

AIR EMISSION PERMIT NO. 04300002- 006
Total Facility Operating Permit – Reissuance

IS ISSUED TO

Board of Public Works

BLUE EARTH LIGHT & WATER
124 6th Street East
Blue Earth, Faribault County, MN 56013

The emission units, control equipment and emission stacks at the stationary source authorized in this permit reissuance are as described in the Permit Applications Table.

This permit reissuance supersedes Air Emission Permit No. 04300002-005 and authorizes the Permittee to operate the stationary source at the address listed above unless otherwise noted in Table A. The Permittee must comply with all the conditions of the permit. Any changes or modifications to the stationary source must be performed in compliance with Minn. R. 7007.1150 to 7007.1500. Terms used in the permit are as defined in the state air pollution control rules unless the term is explicitly defined in the permit.

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

Permit Type: Federal; Part 70/Limits to Avoid NSR;

Operating Permit Issue Date: June 25, 2009

Expiration Date: June 25, 2014

All Title I Conditions do not expire.

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

for Paul Eger
Commissioner
Minnesota Pollution Control Agency

Permit Applications Table

Permit Type	Application Date	Permit Action
Administrative Amendment	1-20-2000	002
Major Amendment (application withdrawn)	5-3-2002	003
Major Amendment	9-6-2002	004
Major Amendment	10-18-2004	005
Total Facility Operating Permit	1-12-2004	006

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NOTICE TO THE PERMITTEE:

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

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

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

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

PERMIT SHIELD:

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

FACILITY DESCRIPTION:

This facility is a small municipal electric generating plant composed of one boiler and six reciprocating internal combustion engines. The facility provides standby electric generation.

REISSUANCE (ACTION 006)

The purpose of this permit action is to reissue the Title V / Pt. 70 Permit for Blue Earth Light and Water (Facility). The previous Total Facility Permit was good for a period of five years and expired on August 24, 2004. The facility submitted a renewal application on January 5, 2004.

Since the last permit action, Blue Earth Light and Water has not made any changes in the operation or design of its facility. However, the following changes are being incorporated into this permit reissuance:

- Updated citations to reflect current MPCA templates and standard formatting.
- Updated CD-01 to reflect applicability of National Emission Standards for Hazardous Air Pollutant Sources ZZZZ to all six engines on-site.
- The particulate matter with an aerodynamic diameter of less than or equal to 2.5 microns (PM_{2.5}) emissions tabulated in this permit are based on the conservative assumption that all emitted particulate matter with an aerodynamic diameter of less than or equal to 10 microns (PM₁₀) is assumed to be equal to PM_{2.5}.
- Updated language relevant to Title IV: Acid Rain, including loss of exemption language.
- Added triggers for re-modeling.
- Removed stack height parameters from GP 002 level in the CD-01. The Facility has constructed the stacks as required to show compliance with the Minnesota Ambient Air Quality Standard. The stack heights, along with other modeling information, are present in the permit Appendix.
- Moved modeling-derived operating limits from GP 002 to the emission unit level for EU 004, EU 005, and EU 011.
- Renamed GP 002 "Title IV, New Unit Exemption."
- Removed EU 004 from GP 002.
- Clarified citation for EU 004's fuel sulfur content limit to reflect that it is neither an acid rain affected unit, nor is it an exempted acid rain unit.
- Clarified citation for EU 006's fuel sulfur content limit to reflect that it is neither an acid rain affected unit, nor is it an exempted acid rain unit.
- The tank previously described as EU 010 has been reclassified as an insignificant activity not required to be listed in Title V permits. Therefore it has been removed from this permit.
- Revised opacity test frequency for EU 006 from five years to three years due to previous test results.

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: Blue Earth Light & Water
 Permit Number: 04300002 - 006

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

Subject Item:	Total Facility
What to do	Why to do it
SOURCE-SPECIFIC REQUIREMENTS	hdr
Permit Appendices: This permit contains one (1) Appendix as listed in the permit Table of Contents. The Permittee shall comply with all requirements contained in the Appendix.	Minn. R. 7007.0800, subp. 2
Parameters Used in Modeling: The parameters used in the modeling performed for determining emission and/or operational limits for this facility are listed in the Appendix of this permit. If the Permittee intends to change any of these parameters, the Permittee must submit the revised parameters to the Commissioner and receive written approval before making any changes. The revised parameter information submittal must include, but is not limited to: the locations, heights and diameters of the stacks; locations and dimensions of nearby buildings; velocity and temperatures of the gases emitted; and the emission rates. The plume dispersion characteristics due to the parameter revisions must equal or exceed the dispersion characteristics modeled for this permit, and the Permittee shall demonstrate this in the proposal.	Minn. Stat. Section 116.07, subds. 4a & 9; Minn. R. 7007.0100, subp. 7(A), 7(L), & 7(M); Minn. R. 7007.0800, subps. 1, 2 & 4; Minn. R. 7009.0010-7009.0080
If the information does not demonstrate equivalent or better dispersion characteristics, or if a conclusion cannot readily be made about the dispersion, the Permittee must remodel.	CONTINUED: Minn. Stat. Section 116.07, subds. 4a & 9; Minn. R. 7007.0100, subp. 7(A), 7(L), & 7(M); Minn. R. 7007.0800, subps. 1, 2 & 4; Minn. R. 7009.0010-7009.0080
Parameters Used in Modeling (continued): For changes that do not involve an increase in an emission rate and that do not require a permit amendment, the proposal must be submitted as soon as practicable, but no less than 60 days before making the change to any parameter. For changes involving increases in emission rates and that require a minor permit amendment, the proposal must be submitted as soon as practicable, but no less than 60 days before making the change to any parameter. For changes involving increases in emission rates and that require a permit amendment other than a minor amendment, the proposal must be submitted prior to or with the permit amendment application. This is a state only requirement and is not enforceable by the EPA Administrator and citizens under the Clean Air Act.	CONTINUED: Minn. Stat. Section 116.07, subds. 4a & 9; Minn. R. 7007.0100, subp. 7(A), 7(L), & 7(M); Minn. R. 7007.0800, subps. 1, 2 & 4; Minn. R. 7009.0010-7009.0080
Nitrogen Oxides: less than or equal to 470000 lbs/year (235 tons per year) on a 12-month rolling sum basis.	Title I Condition: To avoid classification as a major source under 40 CFR Section 52.21 and Minn. R. 7007.3000; Minn. Stat. Section 116.07, subds. 4a & 9; Minn. R. 7007.0100, subp. 7(A), 7(L), & 7(M); Minn. R. 7007.0800, subps. 1, 2 & 4; Minn. R. 7009.0010-7009.0080
Fuel Usage Records: Maintain records on site of the type and amount of each fuel burned in each emission unit. Daily usage of natural gas and diesel fuel oil shall be determined with fuel meters and recorded each day that fuel is combusted. By the 15th day of each month, the fuel usage for each emission unit for the previous 12 months shall be summed to obtain the 12-month fuel usage for the emission unit. The 12-month fuel usage shall be used for calculating 12-month rolling sum NOx emissions as required by this permit.	Title I Condition: To avoid classification as a major source under 40 CFR Section 52.21 and Minn. R. 7007.3000; Minn. Stat. Section 116.07, subds. 4a & 9; Minn. R. 7007.0100, subp. 7(A), 7(L), & 7(M); Minn. R. 7007.0800, subps. 1, 2 & 4; Minn. R. 7009.0010-7009.0080

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: Blue Earth Light & Water

Permit Number: 04300002 - 006

<p>By the 15th day of each month, calculate the previous 12-month rolling sum of NOx emissions. The 12-month fuel usage for each emission unit shall be used in the equation below to determine the rolling 12-month sum of NOx emissions.</p> <p>lb NOx per year =</p> <p>+ [2.754 * (mcf of natural gas used by EU 004)] + [0.448 * (gallons of diesel fuel by EU 004)] + [0.665 * (gallons of diesel fuel used by EU 005)] + [0.10 * (mcf of natural gas used by EU 006)] + [0.02 * (gallons of diesel fuel used by EU 006)] + [0.423 * (gallons of diesel fuel used by EU 007)] + [0.423 * (gallons of diesel fuel used by EU 008)] + [0.423 * (gallons of diesel fuel used by EU 009)] + [0.347 * (gallons of diesel fuel used by EU 011)]</p> <p>mcf = 1000 cubic feet</p>	<p>Title I Condition: To avoid classification as a major source under 40 CFR Section 52.21 and Minn. R. 7007.3000; Minn. Stat. Section 116.07, subds. 4a & 9; Minn. R. 7007.0100, subp. 7(A), 7(L), & 7(M); Minn. R. 7007.0800, subps. 1, 2 & 4; Minn. R. 7009.0010-7009.0080</p>
<p>OPERATIONAL REQUIREMENTS</p>	<p>hdr</p>
<p>The Permittee shall comply with National Primary and Secondary Ambient Air Quality Standards, 40 CFR pt. 50, and the Minnesota Ambient Air Quality Standards, Minn. R. 7009.0010 to 7009.0080. Compliance shall be demonstrated upon written request by the MPCA.</p>	<p>40 CFR pt. 50; Minn. Stat. Section 116.07, subds. 4a & 9; Minn. R. 7007.0100, subp. 7(A), 7(L), & 7(M); Minn. R. 7007.0800, subps. 1, 2 & 4; Minn. R. 7009.0010-7009.0080</p>
<p>Circumvention: Do not install or use a device or means that conceals or dilutes emissions, which would otherwise violate a federal or state air pollution control rule, without reducing the total amount of pollutant emitted.</p>	<p>Minn. R. 7011.0020</p>
<p>Air Pollution Control Equipment: Operate all pollution control equipment whenever the corresponding process equipment and emission units are operated.</p>	<p>Minn. R. 7007.0800, subp. 2; Minn. R. 7007.0800, subp. 16(J)</p>
<p>Operation and Maintenance Plan: Retain at the stationary source an operation and maintenance plan for all air pollution control equipment. At a minimum, the O & M plan shall identify all air pollution control equipment and control practices and shall include a preventative maintenance program for the equipment and practices, a description of (the minimum but not necessarily the only) corrective actions to be taken to restore the equipment and practices to proper operation to meet applicable permit conditions, a description of the employee training program for proper operation and maintenance of the control equipment and practices, and the records kept to demonstrate plan implementation.</p>	<p>Minn. R. 7007.0800, subps. 14 and 16(J)</p>
<p>Operation Changes: In any shutdown, breakdown, or deviation the Permittee shall immediately take all practical steps to modify operations to reduce the emission of any regulated air pollutant. The Commissioner may require feasible and practical modifications in the operation to reduce emissions of air pollutants. No emissions units that have an unreasonable shutdown or breakdown frequency of process or control equipment shall be permitted to operate.</p>	<p>Minn. R. 7019.1000, subp. 4</p>
<p>Fugitive Emissions: Do not cause or permit the handling, use, transporting, or storage of any material in a manner which may allow avoidable amounts of particulate matter to become airborne. Comply with all other requirements listed in Minn. R. 7011.0150.</p>	<p>Minn. R. 7011.0150</p>
<p>Noise: The Permittee shall comply with the noise standards set forth in Minn. R. 7030.0010 to 7030.0080 at all times during the operation of any emission units. This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.</p>	<p>Minn. R. 7030.0010 - 7030.0080</p>
<p>Inspections: The Permittee shall comply with the inspection procedures and requirements as found in Minn. R. 7007.0800, subp. 9(A).</p>	<p>Minn. R. 7007.0800, subp. 9(A)</p>
<p>The Permittee shall comply with the General Conditions listed in Minn. R. 7007.0800, subp. 16.</p>	<p>Minn. R. 7007.0800, subp. 16</p>
<p>PERFORMANCE TESTING</p>	<p>hdr</p>
<p>Performance Testing: Conduct all performance tests in accordance with Minn. R. ch. 7017 unless otherwise noted in Tables A and/or B.</p>	<p>Minn. R. ch. 7017</p>

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: Blue Earth Light & Water

Permit Number: 04300002 - 006

<p>Performance Test Notifications and Submittals:</p> <p>Performance Tests are due as outlined in Table A of the permit. See Table B for additional testing requirements.</p> <p>Performance Test Notification (written): due 30 days before each Performance Test Performance Test Plan: due 30 days before each Performance Test Performance Test Pre-test Meeting: due 7 days before each Performance Test Performance Test Report: due 45 days after each Performance Test Performance Test Report - Microfiche Copy: due 105 days after each Performance Test</p> <p>The Notification, Test Plan, and Test Report may be submitted in alternative format as allowed by Minn. R. 7017.2018.</p>	<p>Minn. R. 7017.2018; Minn. R. 7017.2030, subps. 1-4, Minn. R. 7017.2035, subps. 1-2</p>
<p>Limits set as a result of a performance test (conducted before or after permit issuance) apply until superseded as stated in the MPCA's Notice of Compliance letter granting preliminary approval. Preliminary approval is based on formal review of a subsequent performance test on the same unit as specified by Minn. R. 7017.2025, subp. 3. The limit is final upon issuance of a permit amendment incorporating the change.</p>	<p>Minn. R. 7017.2025, subp. 3</p>
<p>MONITORING REQUIREMENTS</p>	<p>hdr</p>
<p>Monitoring Equipment Calibration: The Permittee shall calibrate all required monitoring equipment at least once every 12 months (any requirements applying to continuous emission monitors are listed separately in this permit).</p>	<p>Minn. R. 7007.0800, subp. 4(D)</p>
<p>Operation of Monitoring Equipment: Unless otherwise noted in Tables A and/or B, monitoring a process or control equipment connected to that process is not necessary during periods when the process is shutdown, or during checks of the monitoring systems, such as calibration checks and zero and span adjustments. If monitoring records are required, they should reflect any such periods of process shutdown or checks of the monitoring system.</p>	<p>Minn. R. 7007.0800, subp. 4(D)</p>
<p>RECORDKEEPING</p>	<p>hdr</p>
<p>Recordkeeping: Retain all records at the stationary source, unless otherwise specified within this permit, for a period of five (5) years from the date of monitoring, sample, measurement, or report. Records which must be retained at this location include all calibration and maintenance records, all original recordings for continuous monitoring instrumentation, and copies of all reports required by the permit. Records must conform to the requirements listed in Minn. R. 7007.0800, subp. 5(A).</p>	<p>Minn. R. 7007.0800, subp. 5(C)</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>If the Permittee determines that no permit amendment or notification is required prior to making a change, the Permittee must retain records of all calculations required under Minn. R. 7007.1200. For expiring permits, these records shall be kept for a period of five years from the date the change was made or until permit reissuance, whichever is longer. The records shall be kept at the stationary source for the current calendar year of operation and may be kept at the stationary source or office of the stationary source for all other years. The records may be maintained in either electronic or paper format.</p>	<p>Minn. R. 7007.1200, subp. 4</p>
<p>REPORTING/SUBMITTALS</p>	<p>hdr</p>
<p>Shutdown Notifications: Notify the Commissioner at least 24 hours in advance of a planned shutdown of any control equipment or process equipment if the shutdown would cause any increase in the emissions of any regulated air pollutant. If the owner or operator does not have advance knowledge of the shutdown, notification shall be made to the Commissioner as soon as possible after the shutdown. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 3.</p> <p>At the time of notification, the owner or operator shall inform the Commissioner of the cause of the shutdown and the estimated duration. The owner or operator shall notify the Commissioner when the shutdown is over.</p>	<p>Minn. R. 7019.1000, subp. 3</p>

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: Blue Earth Light & Water

Permit Number: 04300002 - 006

<p>Breakdown Notifications: Notify the Commissioner within 24 hours of a breakdown of more than one hour duration of any control equipment or process equipment if the breakdown causes any increase in the emissions of any regulated air pollutant. The 24-hour time period starts when the breakdown was discovered or reasonably should have been discovered by the owner or operator. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 2.</p> <p>At the time of notification or as soon as possible thereafter, the owner or operator shall inform the Commissioner of the cause of the breakdown and the estimated duration. The owner or operator shall notify the Commissioner when the breakdown is over.</p>	Minn. R. 7019.1000, subp. 2
<p>Notification of Deviations Endangering Human Health or the Environment: As soon as possible after discovery, notify the Commissioner or the state duty officer, either orally or by facsimile, of any deviation from permit conditions which could endanger human health or the environment.</p>	Minn. R. 7019.1000, subp. 1
<p>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:</p> <ol style="list-style-type: none"> 1. the cause of the deviation; 2. the exact dates of the period of the deviation, if the deviation has been corrected; 3. whether or not the deviation has been corrected; 4. the anticipated time by which the deviation is expected to be corrected, if not yet corrected; and 5. steps taken or planned to reduce, eliminate, and prevent reoccurrence of the deviation. 	Minn. R. 7019.1000, subp. 1
<p>Application for Permit Amendment: If a permit amendment is needed, submit an application in accordance with the requirements of Minn. R. 7007.1150 through Minn. R. 7007.1500. Submittal dates vary, depending on the type of amendment needed.</p>	Minn. R. 7007.1150 - 7007.1500
<p>Application for Permit Reissuance: due 180 days before expiration of existing permit.</p>	Minn. R. 7007.0400, subp. 2
<p>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).</p>	Minn. R. 7007.1400, subp. 1(H)
<p>Emission Inventory Report: due on or before April 1 of each calendar year following permit issuance, to be submitted on a form approved by the Commissioner.</p>	Minn. R. 7019.3000 - 7019.3100
<p>Emission Fees: due 60 days after receipt of an MPCA bill.</p>	Minn. R. 7002.0005 - 7002.0095

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: Blue Earth Light & Water

Permit Number: 04300002 - 006

Subject Item: GP 002 Title IV, New Unit Exemption

Associated Items: EU 005 Engine #2 (Cat 1825 kW)

EU 007 Engine #3 (Cat 1600 kW)

EU 008 Engine #4 (Cat 1600 kW)

EU 009 Engine #5 (Cat 1600 kW)

EU 011 Emergency Station Power

What to do	Why to do it
EMISSION LIMITS	hdr
Sulfur Content of Fuel: less than or equal to 0.05 percent by weight . This limit applies to each shipment of fuel oil. This limit is more stringent than required by 40 CFR Section 72.7(d).	40 CFR Section 72.7(a)(3); Minn. R. 7007.1075; Minn. R. 0800, subp. 4
Opacity: less than or equal to 20 percent opacity once operating temperatures have been attained. This limit applies individually to each emission unit.	Minn. R. 7011.2300, subp. 1
Sulfur Dioxide: less than or equal to 0.50 lbs/million Btu heat input . The greatest potential to emit from any single unit in GP 002 is 0.051 lb/MMBtu due to equipment design and allowable fuels. This limit applies individually to each emission unit.	Minn. R. 7011.2300, subp. 2
OPERATING CONDITIONS	hdr
Fuel Type: No. 2 fuel oil only, by design.	40 CFR Section 72.7(a)(2); Minn. R. 7007.1075; Minn. R. 7005.0100, subp. 35a
MONITORING	hdr
Fuel Supplier Certification: The Permittee shall obtain a certification from the distillate fuel oil supplier specifying the sulfur content in percent by weight, for each fuel oil delivery. The sulfur content shall be less than or equal to 0.05% by weight, for each fuel oil delivery. This limit is more stringent than required by 40 CFR Section 72.7(d).	40 CFR Section 72.7(d)(2); 40 CFR Section 72.7(d)(3); Minn. R. 7007.1075; Minn. R. 7007.0800, subp. 4
For a period of 5 years from the date the records are created, the Permittee shall retain at the source records demonstrating that the requirements of 40 CFR Section 72.7(a) are met. The 5-year period for keeping records may be extended for cause, at any time prior to the end of the period, in writing by the Administrator or the permitting authority. (i) Such records shall include, for each delivery of fuel to the unit, the type of fuel, the sulfur content, and the sulfur content of each sample taken. (ii) The Permittee bears the burden of proof that the requirements of 40 CFR Section 72.7(a) are met.	40 CFR Section 72.7(f)(3)
Loss of exemption. An exempt unit shall be treated as an affected unit under the Acid Rain Program on the earliest of the following dates: (A) The date on which the unit first serves one or more generators with total nameplate capacity in excess of 25 MWe; (B) The date on which the unit burns any coal or coal-derived fuel except for coal-derived gaseous fuel with a total sulfur content no greater than natural gas; or (C) January 1 of the year following the year in which the annual average sulfur content for nongaseous fuel burned at the unit exceeds 0.05 percent by weight (as determined under 40 CFR Section 72.7(d)).	40 CFR Section 72.7(f)(4)(i)
PERFORMANCE TESTING	hdr
Performance Test: due 270 days after Permit Issuance to measure opacity emissions, not to exceed 60 months between test dates. Each emission unit in GP 002 is subject to this performance test.	Minn. R. 7017.2020, subp. 1
40 CFR PT. 63, SUBP. ZZZZ REQUIREMENTS	hdr
At the time of permit issuance, EUs 005, 007, 008, 009 and 011 are each considered existing affected sources under 40 CFR pt. 63, subp. ZZZZ as defined at 40 CFR Section 63.6590(a)(1)(iii). However, each of these units meet the criteria in 40 CFR Section 63.6590(b)(3), so no limits, recordkeeping, or notifications from 40 CFR pt. 63, subp. ZZZZ apply to these units.	40 CFR Section 63.6590(a)(1)(iii) and (b)(3); Minn. R. 7011.8150

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: Blue Earth Light & Water

Permit Number: 04300002 - 006

Subject Item: EU 004 Engine #1 (Nordberg)

Associated Items: SV 004 Unit 4 (Nordberg 1500 kW)

What to do	Why to do it
OPERATING CONDITIONS	hdr
Fuel Type: No. 2 fuel oil and/or natural gas only, by design.	Minn. R. 7005.0100, subp. 35a
Operating Hours: less than or equal to 3250 hours/year using 12-month Rolling Sum . This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.	Minn. Stat. Section 116.07, subds. 4a & 9; Minn. R. 7007.0100, subps 7A, 7L & 7M; Minn. R. 7007.0800, subps. 1, 2 & 4; Minn. R. 7009.0010-7009.0080
EMISSION LIMITS	hdr
Sulfur Content of Fuel: less than or equal to 0.05 percent by weight . This limit applies to each shipment of fuel oil.	Minn. R. 7007.0800, subp. 2
Sulfur Dioxide: less than or equal to 0.50 lbs/million Btu heat input . The potential to emit from the unit is 0.051 lb/MMBtu due to equipment design and allowable fuels.	Minn. R. 7011.2300, subp. 2
Opacity: less than or equal to 20 percent opacity once operating temperatures have been attained.	Minn. R. 7011.2300, subp. 1
RECORDKEEPING	hdr
<p>Operating Hours Monitoring and Recordkeeping:</p> <p>Once each day the Permittee shall record the operating hours for the previous operating day.</p> <p>By the 15th day of each month, calculate and record the operating hours for the previous month, and for the previous 12-month period.</p> <p>This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.</p>	Minn. Stat. Section 116.07, subds. 4a & 9; Minn. R. 7007.0100, subps 7A, 7L & 7M; Minn. R. 7007.0800, subps. 1, 2 & 4; Minn. R. 7009.0010-7009.0080
MONITORING	hdr
Fuel Supplier Certification: The Permittee shall obtain a certification from the distillate fuel oil supplier specifying the sulfur content in percent by weight, for each fuel oil delivery. The fuel shall be certified using ASTM D4057-95. The sulfur content shall be less than or equal to 0.05% by weight, for each fuel oil delivery.	Minn. R. 7007.0800, subp. 4
PERFORMANCE TESTING	hdr
Performance Test: due 270 days after Permit Issuance to measure opacity emissions, not to exceed 60 months between test dates.	Minn. R. 7017.2020, subp. 1
40 CFR PT. 63, SUBP. ZZZZ REQUIREMENTS	hdr
At the time of permit issuance, EU 004 is considered an existing affected source under 40 CFR pt. 63, subp. ZZZZ as defined at 40 CFR Section 63.6590(a)(1)(iii). However, this units meets the criteria in 40 CFR Section 63.6590(b)(3), so no limits, recordkeeping, or notifications from 40 CFR pt. 63, subp. ZZZZ apply to this unit.	40 CFR Section 63.6590(a)(1)(iii) and (b)(3); Minn. R. 7011.8150

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: Blue Earth Light & Water

Permit Number: 04300002 - 006

Subject Item: EU 005 Engine #2 (Cat 1825 kW)

Associated Items: GP 002 Title IV, New Unit Exemption

SV 005 Unit 5 (Caterpillar 1825 kW) 1995

What to do	Why to do it
OPERATING CONDITIONS	hdr
Operating Hours: less than or equal to 3250 hours/year using 12-month Rolling Sum . This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.	Minn. Stat. Section 116.07, subds. 4a & 9; Minn. R. 7007.0100, subps 7A, 7L & 7M; Minn. R. 7007.0800, subps. 1, 2 & 4; Minn. R. 7009.0010-7009.0080
RECORDKEEPING	hdr
<p>Operating Hours Monitoring and Recordkeeping:</p> <p>Once each day the Permittee shall record the operating hours for the previous operating day.</p> <p>By the 15th day of each month, calculate and record the operating hours for the previous month, and for the previous 12-month period.</p> <p>This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.</p>	Minn. Stat. Section 116.07, subds. 4a & 9; Minn. R. 7007.0100, subps 7A, 7L & 7M; Minn. R. 7007.0800, subps. 1, 2 & 4; Minn. R. 7009.0010-7009.0080

TABLE A: LIMITS AND OTHER REQUIREMENTS

A-8

06/25/09

Facility Name: Blue Earth Light & Water

Permit Number: 04300002 - 006

Subject Item: EU 006 Boiler #4 (6 mmBtu/hr)**Associated Items:** SV 006 Boiler #4 (6 mmBtu/hr)

What to do	Why to do it
OPERATING CONDITIONS	hdr
Fuel Type: No. 2 fuel oil or natural gas only, by design.	Minn. R. 7005.0100, subp. 35a
EMISSION LIMITS	hdr
Sulfur Content of Fuel: less than or equal to 0.05 percent by weight . This limit applies to each shipment of fuel oil.	Minn. R. 7007.0800, subp. 2
Total Particulate Matter: less than or equal to 0.40 lbs/million Btu heat input . The potential to emit from the unit is 0.024 lb/MMBtu due to equipment design and allowable fuels.	Minn. R. 7011.0515, subp. 1
Opacity: less than or equal to 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity.	Minn. R. 7011.0515, subp. 2
MONITORING	hdr
Fuel Supplier Certification: The Permittee shall obtain a certification from the distillate fuel oil supplier specifying the sulfur content in percent by weight, for each fuel oil delivery. The sulfur content shall be less than or equal to 0.05% by weight, for each fuel oil delivery.	Minn. R. 7007.0800, subp. 4
PERFORMANCE TESTING	hdr
Performance Test: due 270 days after Permit Issuance to measure opacity emissions, not to exceed 36 months between test dates.	Minn. R. 7017.2020, subp. 1

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: Blue Earth Light & Water

Permit Number: 04300002 - 006

Subject Item: EU 011 Emergency Station Power

Associated Items: GP 002 Title IV, New Unit Exemption

SV 011 Unit 11(Caterpillar 500 kW) 1999

What to do	Why to do it
OPERATING CONDITIONS	hdr
Operating Hours: less than or equal to 500 hours/year using 12-month Rolling Sum . This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.	Minn. Stat. Section 116.07, subds. 4a & 9; Minn. R. 7007.0100, subps 7A, 7L & 7M; Minn. R. 7007.0800, subps. 1, 2 & 4; Minn. R. 7009.0010-7009.0080
RECORDKEEPING	hdr
<p>Operating Hours Monitoring and Recordkeeping:</p> <p>Once each day the Permittee shall record the operating hours for the previous operating day.</p> <p>By the 15th day of each month, calculate and record the operating hours for the previous month, and for the previous 12-month period.</p> <p>This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.</p>	<p>Minn. Stat. Section 116.07, subds. 4a & 9; Minn. R. 7007.0100, subps 7A, 7L & 7M; Minn. R. 7007.0800, subps. 1, 2 & 4; Minn. R. 7009.0010-7009.0080</p>

TABLE B: SUBMITTALS

B-1 06/25/09

Facility Name: Blue Earth Light & Water
Permit Number: 04300002 - 006

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

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

Send any application for a permit or permit amendment to:

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

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

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

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

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

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

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

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

TABLE B: RECURRENT SUBMITTALS

B-2 06/25/09

Facility Name: Blue Earth Light & Water

Permit Number: 04300002 - 006

What to send	When to send	Portion of Facility Affected
Semiannual Deviations Report	due 30 days after end of each calendar half-year following Permit Issuance. The first semiannual report submitted by the Permittee shall cover the calendar half-year in which the permit is issued. The first report of each calendar year covers January 1 - June 30. The second report of each calendar year covers July 1 - December 31. If no deviations have occurred, the Permittee shall submit the report stating no deviations.	Total Facility
Compliance Certification	due 31 days after end of each calendar year following Permit Issuance (for the previous calendar year). The Permittee shall submit this on a form approved by the Commissioner, both to the Commissioner and to the US EPA regional office in Chicago. This report covers all deviations experienced during the calendar year.	Total Facility

APPENDIX

Facility Name: Blue Earth Light & Water

Permit Number: 04300002-006

1. Stack Parameters Relied on for Title V Modeling
2. Cross Reference List for Title IV Affected Units
3. New Unit Exemption
4. NOx Recordkeeping Equation

1. Stack Parameters Relied on for Title V Modeling

stack/vent number	emission unit number	stack height (feet)	flow rate (acfm)	stack diameter (feet)	stack temperature °F	NOx lb/hr
004	EU 004 Nordberg Engine #1	39	13,587	1.60	700	51.68
005	EU 005 Cat 1825 kW Engine #2	46	15,856	1.33	910	84.36
006	EU 006 boiler	60	1,600	1.33	350	0.86
007	EU 007 Cat 1600 kW Engine #3	60	13,839	1.33	934	49.10
008	EU 008 Cat 1600 kW Engine #4	60	13,839	1.33	934	49.10
009	EU 009 Cat 1600 kW Engine #5	60	13,839	1.33	934	49.10
011	EU 011 Emergency Power	38.5	4,312	0.66	881	12.83

2. Cross Reference List for Title IV Affected Units

Emission Unit Number	Facility I.D.	Acid Rain Unit Number
EU 005	Engine #2 (Cat 1825 kw)	10
EU 007	Engine #3 (Cat 1600 kw)	7
EU 008	Engine #4 (Cat 1600 kw)	8
EU 009	Engine #5 (Cat 1600 kw)	9
EU 011	Emergency Station Power	11

3. New Unit Exemption

For more information, see instructions and refer to 40 CFR 72.7

This submission is New Revised

Step 1

Identify the new unit by plant name, State, ORIS Code (if assigned) and Unit ID#.

Blue Earth Light and Water	MN		7, 8, 9, 10, 11
Plant Name	State	ORIS Code	Unit ID#

Step 2

List to one decimal place the nameplate capacity of each generator served by the unit. Then total these entries and enter the result.

Unit ID#	MWe
Unit 7:	1.6
Unit 8:	1.6
Unit 9:	1.6
Unit 10:	1.8
Unit 11:	0.5
Total:	7.1

Step 3

List all fuels currently burned or expected to be burned, by the unit and the percent sulfur content by weight of each.

Fuel (current)	Sulfur Content (current)	Fuel (expected)	Sulfur Content (expected)
#2 Diesel	<0.05%	#2 Diesel	<0.05%

Step 4

Identify the first full calendar year in which the unit meets (or will meet) the requirements of 40 CFR 72.7(a).

January 1, Unit 7: 1995
 Unit 8: 1995
 Unit 9: 1995
 Unit 10: 1996
 Unit 11: 1999

Special Provisions

step 5

Read the special provisions.

- (1) The owners and operators and, to the extent applicable, the designated representative of a unit exempt under 40 CFR 72.7 shall (i) comply with the requirements of 40 CFR 72.7(a) for all periods for which the unit is exempt under 40 CFR 72.7 and (ii) comply with the requirements of the Acid Rain Program concerning all periods for which the exemption is not in effect, even if such requirements arise, or must be complied with, after the exemption takes effect.
- (2) For any period for which a unit is exempt under 40 CFR 72.7, the unit is not an affected unit under the Acid Rain Program and 40 CFR parts 70 and 71 and is not eligible to be an opt-in source under 40 CFR part 74. As an unaffected unit, the unit shall continue to be subject to any other applicable requirements under 40 CFR parts 70 and 71.
- (3) For a period of 5 years from the date the records are created, the owners and operators of a unit exempt under 40 CFR 72.7 shall retain at the source that includes the unit records demonstrating that the requirements of 40 CFR 72.7(a) are met. The 5-year period for keeping records may be extended for cause, at any time prior to the end of the period, in writing by the Administrator or the permitting authority. Such records shall include, for each delivery of fuel to the unit or for fuel delivered to the unit continuously by pipeline, the type of fuel, the sulfur content, and the sulfur content of each sample taken. The owners or operators bear the burden of proof that the requirements of paragraph 40 CFR 72.7(a) are met.
- (4) On the earliest of the following dates, a unit exempt under 40 CFR 72.7(b), (c), or (e) shall lose its exemption and become an affected unit under the Acid Rain Program and 40 CFR parts 70 and 71: (i) the date on which the unit first serves one or more generators with total nameplate capacity in excess of 25 MWe; (ii) the date on which the unit burns any coal or coal-derived fuel except for coal-derived gaseous fuel with a total sulfur content no greater than natural gas; or (iii) January 1 of the year following the year in which the annual average sulfur content for gaseous fuel burned at the unit exceeds 0.05 percent by weight (as determined under 40 CFR 72.7(d)) or for nongaseous fuel burned at the unit exceeds 0.05 percent by weight (as determined under 40 CFR 72.7(d)). Notwithstanding 40 CFR 72.30(b) and (c), the designated representative for a unit that loses its exemption under 40 CFR 72.7 shall submit a complete Acid Rain permit application on the later of January 1, 1998 or 60 days after the first date on which the unit is no longer exempt. For the purpose of applying monitoring requirements under 40 CFR 75, a unit that loses its exemption under 72.7 shall be treated as a new unit that commenced commercial operation on the first date on which the unit is no longer exempt.

Sulfur Content Compliance Calculation for New Unit Exemption

The Permittee has elected to only receive shipments that have been certified to be less than the sulfur limit. The limit described in the equation below is therefore satisfied. The equation has been included for reference purposes only.

From 40 CFR § 72.7(d)

Compliance with the requirement that fuel burned during the year have an annual average sulfur content of 0.05 percent by weight or less shall be determined as follows using a method of determining sulfur content that provides information with reasonable precision, reliability, accessibility, and timeliness:

- (1) For gaseous fuel burned during the year, if natural gas is the only gaseous fuel burned, the requirement is assumed to be met;
- (2) For gaseous fuel burned during the year where other gas in addition to or besides natural gas is burned, the requirement is met if the annual average sulfur content is equal to or less than 0.05 percent by weight. The annual average sulfur content, as a percentage by weight, for the gaseous fuel burned shall be calculated as follows:

$$\%S_{\text{annual}} = \frac{\sum_{n=1}^{\text{last}} \%S_n V_n d_n}{\sum_{n=1}^{\text{last}} V_n d_n}$$

where:

$\%S_{\text{annual}}$ = annual average sulfur content of the fuel burned during the year by the unit, as a percentage by weight;

$\%S_n$ = sulfur content of the nth sample of the fuel delivered during the year to the unit, as a percentage by weight;

V_n = volume of the fuel in a delivery during the year to the unit of which the nth sample is taken, in standard cubic feet; or, for fuel delivered during the year to the unit continuously by pipeline, volume of the fuel delivered starting from when the nth sample of such fuel is taken until the next sample of such fuel is taken, in standard cubic feet;

d_n = density of the nth sample of the fuel delivered during the year to the unit, in lb per standard cubic foot; and

n = each sample taken of the fuel delivered during the year to the unit, taken at least once for each delivery; or, for fuel that is delivered during the year to the unit continuously by pipeline, at least once each quarter during which the fuel is delivered.

(3) For nongaseous fuel burned during the year, the requirement is met if the annual average sulfur content is equal to or less than 0.05 percent by weight. The annual average sulfur content, as a percentage by weight, shall be calculated using the equation in paragraph (d)(2) of this section. In lieu of the factor, volume times density ($V_n d_n$), in the equation, the factor, mass (M_n), may be used, where M_n is: mass of the nongaseous fuel in a delivery during the year to the unit of which the nth sample is taken, in lb; or, for fuel delivered during the year to the unit continuously by pipeline, mass of the nongaseous fuel delivered starting from when the nth sample of such fuel is taken until the next sample of such fuel is taken, in lb.

4. NO_x Recordkeeping Equation

Equation, sorted by Emission Unit:

$$\begin{aligned} & [2.754 * (\text{mcf of natural gas used by EU 004})] + [0.448 * (\text{gallons of diesel fuel by EU 004})] + \\ & [0.665 * (\text{gallons of diesel fuel used by EU 005})] + \\ & [0.10 * (\text{mcf of natural gas used by EU 006})] + [0.02 * (\text{gallons of diesel fuel used by EU 006})] + \\ & [0.423 * (\text{gallons of diesel fuel used by EU 007, 008, and 009})] + \\ & [0.347 * (\text{gallons of diesel fuel used by EU 011})] = \text{lb NO}_x \text{ per year} \end{aligned}$$

The lb NO_x / year shall be less than or equal to 470,000 lbs/year (235 tons per year) on a 12-month rolling sum basis.

Verification of emission factors:

EU 004

Using 2.7 lb NO_x / MMBTU from AP-42 (Dual fuel operation),

$$(2.7 \text{ lb NO}_x / \text{MMBTU}) * (1 \text{ MMBTU} / 1,000,000 \text{ BTU}) * (1,020 \text{ BTU} / \text{CF natural gas}) * (1000 \text{ CF} / 1 \text{ MCF}) =$$

2.754 lb / MCF consumed

Using 3.2 lb NO_x / MMBTU from AP-42 (Diesel fuel operation),

$$(3.2 \text{ lb NO}_x / \text{MMBTU}) * (1 \text{ MMBTU} / 1,000,000 \text{ BTU}) * (140,000 \text{ BTU} / \text{gal diesel}) =$$

0.448 lb NO_x / gallon diesel consumed

EU 005

Using 84.36 lb NO_x / hr from manufacturers data at full load,

$$(84.36 \text{ lb NO}_x / \text{hr}) * (1 \text{ hr} / 126.8 \text{ gal diesel consumption}) =$$

0.665 lb NO_x / gallon diesel consumed

EU 006

Using 0.0001 lb NO_x / CF from MPCA emission factor tables (Natural gas operation)

$$(0.0001 \text{ lb NO}_x / \text{CF}) * (1000 \text{ CF} / 1 \text{ MCF}) =$$

0.10 lb / MCF consumed

Using **0.02 lb NO_x / gallon burned** from MPCA emission factor tables (Diesel fuel operation)

EU 007, 008 and 009

Using 49.10 lb NO_x / hr from manufacturers data at full load,

(49.10 lb NO_x / hr) * (1 hr / 116.0 gal diesel consumption) =

0.423 lb NO_x / gallon diesel consumed

EU 011

Using 12.83 lb NO_x / hr from manufacturers data at full load,

(12.83 lb NO_x / hr) * (1 hr / 37.0 gal diesel consumption) =

0.347 lb NO_x / gallon diesel consumed

TECHNICAL SUPPORT DOCUMENT
For
AIR EMISSION PERMIT NO. 04300002-006

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

1. General Information

1.1. Applicant and Stationary Source Location:

Applicant/Address	Stationary Source/Address (SIC Code: 4911)
Board of Public Works 125 East 6 th Street Blue Earth, Minnesota	Blue Earth Light and Water 124 6th Street East Blue Earth Faribault County
Contact: Curtis LaMaack Phone: (507) 526-2191	

1.2 Description of the Facility

This facility is a small municipal electric generating plant composed of 1 heating boiler and 6 reciprocating internal combustion engines. The facility provides standby electric generation.

1.3 Description of any Changes Allowed with this Permit Issuance

The purpose of this permit action is to reissue the Title V / Pt. 70 Permit for Blue Earth Light and Water (Facility). The previous Total Facility Permit was good for a period of five years and expired on August 24, 2004. The facility submitted a renewal application on January 5, 2004.

Since the last permit action, Blue Earth Light and Water has not made any changes in the operation or design of its facility. However, the following changes are being incorporated into this permit reissuance:

- Updated citations to reflect current MPCA templates and standard formatting
- Updated CD-01 to reflect applicability of NESHAP ZZZZ to all six engines on-site
- The particulate matter with an aerodynamic diameter of less than or equal to 2.5 microns (PM-2.5) emissions tabulated in this permit are based on the conservative assumption that all emitted particulate matter with an aerodynamic diameter of less than or equal to 10 microns (PM-10) is assumed to be equal to PM-2.5.
- Updated language relevant to Title IV: Acid Rain, including loss of exemption language

- Added triggers for re-modeling
- Removed stack height parameters from GP 002 level in the CD-01. The Facility has constructed the stacks as required to show compliance with the MAAQS. The stack heights, along with other modeling information, are present in the permit Appendix.
- Moved modeling-derived operating limits from GP 002 to the emission unit level for EU 004, EU 005, and EU 011
- Renamed GP 002 “Title IV, New Unit Exemption”
- Removed EU 004 from GP 002
- Clarified citation for EU 004’s fuel sulfur content limit to reflect that it is neither an acid rain affected unit, nor is it an exempted acid rain unit
- Clarified citation for EU 006’s fuel sulfur content limit to reflect that it is neither an acid rain affected unit, nor is it an exempted acid rain unit
- The tank previously described as EU 010 has been reclassified as an insignificant activity not required to be listed in Title V permits. Therefore it has been removed from this permit.
- Revised opacity test frequency for EU 006 from 5 years to 3 years due to previous test results

1.4 Description of All Amendments Issued Since the Issuance of the Last Total Facility Permit and to be Included in the Part 70 Permit

Permit Number and Issuance Date	Action Authorized
04300002- 005 February 15, 2005	Incorporation of stack height modifications and operating hours limits as a result of dispersion modeling
04300002- 004 March 2, 2003	Increased NO _x limit from 225 tpy to 235 tpy, revised opacity testing schedule, removal of EU 002 and EU 003
04300002- 003 May 3, 2002	Amendment withdrawn
04300002- 002 March 21, 2000	Opacity testing extension
04300002-001 August 24, 1999	Initial total facility permit

1.5 Facility Emissions:

Table 1. Total Facility Potential to Emit Summary

	PM (tpy)	PM ₁₀ (tpy)	PM _{2.5} (tpy)	SO ₂ (tpy)	NO _x (tpy)	CO (tpy)	VOC (tpy)	HAPs (tpy)	
								Single	All
Total Facility Limited Potential Emissions	6.35	6.35	6.35	5.22	235	64.2	26.4	0.06	0.17
Total Facility Actual Emissions (2007)	0.40	0.39	Not Reported	0.36	5.78	1.33	0.47	HAPs not reported in emission inventory	

Table 2. Facility Classification

Classification	Major/Affected Source	Synthetic Minor	Minor
PSD		NO _x	CO, PM, PM ₁₀ , PM _{2.5} , SO ₂ , VOC, Pb
Part 70 Permit Program	NO _x	CO	PM ₁₀ , PM _{2.5} , SO ₂ , VOC, Pb
Part 63 NESHAP			HAPs

2. Regulatory and/or Statutory Basis

New Source Review

The facility is synthetic minor source for NO_x, and a true minor source for all other pollutants under New Source Review regulations. No changes are authorized by this permit.

Part 70 Permit Program

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

New Source Performance Standards (NSPS)

There are no New Source Performance Standards applicable to the operations at this facility.

National Emission Standards for Hazardous Air Pollutants (NESHAP)

The Facility is a non-major source of hazardous air pollutants (HAP) under 40 CFR pt. 63, but subject to an area source NESHAP:

- 40 CFR pt. 63, subp. ZZZZ, National Emission Standards for Hazardous Air Pollutants: Stationary Reciprocating Internal Combustion Engines (EU 004, GP 002).

Minnesota State Rules

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

- Minn. R. 7011.0515 Standards of Performance for New Indirect Heating Equipment
- Minn. R. 7011.2300 Standards of Performance for Stationary Internal Combustion Engines

Table 3. Regulatory Overview of Facility

EU, GP, or SV	Applicable Regulations	Comments:
Total Facility	40 CFR 52.21	Title I Conditions set to limit NO _x emissions to less than major source levels as defined by 40 CFR 52.21
EU 006	Minn. R. 7011.0515	Standards of Performance for New Indirect Heating Equipment
EU 004, GP 002	40 CFR pt. 63, subp. ZZZZ Minn. R. 7011.2300	National Emission Standards for Hazardous Air Pollutants: Stationary Reciprocating Internal Combustion Engines Standards of Performance for Internal Combustion Engines
GP 002	40 CFR pt. 72	Title IV, Acid Rain Requirements All units are operating under new unit exemptions. This limits sulfur content of any fuel burned to less than 0.05 percent.
EU 004, 005, 011	Minn. Stat. § 116.07, subds. 4a & 9; Minn. R. 7007.0100, subps 7A, 7L & 7M; Minn. R. 7007.0800, subps. 1, 2 & 4; Minn. R. 7009.0010-7009.0080	Requirements to limit annual operations to ensure NO ₂ emissions do not cause a violation of the Minnesota Ambient Air Quality Standard. These are state-only requirements and are not enforceable by the EPA Administrator and citizens under the Clean Air Act.

3. Technical Information

3.0.1 Total Facility

In April of 2004, modeling was completed suggesting that the Facility may exceed the Minnesota Ambient Air Quality Standards (MAAQS) under certain operating conditions. To avoid exceeding the MAAQS, the Facility agreed to five permit conditions: first, the Facility shall increase the height of S/V 007, S/V 008, S/V 009 from 38.5 feet to 60 feet; second, the Facility shall increase the height of S/V 005 from 38.5 to 46 feet; third, the Facility shall limit the operating hours of EU 004 and EU 005 to 3250 hours per year, calculated as a rolling 12 month sum; fourth, the Facility shall limit the operating hours of EU 011 to 500 hours per year, calculated as a rolling 12 month sum; fifth, the Facility shall continue to emit under 235 tons per year of NO_x, calculated as a 12 month rolling sum. The Facility has completed the stack height adjustments. The operating limits have been placed at the Emission Unit level in the CD-01. The NO_x limit has been placed at the Total Facility level, as all NO_x emissions from the entire Facility must be less than this limit.

3.0.2 GP 002: Title IV, New Unit Exemption (EU 005, EU 007, EU 008, EU 009, EU 011)

This group consists of five compression ignition engines which are used to produce and sell electricity under load peaking conditions. These five units were constructed and began commercial operation after November 15, 1990. They are therefore considered new units under the Title IV Acid Rain program. As such, they would normally be subject to the Title IV Acid Rain program. However, each of these five units has been granted a new unit exemption from this program per 40 CFR § 72.7(a)(3) as long as it continues to burn a fuel containing less than 0.05 percent sulfur by weight calculated on an annual average. Regulation from Title IV states that compliance with the sulfur limit shall be demonstrated by: (1) sampling each shipment of fuel at least once and then (2) using the equation listed in 40 CFR § 72.7(d)(2) to calculate compliance on an annual average. However, the Facility has elected to only accept fuel shipments containing sulfur content of less than the limit. This is more stringent than required by regulation. If each shipment is less than or equal to the limit, the annual average will be met without the need for calculation. Each emission unit will remain an unaffected source under Title IV as long as the exemption is in effect, per 40 CFR § 72.6(b)(9).

Each of the five engines is subject to 40 CFR 63, subp. ZZZZ. The National Emission Standard for Hazardous Air Pollutants (NESHAP) 40 CFR 63, subp. ZZZZ applies to reciprocating internal combustion engines (RICE) at both area and major sources of hazardous air pollutants (HAPs). The following data result in the determination that each emission unit in GP 002 is an existing affected source:

- Blue Earth Light and Water is an area source of HAPs
- Each stationary compression ignition RICE was constructed before June 12, 2006

The above data indicate that each emission unit in GP 002 meets the criteria of 40 CFR § 63.6590(b)(3), therefore no limits, recordkeeping, or notifications are required under NESHAP 40 CFR 63, subp. ZZZZ.

Test Date Selection

Each emission unit in this group is subject to a performance test for opacity. The previous permit cited a test to be completed by 3/23/2005 with a frequency of 60 months. The language in this permit action has been updated to require the next test to be completed by 3/23/2010, which is equivalent to 3/23/2005 plus 60 months. This date, 3/23/2010, is approximately 270 days from permit issuance.

Test Frequency Selection

Each emission unit in this group has an opacity limit of 20 percent. For Emission Units 007, 008, 009, and 011 the performance test conducted on 3/24/05 indicated the highest 6 minute average was 5 percent; this result is approximately 25 percent of the limit. For Emission Units 005 the performance test conducted on 3/24/05 indicated the highest 6 minute average was 9.58 percent; this result is approximately 48 percent of the limit. Current MPCA stack test guidance suggests that performance test results falling under 60 percent of the relevant limit be tested every 60 months. Therefore the performance test frequency for each emission unit in this group remains at 60 months.

3.0.3 EU 004

Like the members of GP 002, EU 004 is a compression ignition engine used to produce and sell electricity under load peaking conditions. However, this unit was constructed and began commercial operation before November 15, 1990. In addition, this unit has not served a generator with a nameplate capacity of greater than 25 MWe. Therefore, EU 004 is also unaffected unit under Title IV. The unit is capable of burning either No. 2 fuel oil alone, or No. 2 fuel oil with natural gas injection in a dual-fuel mode. Like the members of GP 002, EU 004 consumes No. 2 fuel oil and/or natural gas containing less than 0.05 percent sulfur by weight. However, the sulfur limit exists because is a limit requested by the Permittee and not because of the Acid Rain program. Compliance with this limit shall be demonstrated through fuel supplier certification on a per-shipment basis.

Emission Unit 004 is also subject to an operational limit of 3250 hours as required to demonstrate compliance with the MAAQS.

Emission Unit 004 is subject to 40 CFR 63, subp. ZZZZ. The National Emission Standard for Hazardous Air Pollutants (NESHAP) 40 CFR 63, subp. ZZZZ applies to reciprocating internal combustion engines (RICE) at both area and major sources of hazardous air pollutants (HAPs). The following data result in the determination that each emission unit in GP 002 is an existing affected source:

- Blue Earth Light and Water is an area source of HAPs

- The stationary compression ignition RICE was constructed before June 12, 2006

The above data indicate that each EU 004 meets the criteria of 40 CFR § 63.6590(b)(3), therefore no limits, recordkeeping, or notifications are required under NESHAP 40 CFR 63, subp. ZZZZ.

Test Date Selection

This emission unit is subject to a performance test for opacity. The previous permit cited a test to be completed by 3/23/2005 with a frequency of 60 months. The language in this permit action has been updated to require the next test to be completed by 3/23/2010, which is equivalent to 3/23/2005 plus 60 months. This date, 3/23/2010, is approximately 270 days from permit issuance.

Test Frequency Selection

This emission unit has an opacity limit of 20 percent. The performance test conducted on 3/24/05 indicated the highest 6 minute average was 5 percent; this result is approximately 25 percent of the limit. Current MPCA stack test guidance suggests that performance test results falling within 60 percent to 90 percent of the relevant limit be tested every 60 months. Therefore the performance test frequency for this emission unit remains at 60 months.

3.0.4 EU 005

Emission Unit 005 is a member of GP 002, and therefore subject to the requirements listed in GP 002. However, EU 005 is also subject to an operational limit of 3250 hours as required to demonstrate compliance with the MAAQS.

3.0.5 EU 006

Emission Unit 006 is a boiler fired by either natural gas or No. 2 fuel oil. The Permittee has requested a sulfur limit of 0.05 percent by weight. Compliance with this limit shall be demonstrated through fuel supplier certification on a per-shipment basis.

Test Date Selection

This emission unit is subject to a performance test for opacity. The previous permit cited a test to be completed by 3/23/2005 with a frequency of 60 months. The language in this permit action has been updated to require the next test to be completed by 3/23/2010, which is equivalent to 3/23/2005 plus 60 months. This date, 3/23/2010, is approximately 270 days from permit issuance.

Test Frequency Selection

This emission unit has an opacity limit of 20 percent. The performance test conducted on 3/24/05 indicated the highest 6 minute average was 16.34 percent; this result is approximately 82 percent of the limit. Current MPCA stack test guidance suggests that performance test results falling within 60 percent to 90 percent of the relevant limit be tested every 36 months. Therefore the performance test frequency for this emission unit has been adjusted to 36 months.

3.0.6 EU 010

This is a 20,000 tank used to store No. 2 fuel oil only. The tank was described as EU 010 in the Facility's previous Title V permits. Due to size and material stored, it has been reclassified as an insignificant activity not required to be listed in a Title V permit, as described in Minn. R. 7011.1300, subp. 2(E)(3). Therefore, the entry for EU 010 has been removed from this permit. Despite the reclassification, the tank is still subject to Minn. R. 7011.1505, subp. 3.

3.0.7 EU 011

Emission Unit 011 is a member of GP 002, and therefore subject to the requirements listed in GP 002. However, EU 011 is also subject to an operational limit of 500 hours as required to demonstrate compliance with the MAAQS.

3.1 Calculations of Potential to Emit

Attachment 1 to this TSD summarizes the Potential to Emit (PTE) of the Facility, contains detailed spreadsheets, and supporting information prepared by the MPCA. The PTE calculations are based on data submitted by the Permittee.

Example Calculation (EU 006)

Emission factor for natural gas fueled boilers, <100 MMBtu/hr [AP42 Fifth Edition (7-98): Table 1.4-1]: 100 lb-NO_x/million ft³

Heating Value of natural gas [AP42 Fifth Edition (9-85): Appendix A]: 1,050 Btu/ft³

Maximum heat input of EU 006 by design: 6 MMBtu/hr

$(8,760 \text{ hr/yr}) * (6 \text{ MMBtu/hr}) * (100 \text{ lb-NO}_x/\text{million ft}^3) * (1 \text{ ft}^3/1,050 \text{ Btu}) * (1 \text{ ton}/2,000 \text{ lb}) = 2.50 \text{ tons-NO}_x/\text{yr}$ when burning natural gas

Emission factor for No. 2 fuel oil fueled boilers, <100 MMBtu/hr [AP42 Fifth Edition (9-98): Table 1.3-1]: 20 lb-NO_x/1000 gallons oil

Heating Value of No. fuel oil [AP42 Fifth Edition (9-85): Appendix A]: 140 MMBtu/1000 gal

$(8,760 \text{ hr/yr}) * (6 \text{ MMBtu/hr}) * (20 \text{ lb-NO}_x/1000 \text{ gal}) * (1000 \text{ gal}/140 \text{ MMBtu}) * (1 \text{ ton}/2,000 \text{ lb}) = 3.75 \text{ tons-NO}_x/\text{yr}$ when burning No. 2 fuel oil.

There is not a restriction on consumption of fuel. Therefore the NO_x PTE for EU 006 is the larger of the two emission values, or 3.75 tons-NO_x/yr.

Example Calculation for compliance with PM limit (EU 006):

For natural gas:

Emission factor for natural gas fueled boilers, <100 MMBtu/hr [AP42 Fifth Edition (7-98): Table 1.4-1]: 7.6 lb-PM/million ft³

Limit on PM emissions (Minn. R. 7011.0515): 0.40 lb-PM/MMBtu

EU 007 PM Emissions: (7.6 lb-PM/million ft³) * (1 ft³/1,050 Btu) = 0.0072 lb-PM/MMBtu

Check AP42 Calculated Emissions against rule limit: 0.0072 lb/MMBtu < 0.40 lb/MMBtu; **OK**

For No. 2 fuel oil:

Emission factor for No. 2 fuel oil fueled boilers, <100 MMBtu/hr [AP42 Fifth Edition (9-98): Table 1.3-1]: 3.3 lb-PM/1000 gallons oil

EU 007 PM Emissions: (3.3 lb-PM/1000 gal) * (1000 gal/140 MMBtu) = 0.024 lb-PM/MMBtu

Check AP42 Calculated Emissions against rule limit: 0.024 lb/MMBtu < 0.40 lb/MMBtu; **OK**

3.2 Periodic Monitoring

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

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

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

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

Table 4. Periodic Monitoring

Emission Unit or Group	Requirement (basis)	Additional Monitoring	Discussion
FC	NO _x Emission Rate ≤ 235 tons per year, rolling 12 month sum (Title I Condition to avoid classification as a major source under 40 CFR § 52.21; Minn. R. 7007.3000; Minn. Stat. § 116.07, subds. 4a & 9; Minn. R. 7007.0100, subps 7A, 7L & 7M; Minn. R. 7007.0800, subps. 1, 2 & 4; Minn. R. 7009.0010-7009.0080)	Recordkeeping: Fuel usage	<p>This limit accounts for all sources at the Facility, and is therefore placed at the Total Facility level.</p> <p>The Permittee shall maintain records on site of the type and amount of each fuel burned in each emission unit. Daily usage of natural gas and diesel fuel oil shall be determined with fuel meters and recorded each day that fuel is combusted.</p> <p>By the 15th of each month, the Permittee will calculate and record the following:</p> <ol style="list-style-type: none"> 1) The sum of the fuel usage for each emission units for the previous month and; 2) The 12-month rolling sum combined fuel usage for each emission unit. 3) The 12-month rolling sum fuel usage for each unit shall be used as input, using the equation defined in line 8 of the FC level in the CD-01, to calculate the 12-month rolling sum NO_x emissions as required by this permit.

Emission Unit or Group	Requirement (basis)	Additional Monitoring	Discussion
GP 002	<p>Sulfur Content of Fuel \leq 0.05% by weight on an annual average (40 CFR 72.7(a)(3))</p> <p>SO₂ \leq 0.50 lbs/MMBtu</p> <p>Opacity: \leq 20 percent once operating temp. is attained (Minn. R. 7007.2300)</p>	<p>Fuel Sampling: Provide fuel-supplier certification of each fuel shipment</p> <p>Fuel Type: Restricted to No. 2 fuel oil</p>	<p>These five engines are operating under new unit exemptions under Title IV Acid Rain requirements because they burn low-sulfur fuel.</p> <p>Each fuel shipment shall be less than 0.05 percent sulfur by weight. Compliance will be demonstrated by fuel-supplier certifications showing each shipment is less than the limit.</p> <p>The use of low sulfur fuel also satisfies the SO₂ emission limit from Minn. R. 7007.2300; design based PTE predict the emissions from any single unit as less than 0.21 compared to the rule limit of 0.50 lb/MMBtu.</p>

Emission Unit or Group	Requirement (basis)	Additional Monitoring	Discussion
EU 004	<p>Operating Hours: ≤ 3250 hr/yr, 12 month rolling sum (Minn. Stat. § 116.07, subds. 4a & 9; Minn. R. 7007.0100, subps 7A, 7L & 7M; Minn. R. 7007.0800, subps. 1, 2 & 4; Minn. R. 7009.0010-7009.0080)</p> <p>$SO_2 \leq 0.50$ lbs/MMBtu</p> <p>Opacity: ≤ 20 percent once operating temp. is attained (Minn. R. 7007.2300)</p> <p>Sulfur Content of Fuel $\leq 0.05\%$ by weight on an annual average (Minn. R. 7007.0800 subps. 4 & 5)</p>	<p>Recordkeeping: Operational Records</p> <p>Fuel Sampling: Provide fuel-supplier certification of each fuel shipment</p> <p>Fuel Type: Restricted to No. 2 fuel oil and/or natural gas</p>	<p>This limit is used in conjunction with modeling to ensure compliance with MAAQS for NO₂. On each day of operation, the hours of operation are to be logged for each unit.</p> <p>By the 15th of each month, the Permittee will calculate and record the following:</p> <ol style="list-style-type: none"> 1) The sum of the hours of operation for the previous month and; 2) The 12-month rolling sum hours of operation. <p>Each fuel shipment shall be less than 0.05 percent sulfur by weight. Compliance will be demonstrated by fuel-supplier certifications showing each shipment is less than the limit.</p> <p>This emission unit is an engine capable of burning either No. 2 fuel oil or in a dual-fuel mode by injecting natural gas with No. 2 fuel oil. When burning fuel oil containing ≤ 0.05 percent sulfur by mass, the design based SO₂ PTE is less than 0.051 compared to the rule limit of 0.50 lb/MMBtu.</p>

Emission Unit or Group	Requirement (basis)	Additional Monitoring	Discussion
EU 005	<p>Operating Hours: ≤ 3250 hr/yr, 12 month rolling sum (Minn. Stat. § 116.07, subds. 4a & 9; Minn. R. 7007.0100, subps 7A, 7L & 7M; Minn. R. 7007.0800, subps. 1, 2 & 4; Minn. R. 7009.0010-7009.0080)</p>	<p>Recordkeeping: Operational Records</p>	<p>This limit is used in conjunction with modeling to ensure compliance with MAAQS for NO₂.</p> <p>On each day of operation, the hours of operation are to be logged for each unit.</p> <p>By the 15th of each month, the Permittee will calculate and record the following:</p> <ol style="list-style-type: none"> 1) The sum of the hours of operation for the previous month and; 2) The 12-month rolling sum hours of operation.
EU 006	<p>PM: ≤ 0.40 lb/MMBtu</p> <p>Opacity: ≤ 20 % with exceptions (Minn. R. 7011.0515)</p> <p>Sulfur Content of Fuel $\leq 0.05\%$ by weight (Minn. R. 7007.0800 subps. 4 & 5)</p>	<p>Fuel Sampling: Provide fuel-supplier certification of each fuel shipment</p> <p>Fuel Type: Restricted to No. 2 fuel oil or natural gas</p>	<p>This emission unit is a boiler capable of burning either natural gas or No. 2 fuel oil. Each fuel shipment shall be less than 0.05% sulfur by weight. Compliance will be demonstrated by fuel-supplier certifications showing each shipment is less than the limit.</p> <p>When burning fuel oil containing ≤ 0.05 percent sulfur by mass, the design based SO₂ PTE is less than 0.024 compared to the rule limit of 0.50 lb/MMBtu.</p>

Emission Unit or Group	Requirement (basis)	Additional Monitoring	Discussion
EU 011	Operating Hours: \leq 500 hr/yr, 12 month rolling sum (Minn. Stat. § 116.07, subds. 4a & 9; Minn. R. 7007.0100, subps 7A, 7L & 7M; Minn. R. 7007.0800, subps. 1, 2 & 4; Minn. R. 7009.0010-7009.0080)	Recordkeeping: Operational Records	<p>This limit is used in conjunction with modeling to ensure compliance with MAAQS for NO₂.</p> <p>On each day of operation, the hours of operation are to be logged for each unit.</p> <p>By the 15th of each month, the Permittee will calculate and record the following:</p> <ol style="list-style-type: none"> 1) The sum of the hours of operation for the previous month and; 2) The 12-month rolling sum hours of operation.

3.3 Insignificant Activities

Blue Earth Light and Water does not have any insignificant activities required to be listed in a Title V permit.

3.4 Permit Organization

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

3.5 Comments Received

Public Notice Period: May 12, 2009 – June 10, 2009

EPA 45-day Review Period: May 12, 2009 - June 25, 2009

Comments were not received from the public during the public notice period.

Comments were not received from EPA during their review period.

4. Conclusion

Based on the information provided by Blue Earth Light and Water, the MPCA has reasonable assurance that the operation of the emission facility, as described in the Air Emission Permit No. 04300002-006 and this technical support document, will not cause or contribute to a violation of applicable federal regulations and Minnesota Rules.

Staff Members on Permit Team: Jeff Hedman (permit writer/engineer)
 Jennifer Lovett (enforcement)
 Marc Severin (stack testing)
 Marshall Cole (peer reviewer)
 Rachel Mueller (support staff)

AQ File No. 858; DQ 206

Attachments: 1. PTE Summary Calculation Spreadsheets
 2. Facility Description and CD-01 Forms with Appendix

ATTACHMENT 1

PTE Summary Calculation Spreadsheets

ATTACHMENT 2

Facility Description and CD-01 Forms with Appendix