d)  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> .  COMS continuous operation. Opacity calculation.  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

Regulatory and/or statutory basis continuation:

EU 007	40 CFR 51, Appendix S	Recordkeeping for CO to avoid classification as major source.
EU 008	40 CFR 51, Appendix S	Recordkeeping for CO to avoid classification as major source.

### New Source Performance Standard (NSPS) Recordkeeping and Reporting.

#### 40 CFR 60 Subpart Da: Requirements:

EU 002 is subject to the requirements of 40 CFR pt. 60, Subp. Da. The Permittee has applied to the EPA for a waiver for Particulate Matter/ Opacity, SO<sub>2</sub>, and NO<sub>x</sub> performance testing, monitoring, recordkeeping and reporting requirement for 40 CFR Part 60, Subpart Da - Standards of Performance for Electric Utility Steam Generating Units.

EPA response a: “The waiver request for Particulate Matter/ Opacity requirements is denied because the justification of “inability to separate the duct burner emission from the gas turbine emission” is not a sufficient reason. However, the source may choose to request that alternative compliance test procedures be used. The alternative testing procedures must be based on meeting the most restrictive of the two emission limits on combined effluent.

EPA response b: “The waiver for NO<sub>x</sub> performance testing and monitoring requirements is approved. However, the source shall meet the recordkeeping and reporting requirements on NSPS Subpart Da.

Performance Test conducted on August 22-27, 1997 shown the following:

#### Duct Burner Results

Emission Unit	Limitation Basis	Pollutant and Emission Limit	Test Result	Compliance Status
Duct Burner	40 CFR § 60.42a(a)(1)	PM: 0.03 lb/mmBtu	not determined	compliance
	40 CFR § 60.44a(1)	NO <sub>x</sub> : 0.20 lb/mmBtu	0.17 lb/mmBtu	compliance
	40 CFR § 60.42a(b)	Opacity: 20 %	0%	compliance

**40 CFR 60 Subpart Db: requirements**

EU 003 and EU 004 are subject to 40 CFR pt. 60 Subpart Db. The Permittee has applied to EPA for a waiver for Particulate Matter/Opacity testing, monitoring, recordkeeping, and reporting requirements of 40 CFR Part 60 Subpart Db- Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units.

EPA response: The waiver was denied.

Compliance was demonstrated during performance test on September 20-26, 1997.

**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.

In EPA waiver letter dated July 24, 1998 states: (Please note that the content of the EPA letter is on 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.

### 3. 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. 16300087-001, and this TSD, will not cause or contribute to a violation of applicable federal regulations and Minnesota Rules.

Staff Members on Permit Team:

Marshall Cole, Rochester Regional Office  
Tom Kosevich, Major Facilities, North District  
Roxana Dorsey, Major Facilities Section, Metro District

Attachments: CD-01 for Air Permit No. 16300087 -001

Attachment A: Revised equations for  $PM_{10}$  and CO emissions calculations.

Attachment B: Revised calculations for Total Facility Potential to Emit (PTE).

Attachment C: Black & Veatch submittal: Enclosure 2 “CO Ambient Air Quality Impact Assessment for Startup Mode. Air Dispersion Modeling Methodology and Results”, dated February 23, 1998.

Attachment D: Black & Veatch submittal: “Calculations for  $PM_{10}$  revised BACT limit for SV 001”, dated March 12, 1998.

Attachment E: EPA letters