

AIR EMISSION PERMIT NO. 05300002- 003

IS ISSUED TO

Hennepin County Energy Center

HENNEPIN COUNTY ENERGY CENTER

600 10th Avenue South
Minneapolis, Hennepin County, MN 55415

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

Permit Type	Application Date
Total Facility Operating Permit - Reissuance	May 18, 2006

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

Permit Type: Federal; Pt 70/Major for NSR

Issue Date: November 19, 2007

Expiration: November 19, 2012
All Title I Conditions do not expire.

Jeff J. Smith, Manager
Air Quality Permits Section
Industrial Division

for Brad Moore
Commissioner
Minnesota Pollution Control Agency

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NOTICE TO THE PERMITTEE:

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

Metro Area	(651) 296-6300
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:

Hennepin County Energy Center (HCEC) is a fossil-fuel fired boiler plant that provides steam and chilled water to customers located in the downtown Minneapolis area. The sources discharging emissions to the air are six boilers, designated as Boiler Nos. 1, 2, 3, 4, 5, and 6, and an emergency-only diesel generator. Boilers 1, 2, 3, and 4 vent to a common stack. Boilers 5 and 6 each vent to individual stacks.

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

11/19/07

Facility Name: Hennepin County Energy Center

Permit Number: 05300002 - 003

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

Subject Item:**Total Facility**

What to do	Why to do it
FACILITY SPECIFIC REQUIREMENTS	hdr
Parameters Used in Modeling: The stack heights, stack diameters, air flow rates, and exhaust gas temperatures used in the modeling performed to demonstrate compliance with ambient air quality standards are listed in Appendix B of this permit. The Permittee must submit to the Agency for approval any revisions of these parameters that are caused by a physical change or change in the method of operation of the facility and must wait for written approval before making such changes. The information submitted must include, at a minimum, the locations, heights and diameters of the stacks, locations and dimensions of nearby buildings, the velocity and temperature of the gases emitted, and the SO ₂ emission rates. The plume dispersion characteristics after the proposed revisions must be equivalent to or better than the dispersion characteristics used in the model submitted in the permit application dated January 14, 2000. The Permittee shall demonstrate this equivalency in the proposal.	40 CFR pt. 50; 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.
If the information submitted does not demonstrate equivalent or better dispersion characteristics, or if a conclusion cannot readily be made about the dispersion characteristics, the Permittee must remodel. For changes that do not involve any increase in SO ₂ emission rate or any emissions from a new emission point, or changes that do involve an increase in SO ₂ emission rate or emissions from a new emission point and that require either no permit or a minor amendment, this proposal must be submitted as soon as practicable, but no less than 60 days before beginning actual construction of the modification, stack, or associated emission unit(s). For changes involving increases in emission rates or emissions from a new emission point and that require a permit amendment other than a minor amendment, the proposal and/or required modeling analysis must be submitted with the permit application.	continued from above
Recordkeeping Contingency Measures: In the event of a failure of the automated system used to calculate NO _x emissions for GP 001 and SO ₂ emissions for GP 004, EU 004 and EU 005, the Permittee shall perform the following actions: 1) The Permittee shall keep a log on-site in which each event of missing fuel data resulting in no emission calculation for a given hour will be recorded. 2) As soon as possible after each event of missing fuel data, the plant supervisor will be contacted and fuel records for the past 24 hours will be reviewed. The fuel records will be used to produce an average hourly fuel usage rate based on the last 24 hours of fuel usage. The average hourly fuel usage rate may be calculated: a) by dividing the total 24-hour fuel usage by 24, or b) by using the operational personnel's knowledge of actual operations. (CONTINUED)	Minn. R. 7007.0800, subp. 4 and 5
3) Each average hourly fuel usage rate will be entered into the emission calculation database to replace missing data. 4) Any replacement of missing emissions data shall be recorded in the on-site log and shall be reported to the MPCA on a semiannual basis.	Minn. R. 7007.0800, subp. 4 and 5
DETERMINING IF A PROJECT/MODIFICATION IS SUBJECT TO NEW SOURCE REVIEW	hdr
These requirements apply where there is a reasonable possibility that a proposed project, analyzed using the actual-to-projected-actual (ATPA) test (either by itself or as part of the hybrid test described in Section 52.21(a)(2)(iv)(f)) and found to not be part of a major modification, may result in a significant emissions increase. If the ATPA test is not used for a particular project, or if there is not a reasonable possibility that the proposed project could result in a significant emissions increase, then these requirements do not apply to that project. Even though a particular modification is not subject to New Source Review, a permit amendment, recordkeeping, or notification may still be required under Minn. R. 7007.1150 - 7007.1500.	Title I Condition: 40 CFR Section 52.21(r)(6); Minn. R. 7007.3000; Minn. R. 7007.0800, subp. 2

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

11/19/07

Facility Name: Hennepin County Energy Center

Permit Number: 05300002 - 003

<p>Preconstruction Documentation -- Before beginning actual construction on a project, the Permittee shall document the following:</p> <ol style="list-style-type: none"> 1. Project description 2. Identification of any emission unit (EU) whose emissions of an NSR pollutant could be affected 3. Pre-change potential emissions of any affected existing EU, and the projected post-change potential emissions of any affected existing or new EU. 4. A description of the applicability test used to determine that the project is not a major modification for any regulated NSR pollutant, including the baseline actual emissions, the projected actual emissions, the amount of emissions excluded due to increases not associated with the modification and that the EU could have accommodated during the baseline period, an explanation of why the amounts were excluded, and any creditable contemporaneous increases and decreases that were considered in the determination. <p>The Permittee shall maintain records of this documentation.</p>	<p>Title I Condition: 40 CFR Section 52.21(r)(6); Minn. R. 7007.3000; Minn. R. 7007.0800, subps. 4 & 5</p>
<p>The Permittee shall monitor the actual emissions of any regulated NSR pollutant that could increase as a result of the project and that were analyzed using the ATPA test, and the potential emissions of any regulated NSR pollutant that could increase as a result of the project and that were analyzed using potential emissions in the hybrid test. The Permittee shall calculate and maintain a record of the sum of the actual and potential (if the hybrid test was used in the analysis) emissions of the regulated pollutant, in tons per year on a calendar year basis, for a period of 5 years following resumption of regular operations after the change, or for a period of 10 years following resumption of regular operations after the change if the project increases the design capacity of or potential to emit of any unit associated with the project.</p>	<p>Title I Condition: 40 CFR Section 52.21(r)(6); Minn. R. 7007.3000; Minn. R. 7007.0800, subps. 4 & 5</p>
<p>The Permittee must submit a report to the Agency if the annual summed (actual, plus potential if used in hybrid test) emissions differ from the preconstruction projection and exceed the baseline actual emissions by a significant amount as listed at 40 CFR Section 52.21(b)(23). Such report shall be submitted to the Agency within 60 days after the end of the year in which the exceedances occur. The report shall contain:</p> <ol style="list-style-type: none"> a. The name and ID number of the facility, and the name and telephone number of the facility contact person b. The annual emissions (actual, plus potential if any part of the project was analyzed using the hybrid test) for each pollutant for which the preconstruction projection and significant emissions increase are exceeded. c. Any other information, such as an explanation as to why the summed emissions differ from the preconstruction projection. 	<p>Title I Condition: 40 CFR Section 52.21(r)(6); Minn. R. 7007.3000; Minn. R. 7007.0800, subps. 4 & 5</p>
<p>Before beginning actual construction of any project which includes any electric utility steam generating unit (EUSGU), the Permittee shall submit a copy of the preconstruction documentation (items 1-4 under Preconstruction Documentation, above) to the Agency.</p>	<p>Title I Condition: 40 CFR Section 52.21(r)(6)(ii); Minn. R. 7007.3000; Minn. R. 7007.0800, subps. 4 & 5</p>
<p>For any project which includes any EUSGU, the Permittee must submit an annual report to the Agency, within 60 days after the end of the calendar year. The report shall contain:</p> <ol style="list-style-type: none"> a. The name and ID number of the facility, and the name and telephone number of the facility contact person b. The quantified annual emissions analyzed using the ATPA test, plus the potential emissions associated with the same project analyzed as part of a hybrid test. c. Any other information, such as an explanation as to why the summed emissions differ from the preconstruction projection, if that is the case. 	<p>Title I Condition: 40 CFR Section 52.21(r)(6); Minn. R. 7007.3000; Minn. R. 7007.0800, subps. 4 & 5</p>
<p>For any project which does not include any EUSGU, the Permittee must submit a report to the Agency if the annual summed (actual, plus potential used in hybrid test) emissions differ from the preconstruction projection and exceed the baseline actual emissions by a significant amount as listed at 40 CFR Section 52.21(b)(23). Such report shall be submitted to the Agency within 60 days after the end of the year in which the exceedances occur. The report shall contain:</p> <ol style="list-style-type: none"> a. The name and ID number of the facility, and the name and telephone number of the facility contact person b. The annual emissions (actual, plus potential if any part of the project was analyzed using the hybrid test) for each pollutant for which the preconstruction projection and significant emissions rate is exceeded. c. Any other information, such as an explanation as to why the summed emissions differ from the preconstruction projection. 	<p>Title I Condition: 40 CFR Section 52.21(r)(6); Minn. R. 7007.3000; Minn. R. 7007.0800, subps. 4 & 5</p>
<p>OPERATIONAL REQUIREMENTS</p>	<p>hdr</p>

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

11/19/07

Facility Name: Hennepin County Energy Center

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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.	40 CFR pt. 50; 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.
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
Operation Changes: In any shutdown, breakdown, or deviation the Permittee shall immediately take all practical steps to modify operations to reduce the emission of any regulated air pollutant. The Commissioner may require feasible and practical modifications in the operation to reduce emissions of air pollutants. No emissions units that have an unreasonable shutdown or breakdown frequency of process or control equipment shall be permitted to operate.	Minn. R. 7019.1000, subp. 4
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
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.	Minn. R. 7030.0010 - 7030.0080
Inspections: The Permittee shall comply with the inspection procedures and requirements as found in Minn. R. 7007.0800, subp. 9(A).	Minn. R. 7007.0800, subp. 9(A)
The Permittee shall comply with the General Conditions listed in Minn. R. 7007.0800, subp. 16.	Minn. R. 7007.0800, subp. 16
PERFORMANCE TESTING	hdr
Performance Testing: Conduct all performance tests in accordance with Minn. R. ch. 7017 unless otherwise noted in Tables A, B, and/or C.	Minn. R. ch. 7017
Performance Test Notifications and Submittals: Performance Tests are due as outlined in Tables A and B of the permit. See Table B for additional testing requirements. Performance Test Notification (written): due 30 days before each Performance Test Performance Test Plan: due 30 days before each Performance Test Performance Test Pre-test Meeting: due 7 days before each Performance Test Performance Test Report: due 45 days after each Performance Test Performance Test Report - Microfiche Copy: due 105 days after each Performance Test The Notification, Test Plan, and Test Report may be submitted in alternative format as allowed by Minn. R. 7017.2018.	Minn. Rs. 7017.2030, subp. 1-4, 7017.2018 and Minn. R. 7017.2035, subp. 1-2
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.	Minn. R. 7017.2025, subp. 3
MONITORING REQUIREMENTS	hdr
Monitoring Equipment Calibration: Annually calibrate all required monitoring equipment (any requirements applying to continuous emission monitors are listed separately in this permit).	Minn. R. 7007.0800, subp. 4(D)
Operation of Monitoring Equipment: Unless otherwise noted in Tables A, B, and/or C, monitoring a process or control equipment connected to that process is not necessary during periods when the process is shutdown, or during checks of the monitoring systems, such as calibration checks and zero and span adjustments. If monitoring records are required, they should reflect any such periods of process shutdown or checks of the monitoring system.	Minn. R. 7007.0800, subp. 4(D)
RECORDKEEPING	hdr
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 all calibration and maintenance records, all original recordings for continuous monitoring instrumentation, and copies of all reports required by the permit. Records must conform to the requirements listed in Minn. R. 7007.0800, subp. 5(A).	Minn. R. 7007.0800, subp. 5(C)
Recordkeeping: Maintain records describing any insignificant modifications (as required by Minn. R. 7007.1250, subp. 3) or changes contravening permit terms (as required by Minn. R. 7007.1350, subp. 2), including records of the emissions resulting from those changes.	Minn. R. 7007.0800, subp. 5(B)

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

11/19/07

Facility Name: Hennepin County Energy Center

Permit Number: 05300002 - 003

REPORTING/SUBMITTALS	hdr
<p>Shutdown Notifications: Notify the Commissioner at least 24 hours in advance of a planned shutdown of any control equipment or process equipment if the shutdown would cause any increase in the emissions of any regulated air pollutant. If the owner or operator does not have advance knowledge of the shutdown, notification shall be made to the Commissioner as soon as possible after the shutdown. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 3.</p> <p>At the time of notification, the owner or operator shall inform the Commissioner of the cause of the shutdown and the estimated duration. The owner or operator shall notify the Commissioner when the shutdown is over.</p>	Minn. R. 7019.1000, subp. 3
<p>Breakdown Notifications: Notify the Commissioner within 24 hours of a breakdown of more than one hour duration of any control equipment or process equipment if the breakdown causes any increase in the emissions of any regulated air pollutant. The 24-hour time period starts when the breakdown was discovered or reasonably should have been discovered by the owner or operator. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 2.</p> <p>At the time of notification or as soon as possible thereafter, the owner or operator shall inform the Commissioner of the cause of the breakdown and the estimated duration. The owner or operator shall notify the Commissioner when the breakdown is over.</p>	Minn. R. 7019.1000, subp. 2
<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 through Minn. R. 7007.1500
<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. The Permittee shall submit this on a form approved by the Commissioner.</p>	Minn. R. 7019.3000 through Minn. R. 7019.3100
<p>Emission Fees: due 60 days after receipt of an MPCA bill.</p>	Minn. R. 7002.0005 through Minn. R. 7002.0095

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-5**

11/19/07

Facility Name: Hennepin County Energy Center

Permit Number: 05300002 - 003

Subject Item: GP 001 Boilers Subject to Group Synthetic Minor NOX Limit**Associated Items:** EU 001 Boiler 1

EU 004 Boiler 5

EU 005 Boiler 6

EU 008 Boiler 4

What to do	Why to do it
EMISSION LIMITS	hdr
Nitrogen Oxides: less than or equal to 17.8 lbs/hour using 365-day Rolling Average for all 4 boilers combined	Title I Condition: To avoid classification as a major modification under 40 CFR Section 52.21 and Minn. R. 7007.3000
RECORDKEEPING REQUIREMENTS	hdr
Recordkeeping: Fuel Usage: Maintain a record of the quantity and type of fuel burned in each boiler listed in GP001, on an hourly basis. (Record should show the type and quantity of fuel burned in each boiler, for any given hour.)	Title I Condition: To avoid classification as a major modification under 40 CFR Section 52.21 and Minn. R. 7007.3000
Recordkeeping - NOX Emissions Each day, calculate the previous calendar day's (midnight to midnight) average NOX emission rate using the equations in Appendix C, Section 1. Each day, calculate the 365-day rolling average by summing the average NOX emission rates for the previous 365 days and dividing by 365.	Minn. R. 7007.0800, subp. 4 and 5

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-6**

11/19/07

Facility Name: Hennepin County Energy Center

Permit Number: 05300002 - 003

Subject Item: GP 002 Boilers Subject to Identical NSPS Requirements**Associated Items:** EU 001 Boiler 1

EU 008 Boiler 4

What to do	Why to do it
Opacity: less than or equal to 20 percent opacity using 6-minute Average except for one 6-minute period per hour of not more than 27 percent opacity	40 CFR Section 60.43c(s); Minn. R. 7011.0570
Sulfur Content of Fuel: less than or equal to 0.5 percent by weight for fuel oil. The sulfur content is further limited to 0.05 percent by weight through a Title I Condition of GP004.	40 CFR Section 60.42c(d); Minn. R. 7011.0570
Compliance with the fuel oil sulfur content limit may be determined based on a certification from the fuel oil supplier, as described under 40 CFR Section 60.48c(f)(1).	40 CFR Section 60.42c(h); Minn. R. 7011.0570
Quarterly Reports - For each unit listed in GP002, submit a quarterly report to the Administrator, postmarked by the 30th day following the reporting period. Each report shall contain: - The calendar dates covered in the reporting period; - Records of fuel oil supplier certification including the name of the fuel oil supplier and a statement from the oil supplier that the oil complies with the definition of distillate oil in 40 CFR Section 60.41c; - A certified statement signed by the owner or operator that the records of fuel oil supplier certifications submitted represent all of the fuel oil combusted during the reporting period.	40 CFR Section 60.48c(d), (e), and (f); Minn. R. 7011.0570
Recordkeeping - For each boiler listed in GP002, maintain records of the amounts of each fuel combusted each day.	40 CFR Section 60.48c(g); Minn. R. 7011.0570

TABLE A: LIMITS AND OTHER REQUIREMENTS**A-7**

11/19/07

Facility Name: Hennepin County Energy Center

Permit Number: 05300002 - 003

Subject Item: GP 003 Boilers Subject to Identical Minn Standards**Associated Items:** EU 002 Boiler 2

EU 003 Boiler 3

What to do	Why to do it
Sulfur Dioxide: less than or equal to 1.6 lbs/million Btu heat input while burning fuel oil. This limit applies individually to each unit listed in GP003. [Potential SO2 emissions based on equipment capacity and worst case fuel is approximately 0.3 lb/MMBtu.]	Minn. R. 7011.0510, subp. 1
Total Particulate Matter: less than or equal to 0.4 lbs/million Btu heat input	Minn. R. 7011.0510, subp. 1
Opacity: less than or equal to 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity.	Minn. R. 7011.0510, subp. 2

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

11/19/07

Facility Name: Hennepin County Energy Center

Permit Number: 05300002 - 003

Subject Item: GP 004 Boilers Subject to Group SO2 Limits**Associated Items:** EU 001 Boiler 1

EU 002 Boiler 2

EU 003 Boiler 3

EU 004 Boiler 5

EU 005 Boiler 6

EU 008 Boiler 4

What to do	Why to do it
EMISSION LIMITS	hdr
Sulfur Dioxide: less than or equal to 214 lbs/hour using 1-Hour Average for all 6 boilers combined	40 CFR pt. 50; 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.
Sulfur Dioxide: less than or equal to 18.5 lbs/hour using 365-day Rolling Average for all 6 boilers combined	40 CFR pt. 50; 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.
OPERATING REQUIREMENTS	hdr
Fuel Usage: limited to natural gas and distillate oil in EU001, EU004, EU005, and EU008. Limited to natural gas, distillate oil, and residual oil in EU002 and EU003.	Title I Condition: To avoid classification of a previous modification as a major source under 40 CFR Section 52.21
Sulfur Content of Fuel: less than or equal to 0.05 percent by weight for distillate oil	Title I Condition: To avoid classification of a previous modification as a major source under 40 CFR Section 52.21
Sulfur Content of Fuel: less than or equal to 1.5 percent by weight for residual oil	Minn. Stat. Section 116.07, subd. 4a; Minn. R. 7007.0800, subp. 2
RECORDKEEPING REQUIREMENTS	hdr
Recordkeeping - Fuel Oil Analyses For each shipment of fuel received, the Permittee shall obtain vendor analyses or independent laboratory analyses of the fuel oil. The analyses shall include certification that the sulfur content of distillate oil received does not exceed 0.05% by weight and that the sulfur content of residual oil received does not exceed 1.5% by weight.	Minn. R. 7007.0800, subp. 4 and 5
Recordkeeping - Fuel Usage: Maintain a record of the quantity and type of fuel burned in each boiler on an hourly basis. (Record should show the type and quantity of fuel burned in each boiler, for any given hour.)	Minn. R. 7007.0800, subp. 4 and 5
Recordkeeping - SO2 Hourly Emissions Once each day, calculate the 24 hourly SO2 emission rates, in pounds per hour, for the previous calendar day (midnight to midnight) using the appropriate equations in Appendix C, Section 2.	Minn. R. 7007.0800, subp. 4 and 5
Recordkeeping - SO2 Annual Average Emissions Each day, calculate the average SO2 emission rate for the previous 365-day period by 1. Calculating the average SO2 emission rate for the previous calendar day, and 2. Summing the 365 previous daily SO2 emission rates in lb/hr and dividing by 365.	Minn. R. 7007.0800, subp. 4 and 5

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

11/19/07

Facility Name: Hennepin County Energy Center

Permit Number: 05300002 - 003

Subject Item: EU 001 Boiler 1**Associated Items:** GP 001 Boilers Subject to Group Synthetic Minor NOX Limit

GP 002 Boilers Subject to Identical NSPS Requirements

GP 004 Boilers Subject to Group SO2 Limits

SV 001 Boilers 1-4

What to do	Why to do it
Performance Test: due before end of each 60 months starting 11/13/2001 to measure the NOX emission factor in lb/MMBtu heat input for natural gas at EU001. Time between tests shall not exceed 61 months. The next test is due before March 31, 2012.	Title I Condition: To avoid classification of a previous modification as major under 40 CFR Section 52.21; Minn. R. 7017.2020, subp. 1
Performance Test: due before end of each 60 months starting 11/13/2001 to measure the NOX emission factor in lb/MMBtu heat input for fuel oil at EU001. Time between tests shall not exceed 61 months. The next test is due before March 31, 2012.	Title I Condition: To avoid classification of a previous modification as major under 40 CFR Section 52.21; Minn. R. 7017.2020, subp. 1

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

11/19/07

Facility Name: Hennepin County Energy Center

Permit Number: 05300002 - 003

Subject Item: EU 004 Boiler 5**Associated Items:** GP 001 Boilers Subject to Group Synthetic Minor NOX Limit

GP 004 Boilers Subject to Group SO2 Limits

SV 004 Boiler 5

What to do	Why to do it
EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.4 lbs/million Btu heat input . [Potential PM emissions based on equipment capacity and worst case fuel is approximately 0.01 lb/MMBtu.]	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
Sulfur Dioxide: less than or equal to 4.46 lbs/hour using 1-Hour Average	40 CFR pt. 50; 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.
Sulfur Dioxide: less than or equal to 1.6 lbs/million Btu heat input	Minn. R. 7011.0515, subp. 1
OPERATING REQUIREMENTS	hdr
Fuel Usage: limited to natural gas and distillate oil	Title I Condition: To avoid classification of a previous modification as a major source under 40 CFR Section 52.21
Sulfur Content of Fuel: less than or equal to 0.05 percent by weight for distillate oil	Title I Condition: To avoid classification of a previous modification as a major source under 40 CFR Section 52.21
RECORDKEEPING REQUIREMENTS	hdr
Recordkeeping - Fuel Oil Analyses For each shipment of fuel received, the Permittee shall obtain vendor analyses or independent laboratory analyses of the fuel oil. The analyses shall include certification that the sulfur content of distillate oil received does not exceed 0.05% by weight.	Minn. R. 7007.0800, subp. 4 and 5
Recordkeeping - Fuel Usage: Maintain a record of the quantity and type of fuel burned in the boiler, on an hourly basis. (Record should show the type and quantity of fuel burned in the boiler for any given hour.)	Minn. R. 7007.0800, subp. 4 and 5
Recordkeeping - SO2 Hourly Emissions Once each day, calculate the 24 hourly SO2 emission rates, in pounds per hour , for the previous calendar day (midnight to midnight) using the appropriate equations in Appendix C, Section 2.	Minn. R. 7007.0800, subp. 4 and 5
Performance Test: due before end of each 60 months starting 11/13/2001 to measure the NOX emission factor in lb/MMBtu heat input for natural gas at EU004. Time between tests shall not exceed 61 months. The next test is due before March 31, 2012.	Title I Condition: To avoid classification of a previous modification as major under 40 CFR Section 52.21; Minn. R. 7017.2020, subp. 1
Performance Test: due before end of each 60 months starting 11/13/2001 to measure the NOX emission factor in lb/MMBtu heat input for fuel oil at EU004. Time between tests shall not exceed 61 months. The next test is due before March 31, 2012.	Title I Condition: To avoid classification of a previous modification as major under 40 CFR Section 52.21; Minn. R. 7017.2020, subp. 1

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

11/19/07

Facility Name: Hennepin County Energy Center

Permit Number: 05300002 - 003

Subject Item: EU 005 Boiler 6**Associated Items:** GP 001 Boilers Subject to Group Synthetic Minor NOX Limit

GP 004 Boilers Subject to Group SO2 Limits

SV 005 Boiler 6

What to do	Why to do it
EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.4 lbs/million Btu heat input . [Potential PM emissions based on equipment capacity and worst case fuel is approximately 0.01 lb/MMBtu.]	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
Sulfur Dioxide: less than or equal to 4.46 lbs/hour using 1-Hour Average	40 CFR pt. 50; 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.
Sulfur Dioxide: less than or equal to 1.6 lbs/million Btu heat input	Minn. R. 7011.0515, subp. 1
OPERATING REQUIREMENTS	hdr
Fuel Usage: limited to natural gas and distillate oil	Title I Condition: To avoid classification of a previous modification as a major source under 40 CFR Section 52.21
Sulfur Content of Fuel: less than or equal to 0.05 percent by weight for distillate oil	Title I Condition: To avoid classification of a previous modification as a major source under 40 CFR Section 52.21
RECORDKEEPING REQUIREMENTS	hdr
Recordkeeping - Fuel Oil Analyses For each shipment of fuel received, the Permittee shall obtain vendor analyses or independent laboratory analyses of the fuel oil. The analyses shall include certification that the sulfur content of distillate oil received does not exceed 0.05% by weight.	Minn. R. 7007.0800, subp. 4 and 5
Recordkeeping - Fuel Usage: Maintain a record of the quantity and type of fuel burned in the boiler, on an hourly basis. (Record should show the type and quantity of fuel burned in the boiler for any given hour.)	Minn. R. 7007.0800, subp. 4 and 5
Recordkeeping - SO2 Hourly Emissions Once each day, calculate the 24 hourly SO2 emission rates, in pounds per hour , for the previous calendar day (midnight to midnight) using the appropriate equations in Appendix C, Section 2.	Minn. R. 7007.0800, subp. 4 and 5
Performance Test: due before end of each 60 months starting 11/13/2001 to measure the NOX emission factor in lb/MMBtu heat input for natural gas at EU005. Time between tests shall not exceed 61 months. The next test is due before March 31, 2012.	Title I Condition: To avoid classification of a previous modification as major under 40 CFR Section 52.21; Minn. R. 7017.2020, subp. 1
Performance Test: due before end of each 60 months starting 11/13/2001 to measure the NOX emission factor in lb/MMBtu heat input for fuel oil at EU005. Time between tests shall not exceed 61 months. The next test is due before March 31, 2012.	Title I Condition: To avoid classification of a previous modification as major under 40 CFR Section 52.21; Minn. R. 7017.2020, subp. 1

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

11/19/07

Facility Name: Hennepin County Energy Center

Permit Number: 05300002 - 003

Subject Item: EU 008 Boiler 4**Associated Items:** GP 001 Boilers Subject to Group Synthetic Minor NOX Limit

GP 002 Boilers Subject to Identical NSPS Requirements

GP 004 Boilers Subject to Group SO2 Limits

SV 001 Boilers 1-4

What to do	Why to do it
Performance Test: due before end of each 60 months starting 11/13/2001 to measure the NOX emission factor in lb/MMBtu heat input for natural gas at EU008. Time between tests shall not exceed 61 months. The next test is due before March 31, 2012.	Title I Condition: To avoid classification of a previous modification as major under 40 CFR Section 52.21; Minn. R. 7017.2020, subp. 1
Performance Test: due before end of each 60 months starting 11/13/2001 to measure the NOX emission factor in lb/MMBtu heat input for fuel oil at EU008. Time between tests shall not exceed 61 months. The next test is due before March 31, 2012.	Title I Condition: To avoid classification of a previous modification as major under 40 CFR Section 52.21; Minn. R. 7017.2020, subp. 1

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

11/19/07

Facility Name: Hennepin County Energy Center

Permit Number: 05300002 - 003

Subject Item: EU 009 Emergency Generator**Associated Items:** SV 006 Emergency Generator

What to do	Why to do it
EMISSION LIMITS	hdr
Sulfur Dioxide: less than or equal to 0.5 lbs/million Btu heat input	Minn. R. 7011.2300, subp. 2
Opacity: less than or equal to 20 percent opacity once operating temperatures have been attained	Minn. R. 7011.2300, subp. 1
OPERATING CONDITIONS	hdr
Fuel Use: Limited to diesel fuel oil only	Minn. Stat. Section 116.07, subd. 4a; Minn. R. 7007.0800, subp. 2
Generator shall be operated only as an "emergency generator" which is described in the EPA memo titled "Calculating Potential To Emit (PTE) from Emergency Generators", dated September 6, 1995, as "a generator whose sole function is to provide back-up power when electric power from the local utility is interrupted." The generator shall not be operated as a peak shaving unit.	Minn. Stat. Section 116.07, subd. 4a; Minn. R. 7007.0800, subp. 2
Operating Hours: less than or equal to 500 hours/year (Basis of potential to emit for an emergency generator, as described in the EPA Memo titled 'Calculating Potential To Emit (PTE) for Emergency Generators,' dated September 6, 1995.)	Minn. Stat. Section 116.07, subd. 4a; Minn. R. 7007.0800, subp. 2
RECORDKEEPING REQUIREMENTS	hdr
Recordkeeping - Hours of operation. The Permittee shall track the total hours that the generator is operated per year. Records may be written in a log, or may be tracked using an hour-meter on the generator.	Minn. R. 7007.0800, subp. 4 and 5

TABLE B: SUBMITTALS

B-1 11/19/07

Facility Name: Hennepin County Energy Center
Permit Number: 05300002 - 003

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.

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 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 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

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

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

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

TABLE B: ONE TIME SUBMITTALS OR NOTIFICATIONS

Facility Name: Hennepin County Energy Center
Permit Number: 05300002 - 003

What to send	When to send	Portion of Facility Affected
Application for Permit Reissuance	due 180 days before expiration of Existing Permit	Total Facility

TABLE B: RECURRENT SUBMITTALS**B-3** 11/19/07

Facility Name: Hennepin County Energy Center

Permit Number: 05300002 - 003

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 B**Facility Name:** Hennepin County Energy Center**Permit Number:** 05300002-003

The following stack parameters were used in the model included in the permit application dated January 14, 2000. Revision of any of these parameters must result in plume dispersion characteristics equivalent to or better than the plume dispersion characteristics modeled and summarized in the January 14, 2000, model. Revision of any of these parameters may require a permit amendment.

Table B.1 – Modeled Parameters – 1-hr, 3-hr, & 24-hr averages

SV ID No.	Modeled Height (feet)	Modeled Diameter (feet)	Modeled Temperature (°F)	Modeled Air Flow (acfm)	Modeled SO₂ (lb/hr)
001	150.0	5.512	450	111552	205
004	70.67	3.675	450	35217	4.46*
005	70.67	3.675	450	35217	4.46*
001, 004, & 005 combined	Na				214*

* Permit limit

Table B.2 – Modeled Parameters – Annual averages

SV ID No.	Modeled Height (feet)	Modeled Diameter (feet)	Modeled Temperature (°F)	Scenario 1		Scenario 2	
				Modeled Air Flow (acfm)	Modeled SO₂ (lb/hr)	Modeled Air Flow (acfm)	Modeled SO₂ (lb/hr)
001	150.0	5.512	450	2500	9.58	6400	18.5
004	70.67	3.675	450	35217	4.46*	0	0
005	70.67	3.675	450	35217	4.46*	0	0
001, 004, & 005 combined	Na						18.5*

* Permit limit

APPENDIX C

Facility Name: Hennepin County Energy Center

Permit Number: 05300002-003

Calculation Methods

Section 1 Calculation of NO_x emissions for GP001

Calculate the daily average NO_x emission rates using the following equations:

$$M = N_{NG1} + N_{NG4} + N_{NG5} + N_{NG8} + N_{FO1} + N_{FO4} + N_{FO5} + N_{FO8}$$

$$N_{NGX} = (Q_{NGX} \times E_{NGX}) \div H_{NGX}$$

$$N_{FOX} = (Q_{FOX} \times E_{FOX}) \div H_{FOX}$$

Where:

M = the average mass emission rate (lb NO_x/hour) for the calendar day

N_{NGX} = the average emission rate from burning natural gas in EU001, EU004, EU005, or EU008 (lb NO_x/hour) for the calendar day

N_{FOX} = the average emission rate from burning fuel oil in EU001, EU004, EU005, or EU008 (lb NO_x/hour) for the calendar day

Q_{NGX} = the total heat input from burning natural gas in EU001, EU004, EU005, or EU008 (MMBtu)

Q_{FOX} = the total heat input from burning distillate oil in EU001, EU004, EU005, or EU008 (MMBtu). When calculating total heat input, a heat content for distillate oil of 141,800 Btu/gallon of oil shall be used.

E_{NGX} = the emission factor for burning natural gas in EU001, EU004, EU005 or EU008, as measured during the most recent stack test (lb NO_x/MMBtu heat input)

E_{FOX} = the emission factor for burning fuel oil in EU001, EU004, EU005, or EU008, as measured during the most recent stack test (lb NO_x/MMBtu heat input)

H_{NGX} = the total hours during which natural gas was burned in EU001, EU004, EU005, or EU008 during the calendar day (hours)

H_{FOX} = the total hours during which distillate oil was burned in EU001, EU004, EU005, or EU008 during the calendar day (hours)

Section 2 Calculation of SO₂ emissions for GP004, EU004, and EU005

Calculation of Hourly SO₂ Emission Rates

$$M_{M-GP004} = 2.0 \times [(Q_1 \times S_1) + (Q_2 \times S_2) + (Q_3 \times S_3) + (Q_4 \times S_4) + (Q_5 \times S_5) + (Q_8 \times S_8)]$$

$$M_{M-EU004} = 2.0 \times Q_4 \times S_4$$

$$M_{M-EU005} = 2.0 \times Q_5 \times S_5$$

Where:

$M_{M-GP004}$, $M_{M-EU004}$, $M_{M-EU005}$ = the mass-based emission rate from GP004, EU004, and EU005, respectively (lb SO₂/hour)

Q_1 , Q_2 , Q_3 , Q_4 , Q_5 , Q_8 = the quantity of each type of fuel oil combusted during the hour in EU001, EU002, EU003, EU004, EU005, and EU008, respectively (gallons/hour)

S_1 , S_2 , S_3 , S_4 , S_5 , S_8 = the sulfur content of the particular fuel oil combusted during the hour in EU001, EU002, EU003, EU004, EU005, and EU008, respectively (lb sulfur/gallon). A sulfur content of 0.003525 lb sulfur/gallon shall be used for distillate oil and a sulfur content of 0.1182 lb sulfur/gallon shall be used for residual oil.

APPENDIX D**Facility Name:** Hennepin County Energy Center**Permit Number:** 05300002-003**Insignificant Activities and Applicable Requirements**

Minn. R. 7007.1300, subpart	Rule Description of the Activity	Applicable Requirement
3(l)	<p>Individual emissions units at a stationary source, each of which have a potential to emit the following pollutants in amounts less than:</p> <ol style="list-style-type: none">1. 4,000 lbs/year of carbon monoxide; and2. 2,000 lbs/year each of nitrogen oxide, sulfur dioxide, particulate matter, particulate matter less than ten microns, volatile organic compounds (including hazardous air pollutant-containing VOC), and ozone. <ul style="list-style-type: none">• Three 50,000 gallon underground fuel oil storage tanks, each with PTE below the thresholds above.	Minn. R. 7011.0710/0715

Conditionally Insignificant Activities

	Rule Description of the Activity	Applicable Requirement
Minn. R. 7008.4100	<p>Total VOC Usage at the stationary source less than 200 gallons or 2000 pounds in each calendar year. See Minn. R. 7008.4100 for recordkeeping and calculation requirements for this activity.</p> <ul style="list-style-type: none">▪ 23.5 gallons per year of VOC used per year	Minn. R. 7011.0710/0715

TECHNICAL SUPPORT DOCUMENT
For
AIR EMISSION PERMIT NO. 05300002-001

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

1. General Information

1.1. Applicant and Stationary Source Location:

Owner and Operator Address and Phone Number	Facility Address (SIC Code: 4961)
Owner: Hennepin County Public Works/Property Services Division A-2208 Government Center Minneapolis, MN 55487 Operator: NRG Energy Incorporated 1221 Nicollet Mall, Suite 700 Minneapolis, MN 55403 Contact: Roy R. Earl Sr. Mechanical Engineer (612)348-7758	Hennepin County Energy Center 600 Tenth Avenue South Minneapolis, Hennepin County, MN 55415

1.2. Description of the facility

Hennepin County Energy Center (HCEC) is a fossil-fuel fired boiler plant that provides steam and chilled water to customers located in the downtown Minneapolis area. The sources discharging emissions to the air are six boilers, designated as Boiler Nos. 1, 2, 3, 4, 5, and 6, and an emergency-only diesel generator. Boilers 1, 2, 3, and 4 vent to a common stack. Boilers 5 and 6 each vent to individual stacks.

1.3 Description of any changes allowed with this permit issuance

No physical changes to the facility are authorized by this permit. The following changes to the content of the permit are made through this permit reissuance:

- The previous permit included a requirement to obtain the specific gravity with each shipment of fuel oil. At one time, the specific gravity was a required element of compliance calculations specified in the permit. However, in the major amendment (05300002-002), the calculation methods were changed to no longer require the specific gravity, yet the requirement to obtain the specific gravity remained in the permit. That requirement is removed through this permit action; the specific gravity of each fuel oil shipment is no longer required.
- Until now, the permit has required annual testing of NO_x for each of Boilers 1, 4, 5, and 6 (EU001, EU008, EU004, and EU005, respectively). The results of the tests (emission factors) are then combined to determine compliance with the GP001 NO_x limit. Because the resulting emission factors have been very consistent and the combined emissions have been consistently less than 50% of the GP001 NO_x limit, the testing frequency has been reduced to once every 5 years, for each boiler. This is consistent with the MPCA's Guidance for Performance Test Frequency Permit Language (March 2000).

- Until now, the permit has included SO₂ limits in both lb/MMBtu and lb/hr, and has included the limits as 1-hour, 3-hour, and 24-hour averages. The 3-hour and 24-hour limits are the same as the 1-hour limit (i.e., if one meets the limit of 4.46 lb/hr on an hourly basis, then one will also meet the limit of 4.46 lb/hr on the 3-hour and 24-hour bases), so the 3-hour and 24-hour limits are no longer listed separately in the permit. The limits are still listed in Appendix B as 1-hour, 3-hour and 24-hour averages, since modeling showed that the NAAQS are protected for all averaging periods. The limits in lb/MMBtu have also been removed from the permit as redundant. These limits were derived from the associated lb/hr limit (i.e., for GP004, the hourly SO₂ limit is 214 lb/hr, which when divided by the maximum rated capacity of the boilers yields the associated limit of 0.47 lb/MMBtu). Since there is no difference in the limits which would allow the facility to meet one without meeting the other, the equivalent limits in units of lb/MMBtu were removed from the permit.

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
05300002-001 11/13/2001	Last total facility permit issued (Title V operating permit)
05300002-002 02/06/2003	Major Amendment to revise recordkeeping requirements

1.5 Facility Emissions:

Table 1. Total Facility Potential to Emit Summary:

	PM tpy	PM ₁₀ tpy	SO ₂ tpy	NO _x tpy	CO tpy	VOC tpy	Single HAPs tpy	All HAPs tpy
Total Facility Potential Emissions	18.1	14.1	81.7	167.0	99.3	7.2	2.1	2.2
Total Facility Actual Emissions*	2.19	2.13	0.68	22.75	22.09	1.45	NR**	NR**

* 2005 Emission Inventory

** NR = Not Reported (HAPs are not reported in the annual emission inventory)

Table 2. Facility and Permit Classification

Classification	Major/Affected Source	*Synthetic Minor	*Minor
PSD	X (NO_x)		
Part 70 Permit Program	X		

* 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.

2. Regulatory and/or Statutory Basis

Regulatory Overview of Facility

Part 70 Permit Program – The facility is a major source under 40 CFR 70.2.

New Source Review (NSR) – The facility is a major source under 40 CFR 52.21 (one of the 28 source categories). Air dispersion modeling has been performed to demonstrate compliance with ambient air quality standards, and as a result, portions of the facility are subject to sulfur dioxide emission limits developed to be protective of the ambient standards.

New Source Performance Standards (NSPS) – Portions of the facility are subject to 40 CFR 60, Subpart Dc, Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units.

National Emission Standards for Hazardous Air Pollutants (NESHAP) – The facility is not a major source of Hazardous Air Pollutants (HAPs), and there are no applicable area source NESHAPs. Therefore, no NESHAPs apply.

Compliance Assurance Monitoring (CAM) – No control equipment is utilized, therefore CAM does not apply.

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

Minn. R. 7011.0510, Standards of Performance for Existing Indirect Heating Equipment

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. Summary of Applicable Regulations

Affected portion of facility	Applicable Regulations	Comments
EU002, EU003	Minn. R. 7011.0510	Standards of Performance for Existing Indirect Heating Equipment. Both units were constructed prior to January 31, 1977, and have not been modified since.
EU004, EU005	Minn. R. 7011.0515	Standards of Performance for New Indirect Heating Equipment . Both units were modified in 1996/1997, but not such that an increase in hourly emissions occurred; therefore, the NSPS was not triggered.
EU001, EU008	40 CFR 60, Subpart Dc	Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units EU001 was modified in 1997. EU008 was installed in 1999.
EU009	Minn. R. 7011.2300	Standards of Performance for Stationary Internal Combustion Engines
GP001	40 CFR 52.21	Synthetic minor limit on NO _x emissions to maintain PTE of a previous modification below the significance levels. PTE of all criteria pollutants was maintained below significance levels due to the resulting fuel usage constraints.

Affected portion of facility	Applicable Regulations	Comments
GP004, EU004, EU005	Minn. R. 7009.0020	Limits for SO ₂ emissions set for the boilers. Limits were derived from computer dispersion modeling.
	40 CFR 52.21	Synthetic minor limit on sulfur content of fuel oil to maintain PTE of a previous modification below the significance levels.

3. Technical Information

3.1 Modeling and Modeling-Based Emission Limits

The facility performed computer dispersion modeling to demonstrate compliance with the ambient air quality standards for SO₂. This was completed prior to initial Title V permit, and the results of the modeling and a summary of the modeled findings can be found in Attachment 3 to the TSD for the original Title V Permit (05300002-001). The modeling parameters listed in Table A and Appendix B of this permit were carried forward from that permit without change.

Since modeling has been done, the requirement to submit modeling information was removed from Table A of the permit.

3.2 Emission Calculations

Detailed emission calculations are included in Attachment 1 to this document. In summary, hourly emission rates of each of the six boilers and of the generator are calculated using the maximum hourly equipment capacity, emission factors published in AP-42, any fuel restrictions listed in the permit (1.5% sulfur for residual oil, 0.05% sulfur for distillate oil), and any hourly emission limits set in the permit (synthetic minor NO_x limit, SO₂ limit based on dispersion modeling). Unrestricted emissions were calculated on a per-unit basis using the maximum capacity of the equipment, the AP-42 emission factors, and not considering any fuel type or usage limitations.

Limited emissions for the emergency generator were calculated by taking the maximum hourly emission rate, calculated as described above, multiplied by 500 hours per year, per the September 6, 1995 U.S. EPA memo Calculating Potential to Emit (PTE) for Emergency Generators.

Limited emissions for the six boilers were calculated considering all fuel usage restrictions resulting from the annual SO₂ emission rate limits. The annual SO₂ limit on GP004 inherently limits the fuel usage in all six boilers combined. The calculations are detailed in Attachment 1.

HAPs - Hourly, unrestricted, and limited HAP emissions are calculated as described above for criteria pollutants.

In Appendix C, Part 2, the Permittee is directed to calculate hourly SO₂ emissions based on the gallons of fuel oil used, and the sulfur content of the fuel, and is further directed to use 0.003525 lb S/gallon for distillate oil, and 0.1182 lb S/gallon for residual oil. These numbers were calculated base on the density of distillate and residual oils (from AP-42, Appendix A) and the allowed weight-based sulfur limits contained in the permit:

Dist. oil standard sulfur content (lb sulfur/gal) = 0.05% sulfur x 7.05 lb/gal = 0.003525 lb/gal

Res. oil standard sulfur content (lb sulfur/gal) = 1.5% sulfur x 7.88 lb/gal = 0.1182 lb/gal

3.3 Periodic Monitoring

In accordance with the Clean Air Act, it is the responsibility of the owner or operator of a facility to have sufficiency knowledge of the facility to certify that the facility is in compliance with all applicable requirements. To achieve this objective, the U.S. EPA requires periodic monitoring for permitted sources.

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

- The likelihood of violating the applicable requirement;
- Whether add-on controls are necessary to meet an emission limit;
- The variability of emissions over time;
- The type of monitoring, process, maintenance, or control equipment data already available for the emission unit.

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. Emission Units Subject to Periodic Monitoring

EU/GP/CE	Emission limit (basis)	Additional Monitoring	Discussion
GP001 (EU001, EU004, EU005, EU008)	NO _x : 18.4 lb/hr for all 4 boilers combined (Title I limit to avoid PSD applicability to a previous modification)	Periodic stack testing to determine site specific emission factor for each fuel for each boiler Daily calculations and recordkeeping	Testing and recordkeeping requirements originally set in 1996. Required frequency was decreased because of the consistency of the tested emissions, which when combined add up to less than 50% of the cumulative limit.
GP002 (EU001, EU008)	Opacity, sulfur content of fuel (NSPS Subpart Dc)	None	NSPS-required monitoring is adequate. Notifications and initial performance tests have been completed. Fuel sulfur content is addressed under GP004.
GP003 (EU002, EU003)	SO ₂ , opacity, and PM limits (Minn. R. 7011.0510)	None	State SO ₂ limit is less restrictive than the limits set under GP004, which includes EU002 and EU003. PM PTE is approximately 27% of the applicable limit.
EU004, EU005	SO ₂ , opacity and PM limits (Minn. R. 7011.0515)	None	State SO ₂ limit is less restrictive than the limits set under GP004, which includes EU004 and EU005. PM PTE is approximately 3% of the applicable limit.

EU/GP/CE	Emission limit (basis)	Additional Monitoring	Discussion
GP004 (EU001, EU002, EU003, EU004 EU005, EU008)	SO ₂ limits (Minn. R. 7009.0020)	Calculation and Recordkeeping of hourly and 365 day rolling average SO ₂ emission rates, based on quantity of fuel used and maximum allowed sulfur content of the fuel	Compliance with the 1-hour average implies compliance with the equivalent modeled 3-hour and 24-hour averages; unnecessary to track actual 3-hour and 24-hour data.
	Fuel oil sulfur content (Title I to avoid PSD applicability of previous mod)	Obtain and maintain fuel oil sulfur content certifications for each fuel oil shipment.	
EU009	SO ₂ and opacity limits (Minn. R. 7011.2300)	None	PTE of SO ₂ (using a mass balance) is less than what is allowed by the rule.

3.4 Insignificant Activities

Insignificant activities are listed in Appendix D of the permit.

The permit is required to include periodic monitoring for all emissions units, including insignificant activities, per EPA guidance. The insignificant activities at this Facility are only subject to general applicable requirements. Using the criteria outlined earlier in this TSD, the following table documents the justification why no additional periodic monitoring is necessary for the current insignificant activities.

Table 5. Insignificant Activities

Insignificant Activity	General Applicable Emission limit	Discussion
Individual units with actual emissions less than 2000 lb/year of certain pollutants	PM, variable depending on airflow Opacity \leq 20% (with exceptions) (Minn. R. 7011.0715)	These are three 50,000-gallon underground storage tanks. These are not expected to produce particulate matter emissions.
Total VOC Usage at the stationary source less than 200 gallons or 2000 pounds in each calendar year.	PM, variable depending on airflow Opacity \leq 20% (with exceptions) (Minn. R. 7011.0715)	This is the usage of approximately 25 gallons per year of solvent used for cleaning boilers. This is not expected to result in particulate matter emissions. See Minn. R. 7008.4100 for recordkeeping and calculation requirements for this activity.

3.5 Comments Received

Public Notice Period: <start date> - <end date>

EPA 45-day Review Period: <start date> - <end date>

Comments were not received from the public during the public notice period. Comments were not received from EPA during their review period. No changes to the permit were made after beginning the public notice period.

3.5 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.

4. Conclusion

Based on the information provided by the Hennepin County Energy Center, the MPCA has reasonable assurance that the proposed operation of the emission facility, as described in the Air Emission Permit No. 05300002-001, and this TSD, will not cause or contribute to a violation of applicable federal regulations and Minnesota Rules.

Staff Members on Permit Team: Toni Volkmeier (Permit Engineer)
Suzanne Venem (Enforcement)
Curt Stock (Stack testing)
Paula Connell (Peer Reviewer)

Attachment: 1. Emission Calculations
 2. Facility Description and CD-01 Forms