AIR EMISSION PERMIT NO. 01300015- 001

IS ISSUED TO

Northern States Power Company

NSP - Key City/Wilmarth
1040 Summit Avenue
Mankato, Blue Earth County, Minnesota 56001

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

Permit Type	**Application Date**
Total Facility Operating Permit	September 15, 1995

This permit authorizes the Permittee to operate the stationary source at the address listed above (the Facility) 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 defined in the state air pollution control rules unless the term is explicitly defined in the permit.

Permit Type: Federal; Part 70/Major for NSR
Issue Date: April 29, 2002
Expiration: April 29, 2007
All Title I Conditions do not expire.

James L. Warner
Division Director
Majors and Remediation Division

For Karen A. Studders
Commissioner
Minnesota Pollution Control Agency

MM:smd

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NOTICE TO THE PERMITTEE:

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

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

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

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

PERMIT SHIELD:

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

FACILITY DESCRIPTION:

The facility covered by the proposed permit, Air Emissions Permit No. 01300015-001, Northern States Power Company, d/b/a Excel Energy - Key City/Wilmarth is an electric power generating station located along the Minnesota River in Mankato Minnesota. The Wilmarth plant is rated at 25 megawatts (MW) and has two boilers that primarily burn refuse derived fuel (RDF). The Key City plant is rated at 80 MW and has four turbine/generator sets that burn natural gas. The RDF burned at this facility is processed under contract with the Elk River Resource Recover Facility in Elk River, Minnesota; Ramsey/Washington Resource Recovery Facility in Newport, Minnesota; the Prairieland Compost Facility in Truman, Minnesota and Minnesota Waste Processing Company (MWPC) located on-site.

Energy is produced through combustion of RDF in two traveling grate boilers. The units are identified in the permit as emissions units 1 and 2 (EU 001 and EU 002). The units are 180 Million Btu/hr each, which equates to 16.4 tons of RDF per hour (at an assumed heat content of 5,500 Btu/lb.). The combustors can also burn natural gas and distillate fuel oil. Natural gas is used at start-up and as necessary to maintain proper combustion conditions. The boilers were installed in 1947 and converted to burn RDF in 1985.

Each boiler exhausts through separate pollution control equipment, a scrubber for the control of acid gasses and a baghouse for the control of Particulate Matter (PM) and a 158 ft. tall stack. Exhaust gasses from each boiler are continuously monitored for carbon monoxide, sulfur dioxide, nitrogen oxides, opacity, and oxygen. A number of operating parameters, including baghouse inlet temperature, and steam flow rate, are also monitored continuously.

Hot water for internal use when the EU 001 and EU 002 are down is provided by a natural gas-fired boiler. A diesel fuel fired generator provides emergency electrical power.

Ash produced in the course of waste combustion is stored in an enclosed area at the facility. The ash is transported using covered trucks to the Wilmarth RDF Ash Landfill. Other sources of PM emissions are the lime storage silo and RDF receiving building and RDF transfer station.

Electrical energy is also produced at this facility by four 20 MW gas turbines (EU004, EU005, EU006, and EU007). These units were installed in 1971 and are intended to provide peaking capacity. The primary fuel burned is natural gas; distillate fuel is used as the backup fuel. The facility has two 1,000,000-gallon fuel oil tanks.

TABLE A: LIMITS AND OTHER REQUIREMENTS

04/29/02

Facility Name: Xcel Energy - Key City/ Wilmarth

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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
OPERATIONAL LIMITS	hdr
Operation and/or production limits will be placed on emission units based on operating conditions during performance testing. Limits set as a result of a performance test (conducted before or after permit issuance) apply until new operating/production limits are set following formal review of a performance test as specified by Minn. R. 7017.2025.	Minn. R. 7017.2025
Permittee shall comply with the General Conditions listed in Minn. R. 7007.0800, subp. 16.	Minn. R. 7007.0800, subp. 16
Permittee will operate the facility in accordance with the solid waste management requirements as set forth in Minn. R. 7011.1245 items A to H. Plans required shall identify those required portions of the plan which are not applicable.	Minn. R. 7011.1245 A to H
Fugitive Dust 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: 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 federally enforceable by the EPA or Citizens under the Clean Air Act.	Minn. R. 7030.0010 - 7030.0080
Ash Toxicity: Abide by a plan to reduce the level of toxic contaminants in ash, consistent with Minn. R. 7007.0501, subp. 6(A).	Minn. R. 7007.0501, subp. 6
Ash Sampling: Conduct ash sampling at least quarterly in accordance with Minn. R. 7035.2910.	Minn. R. 7035.2910, subp. 3
Abide by a plan for the disposal and/or utilization of ash and quench water consistent with Minn. R. 7007.0501, subp. 7.	Minn. R. 7007.0501, subp. 7
Abide by the industrial waste management plan prepared in accordance with Minn. R. 7011.1250.	Minn. R. 7007.0801, subp. 2(E)
PLANS	hdr
INDUSTRIAL SOLID WASTE MANAGEMENT PLAN: Permittee shall modify the industrial waste management plan whenever the management practices or solid waste identified in the plan have changed. Permittee shall submit the amended plan to the commissioner for approval.	Minn. R. 7011.1250, subp. 3
Submittal: due 90 days after Permit Issuance the plans as described below, identifying which required portions are not applicable. Keep the plans with the Operating Manual. A. security requirements in part 7035.2535, subp. 3; Draft and implement a security plan which describes devices or provisions to prevent unauthorized entry that could lead to injury or disturbance of waste or equipment. B. general inspection requirements in part 7035.2535, subp. 4; Draft and implement a plan which describes inspection schedules and maintenance of inspection records for 5 years. This general inspection plan covers those operations which, if malfunctions occur, could lead to environmental or human health hazards.	Minn. R. 7011.1245 A to H
Submittal: due 90 days after Permit Issuance (Continued) C. household hazardous waste management requirements of part 7035.2535, subp. 6; keep the household hazardous waste management plan prepared for each refuse derived fuel (RDF) provider, on file at the facility. D. emergency preparedness and prevention plans and emergency procedures shall be prepared in accordance with parts 7035.2595 and 7035.2605; Update the existing Chemical Emergency Episode Plan to comply with the requirements in 7035.2595 and 7035.2605 as applicable. E. contingency action plans in part 7035.2615; Include as a part of the update to the existing Chemical Emergency Episode Plan, the applicable items of 7035.2615 F. closure plans and procedures in part 7035.2625. G. not applicable. H. infectious waste managment plan (if Permittee chooses to accept infectious waste), in accordance with Minn. R. 7035.9100 to 7035.9150.	Minn. R. 7011.1245 A to H, (Continued)
Submittal: due 90 days after Permit Issuance a plan for handling waste that has not been processed into refuse derived fuel (RDF).	Minn. R. 7007.0800, subp. 2.

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: Xcel Energy - Key City/ Wilmarth

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Submittal: due before 12/31/2003, a waste composition study (conducted on the waste stream from which the RDF is produced) every five years as described in Minn. R. 7007.0501, subp. 2A. The Waste Composition Study and Sample Analysis Report is due 45 days after the end of each five years starting from 12/1998.	Minn. R. 7011.1270 A. (6)
Fugitive Control Plan: due 60 days after Permit Issuance. The plan shall identify all fugitive emission sources, primary and contingent control measures, and recordkeeping. Permittee shall follow the actions and recordkeeping specified in the control plan.	Minn. Stat. Section 116.07, subd. 4a; Minn. R. 7007.0800, subp. 2
Operation and Maintenance Plan: Retain at the stationary source an operation and maintenance plan for all air pollution control equipment. Permittee will incorporate operation and maintenance requirements for the air pollution control equipment into the Operating Manual required under Minn. R. 7011.1275, subp. 3.	Minn. R. 7007.0800, subp. 14; and Minn. R. 7007.0800, subp. 16(J)
Ash Sampling Plan: Submit ash sampling plan and amendments to the plan to the Regular Facilities Unit in the Rochester Subdistrict Office for approval. The plan must contain the information in Minn. R. 7035.2910, subp. 6A - H.	Minn. R. 7007.0801, subp. 2(D); Minn. R. 7035.2910, subp. 6
POLLUTION CONTROL EQUIPMENT	hdr
Air Pollution Control Equipment: Operate all pollution control equipment whenever the corresponding process equipment and emission units are operated, unless otherwise noted in Table A.	Minn. R. 7007.0800, subp. 2; Minn. R. 7007.0800, subp. 16(J)
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
Shutdowns: Notify the Commissioner at least 24 hours in advance of a planned shutdown or as soon as possible after an unplanned shutdown of any process or control equipment, if the shutdown would cause an increase in the emission of any regulated air pollutant. At the time of notification, notify the Commissioner of the cause of the shutdown and the estimated duration. Notify the Commissioner again when the shutdown is over. Exceptions to this requirement are described in Minn. R. 7019.1000, subp. 3.	Minn. R. 7019.1000, subp. 3
Breakdowns: Notify the Commissioner within 24 hours after a breakdown of more than one hour duration of any process or control equipment if the breakdown causes an increase in the emission of any regulated air pollutant. At the time of notification or as soon thereafter as possible, the permittee shall also notify the Commissioner of the cause of the breakdown and the estimated duration. Notify the Commissioner again when the breakdown is over. Exceptions to this requirement are described in Minn. R. 7019.1000, subp. 2.	Minn. R. 7019.1000, subp. 2
TESTING REQUIREMENTS	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
General Performance Test Requirements: Performance Tests are due as outlined in Tables A and B of the permit. See Table B for additional testing requirements. PT Notifications (written): due 30 days before each Performance Test PT Plan: due 30 days before each Performance Test PT Pre-test Meeting: due 7 days before each Performance Test PT Report: due 45 days after each Performance Test PT Report-Microfiche: due 105 days after each Performance Test	Minn. R. 7017.2030, subp. 104 and Minn. R. 7017.2035, subp. 1-2.
MONITORING REQUIREMENTS	hdr
Monitoring Equipment: Install or make needed repairs to all monitoring equipment within 60 days of issuance of the permit if monitoring equipment is not installed and operational on the date the permit is issued.	Minn. R. 7007.0800, subp. 4(D)
Monitoring Equipment Calibration: Calibrate all required monitoring equipment according to manufacturer's recommendations (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 combustion 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

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: Xcel Energy - Key City/ Wilmarth

Permit Number: 01300015 - 001

Permittee shall maintain records adequate to document compliance at the stationary source, including at a minimum: (1) the date, place, and time of sampling or measurement; (2) the date or dates the analyses were performed; (3) the company or entity that performed the analyses; (4) the analytical techniques or methods used; (5) the results of such analyses; and (6) the operating conditions existing at the time of sampling or measurement	Minn. R. 7007.0800, subp. 5(A)
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)
Recordkeeping: Retain all records at the site 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 strip-chart 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)
REPORTING/MISCELLANEOUS	hdr
Initial Notification of Deviations Endangering Human Health or the Environment: Immediately after discovery, notify orally or by facsimile, the Commissioner or State Duty Officer, of any deviation from permit conditions which could endanger human health or the environment.	Minn. R. 7019.1000, subp. 1
Deviations Report: due 2 days after Discovery of Deviation. Submit a written description of any deviations endangering human health or the environment to the Commissioner. Include the following information in this written description: cause of the deviation; exact dates of the period of the deviation; if the deviation has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the deviation.	Minn. R. 7019.1000, subp. 1
Semiannual Deviations Report: due 30 days after end of each calendar half-year following Permit Issuance. The first semiannual report submitted by NSP Wilmarth 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. Use of the Quarterly EER is permitted for Deviations Report Form-1.	Minn. R. 7007.0800, subp. 6(A)
Application for Permit Amendment: If a permit amendment is needed, submit an application in accordance with the requirements of Minn. R. 7007.1150 through Minn. R. 7007.1500. Submittal dates vary, depending on the type of amendment needed.	Minn. R. 7007.1150 through Minn. R. 7007.1500
Extension Requests: Permittee may apply for an Administrative Amendment to extend a deadline in a permit by no more than 120 days, provided the proposed deadline extension meets the requirements of Minn. R. 7007.1400, subp. 1(H).	Minn. R. 7007.1400, subp. 1(H)
Compliance Certification: due 31 days after end of each calendar year following Permit Issuance (for the previous calendar year). To be submitted on a form approved by the Commissioner, both to the Commissioner and to the US EPA regional office in Chicago. This report covers all deviations experienced during the calendar year.	Minn. R. 7007.0800, subp. 6 (C).
Submittal, due 90 days after Permit Issuance, a fractional analysis of the waste stream from which the refuse derived fuel (RDF) is produced as decribed in Minn. R. 7007.0501, subp 2(A)(1) including a measurement of the noncombustible fraction of solid waste.	Minn. R. 7007.0801, subp. 2(C)
Submittal: due 73 days after end of each calendar year following Permit Issuance an Ash Testing Report. Submit the annual ash testing report to the Commissioner by March 15 of each year. The report must contain at a minimum the information in Minn. R. 7035.2910, subp. 10A - F.	Minn. R. 7035.2910, subp. 10
Emissions Inventory Report: due 91 days after end of each calendar year following Permit Issuance (April 1). To be submitted on a form approved by the Commissioner.	Minn. R. 7019.3000 through Minn. R. 7019.3010.
Emission Fees: due 60 days after receipt of an MPCA bill.	Minn. R. 7002.0005 through Minn. R. 7002.0095
Inspections: Upon presentation of credentials and other documents as may be required by law, allow the Agency, or its representative, to enter the Permittee's premises to have access to and copy any records required by this permit, to inspect at reasonable times (which include any time the source is operating) any facilities, equipment, practices or operations, and to sample or monitor any substances or parameters at any location.	Minn. R. 7007.0800, subp. 9(A)
Submit: due 1,095 days after Permit Issuance, Modeling Protocol. This protocol will describe the proposed modeling methodology and input data, in accordance with all requirements of 40 CFR pt. 51, App. W, and with MPCA modeling guidance for Title V air dispersion modeling analysis. This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.	Minn. R. 7007.0800, subp. 2

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: Xcel Energy - Key City/ Wilmarth

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Submit: due 1,460 days after Permit Issuance, Modeling Study results. Results are to be submitted after the MPCA has reviewed and approved the modeling protocol, and should adhere to MPCA modeling guidance for Title V air dispersion modeling analysis. This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.	Minn. R. 7007.0800, subp. 2

TABLE A: LIMITS AND OTHER REQUIREMENTS

04/29/02

Facility Name: Xcel Energy - Key City/ Wilmarth

Permit Number: 01300015 - 001

Subject Item: **GP 001 Waste Combustors**

Associated Items: EU 001 Boiler #1

EU 002 Boiler #2

What to do	Why to do it
OPERATIONAL LIMITS/REQUIREMENTS	hdr
Permittee shall comply with the applicable parts of Minn. R. 7011.1201 to 7011.1290.	Minn. R. 7011.1215, subp. 1
OPERATING TRAINING & CERTIFICATION	hdr
Operating Manual: Within 180 days after Permit Issuance the Permittee shall develop and maintain the Operating Manual in accordance with Minn. R. 7011.1275, subp. 3, items A through O and update the manual following each performance test to include operational changes resulting from emissions performance testing results. Also, include the revision dates within the Operating Manual; store the Operating Manual in a location easily accessed by staff; and describe the location in the Operating Manual. Make all attempts to have this location be permanent.	Minn. R. 7011.1275, subp. 3; Minn. R. 7007.0800, subp. 2
Training Program: Implement a training program, based on the Operating Manual, designed to maintain compliance with this permit and Minnesota Rules. Individual training must be specific to the position held. The permitee will: Implement the required training; Document the nature and length of training for each individual; Report the names of those who have been trained in the Quarterly Report following training.	Minn. R. 7011.1275; Minn. R. 7007.0800, subp. 2
Training Program: Persons with job-related activities affecting air emission must: Initially review the operating manual prior to assumption of any job-related activities affecting air emissions, and; Annually review the operating manual. Persons with newly-assigned job-related activities affecting air emission must review the portions of the operating manual relevant to the newly-assigned position before assumption of the new job-related activities.	Minn. R. 7011.1275, subp. 1(A); Minn. R. 7011.1275, subp. 1(D); Minn. R. 7011.1275, subp. 1(B); Minn. R. 7007.0800, subp. 2
Training Program: Persons without waste combustor or boiler operation experience must work under the direct supervision of a certified operator or a certified operator's designee for 40 hours before assuming job-related activities affecting air emissions.	Minn. R. 7011.1275, subp. 1(C)
Training Program: Waste combustor personnel who have responsibilities which affect the operation of the waste combustor must be trained in the operation of the facility. These personnel include, but are not limited to, chief facility operators, shift supervisors, control room personnel, ash handlers, maintenance personnel, and load handlers. The permitee will: identify all people described above who must be trained, and include a separate page for each of these people in the Operating Record; report the names of those who have been trained and the type of training received in the Annual Report following training as required under Minn. R. 7011.1285, subp. 4, item A.	Minn. R. 7011.1275, subp. 1; Minn. R. 7011.1275, subp. 2; Minn. R. 7011.1275, subp. 4
Certified Operator: Comply with the certified operator requirements below. The permitee shall: display documents of full certification prominently at the facility; keep copies of the certificates in the Operating Record; record certified operator shift changes in the Operating Record; maintain time records for all certified operators; allow the Commissioner to review all records related to the full certification of operators, including the facility's program for the examination and certification of operators, the required records, the content of examinations, and the results of an individual's examination. A current record of all personnel who have obtained provisional and/or full certification by ASME or other approved course work shall be kept at the facility.	Minn. R. 7011.1284, subp. 3; Minn. R. 7011.1284, subp. 3a
Certified Operator: Permittee shall allow the commissioner to review all records related to the certification of operators including the facility's program for examination and certification of operators, the record required in Minn. R. 7011.1284, subp. 3, the content of the examinations and the results on an individual's examination.	Minn. R. 7011.1284, subp. 4
Presence of Certified Operator: The person described in Minn. R. 7011.1240, subp. 1 shall be present at the waste combustor facility at all times when solid waste is being combusted. The certified operator shall meet the minimum requirements of Minn. R. 7011.1280, subp. 3(B) and 7011.1281.	Minn. R. 7011.1240, subp. 1; Minn. R. 7011.1280, subp. 3; Minn. R. 7011.1281
RECORDKEEPING	hdr
Recordkeeping: Permittee shall maintain on-site for five years after the report is generated, a paper copy of each quarterly report, initial compliance report, and performance test report required under Minn. R. 7011.1285, subparts 3, 5, and 6 respectively.	Minn. R. 7011.1285, subp. 1

TABLE A: LIMITS AND OTHER REQUIREMENTS

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Facility Name: Xcel Energy - Key City/ Wilmarth

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Daily Operating Record: The Permitee shall maintain on-site daily records for the operation of the waste combustor. Daily records include such things as the operator log book, operator daily log sheets, trend records, CEMS records, and the daily operating report. The record shall contain: A. the calendar date; B. the hours of operation; C. the weight of RDF combusted; C1. the number of gallons of waste oil burned per hour; C2. the hour each quantity of waste oil was burned; C3. the source of waste oil burned; D. the weight of RDF requiring disposal at a solid waste land disposal facility, including separated noncombustibles, excess RDF, and ash; E. the amount and description of industrial solid waste received each day, the generator's name, and the method of handling; F. the measurements and determination of emissions averages as required in part 7011.1260, subpart 6;	Minn. R. 7011.1285, subp. 2 Minn. R. 7007.0800, subp. 2
Daily Operating Record (Continued) G. results of performance tests conducted on waste combustor units as required in part 7011.1270; H. instances of dumpstack use; I. the names of persons who have completed initial review or subsequent annual review of the operating manual; J. the reasons for exceeding any of the average emission rates, percent reductions, or operating parameters specified under Minn. R. 7011.1260, subp. 6, item C, or the opacity limit and a description of corrective actions taken; K. reasons for not obtaining the minimum number of hours of sulfur dioxide or nitrogen oxides emissions or operational data (carbon monoxide emissions, boiler steam flow, particulate matter control device temperature) and a description of corrective actions taken; and L. the date of the calibration of all signal conversion elements associated with boiler steam flow monitoring as required in Minn. R. 7011.1265, subp. 4.	Minn. R. 7011.1285, subp. 2 ; Minn. R. 7000.7000; Minn. R. 7007.0800, subp. 2 (Continued)
Recordkeeping: maintain records of the occurence and duration of any startup, shutdown, or malfunction in the operation of the facility including; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative.	40 CFR Section 60.7(b), 40 CFR Section 60.1
Archiving: Retain all continuously measured emission records for a minimum of five years. Regarding boiler load level monitoring, retain current records of design, construction, installation, calibration, and use of nozzles and orifices. The permitee will store the above records in a reviewable format at the facility site and make them available upon request.	Minn. R. 7011.1285, subp. 1 Minn. R. 7007.0800, subp. 2
REPORTING	hdr
Notify: due 10 days before Initial Startup of EU001 and/or EU002.	Minn. R. 7011.1240, subp. 9
Reporting of Exceedances of Continuously Monitored Emissions: If accurate and valid data results collected from the sulfur dioxide, carbon dioxide, and/or nitrogen oxide monitors exceed emission limits, the following procedures shall be followed. (1) Exceedance shall be reported to the commissioner as soon as reasonably possible. (2) Appropriate repairs or modifications to return the waste combustor to compliance must be commenced within 72 hours. If compliance cannot be achieved within 72 hours, then the waste combustor shall be shut down. (3) When repairs or modifications have been completed, The permitee shall demonstrate to the commissioner that the waste combustor is in compliance. The waste combustor may be started up after the permitee has notified the commissioner in writing of the date the permitee plans to start up the waste combustor and the date that performance testing is scheduled.	Minn. R. 7011.1260, subp. 7
Excess Emissions/Downtime Reports (EER's): due 30 days after end of each calendar quarter following Permit Issuance (Submit Deviations Reporting Form DRF-1 as amended). The EER shall indicate all periods of CEMS/COMS bypass and all periods of exceedances of the limit including exceedances allowed by an applicable standard, i.e. during startup, shutdown, and malfunctions.	Minn. R. 7017.1110, subp. 1 and 2; Minn. R. 7011.1285, subp. 3.
Quarterly Report: due 30 days after end of each calendar quarter following Permit Issuance	Minn. R. 7011.1285, subp. 3

Quarterly Reports (Continued): The report shall contain the following items: A. calendar date; B. a graphic or tabular presentation of the sulfur dioxide, nitrogen oxide, and carbon monoxide emissions, the maximum or minimum waste combustor unit load level and particulate matter control device temperatures as required by Minn. R. 7011.1260, subp. 6, item C, and the daily maximum opacity readings as recorded by Minn. R. 7011.1260, subp. 6, item B, subitem (1). The graphs shall be prepared as follows: (1) the graph shall represent one operating parameter or pollutant; (2) the applicable limit of the parameter or pollutant shall be indicated on the graph; and (3) data shall be expressed in the same units as the applicable operating parameter or emissions limit; C. instances of dumpstack use;	Minn. R. 7011.1285, subp. 3 (Continued)
Quarterly Reports (Continued): D. the identification of operating days when any of the average emission concentrations, percent reductions, operating parameters specified under Minn. R. 7011.1260, subp 6(C), or the opacity level exceeded the applicable limits. The report shall include the emission levels recorded during the exceedance, reasons for such exceedances as well as a description of corrective actions taken; E. the percent of the operating time for the quarter that the opacity COMS was operating and collecting valid data; F. the identification of operating days for which the minimum number of hours that emission concentrations, percent reductions, operating parameters specified under Minn. R. 7011.1260, subp. 6(C), Minn. R. 7011.1272, subp. 2 (if applicable) or the opacity level have not been obtained, including reasons for not obtaining sufficient data and a description of corrective actions taken;	Minn. R. 7011.1285, subp. 3 (Continued)
Quarterly Reports (Continued) G. the results of daily sulfur dioxide, nitrogen oxides, and carbon monoxide CEMS drift tests and accuracy assessments as required in Minn. R. 7011.1260, subp. 5. H. the information required in Minn. R. 7011.1285, subp 2(C), (D), and (E), summarized to reflect quarterly totals; and I. a compliance certification as required in Minn. R. 7007.0800, subp 6(C). J. if an additive is used to comply with the mercury or PCDD/PCDF emission limits, the total qunatity of additive used during the calendar quarter, as specified in Minn. R. 7011.1272, subp. 3(B), with supporting calculations.	Minn. R. 7011.1285, subp. 3 (Continued)

TABLE A: LIMITS AND OTHER REQUIREMENTS

04/29/02

Facility Name: Xcel Energy - Key City/ Wilmarth

Permit Number: 01300015 - 001

Subject Item: **GP 003 Gas Turbine**

Associated Items: EU 004 Gas Turbine/Generator

EU 005 Gas Turbine/Generator

EU 006 Gas Turbine/Generator

EU 007 Gas Turbine/Generator

What to do	Why to do it
Opacity: less than 20 percent once operating temperature is attained.	Minn. R. 7011.2300, subp. 1
Sulfur Dioxide: less than 0.5 lbs/million Btu heat input	Minn. R. 7011.2300, subp. 2
Performance Test: due 180 days after Permit Issuance for opacity on one representative unit.	Minn. R. 7017.2020, subp. 1
Sulfur Content of Fuel: less than or equal to 0.5 percent by weight . Permittee shall obtain and maintain a fuel supplier receipt for each shipment of distillate fuel oil delivered certifying that the shipment complies with ASTM specifications for distillate fuel oil and that the sulfur content is less than or equal to 0.5 % by weight as determined by ASTM method D 1552 or in accordance with the current ASTM method.	Minn. R. 7000.0800, sub. 2
Initial Performance Test: due 180 days after Resuming Operation on distillate fuel oil by any emission unit in GP 003, to measure opacity of each emission unit in GP 003 For additional applicable performance test requirements, see "General Performance Test Requirements" in Table A, Subject Item "Total Facility."	Minn. R. 7017.2020, subp. 1

TABLE A: LIMITS AND OTHER REQUIREMENTS

04/29/02

Facility Name: Xcel Energy - Key City/ Wilmarth

Permit Number: 01300015 - 001

Subject Item: **GP 004 Bag Houses**

Associated Items: CE 002 Fabric Filter - High Temperature, i.e., T>250 Degrees F

CE 004 Fabric Filter - High Temperature, i.e., T>250 Degrees F

What to do	Why to do it
Temperature: less than or equal to 30 degrees F above the highest 4-hour arithmetic mean temperature measured during four consecutive hours for this gas stream during the most recent performance test for polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans that demonstrated compliance when solid waste is being combusted except during the annual PCDD/PCDF performance and the two weeks prior to this test as limited below.	Minn. R. 7011.1240, subp. 2 Minn. R. 7000.7000 Minn. R. 7007.0800, subp. 2
During the annual PCDD/PCDF performance test and the two weeks prior to this test, no particulate matter control device operating temperature limitations are applicable. The commissioner shall waive the particulate matter control device temperature limits for the purpose evaluating system performance, URGE testing, testing new technology or control technologies, diagnostic testing or related activities for the purpose of improving facility performance or advancing the state-of-the-art for controlling facility emissions, provided a written notification is submitted to the commissioner 30 days prior to undertaking any of the activities identified above, with the following information: 1) a desription of the proposed project, and the outcome the project is designed to evaluate; 2) how the project conforms with the activities described above for which the temperature limit can be waived; 3) the length of time the project will take to complete.	Minn. R. 7011.1240, subp. 2 Minn. R. 7000.7000 Minn. R. 7007.0800, subp. 2 (continued)
Particulate Matter Control Device Temperature Monitoring Averaging Period: The averaging period for the particulate matter control device inlet flue gas temperature monitor shall be a four-hour arithmetic block average calculated from four continuous one-hour arithmetic averages.	Minn. R. 7011.1260, subp. 4 Minn. R. 7000.7000 Minn. R. 7007.0800, subp. 2
Calibrate the pressure gauge as required by manufacturing specifications but no less frequent than annually and before each PCDD/PCDF test. Maintain a written record of the calibration and any action resulting from the calibration.	Minn. R. 7007.0800, subp. 2 and 14

TABLE A: LIMITS AND OTHER REQUIREMENTS

04/29/02

Facility Name: Xcel Energy - Key City/ Wilmarth

Permit Number: 01300015 - 001

Subject Item: **EU 001 Boiler #1**

Associated Items: CE 001 Gas Scrubber (General, Not Classified)

CE 002 Fabric Filter - High Temperature, i.e., T>250 Degrees F

GP 001 Waste Combustors

MR 001

MR 002

MR 003 Inlet

MR 004 Inlet

MR 005 Outlet

MR 006 Outlet

MR 007

MR 015

MR 016

SV 001

What to do	Why to do it
EMISSION LIMITS AND COMPLIANCE SCHEDULES	hdr
Applicability of Standards: the standards of Minn. R. 7011.1227, 7011.1228 and 7011.1240, subp. 2, and the emission limits established in this permit and control device inlet temperatures apply at all times when RDF or other fuel is being continuously burned. The standards do not apply, up to a maximum of three hours, during periods of start-up, shutdown or malfunction. Fugitive emissions standards applicable to the ash conveying system do not apply during periods of maintenance and repair of the ash conveying system.	Minn. R. 7011.1215, subp. 4
Applicability of Standards: Permittee shall not cause to be emitted into the atmosphere from EU001 gases in excess of the standards of performance shown in Minn.R. 7011.1227, 7011.1228. Emissions (except for opacity) shall be calculated under standard conditions corrected to seven percent oxygen on a dry volume basis.	Minn. R. 7011.1225, subp. 1(A)
Percent reduction limits must be verified by simultaneously conducting inlet and outlet testing.	Minn. R. 7007.0800, subp. 2
Permittee shall not cause to be emitted into the atmosphere visible emissions of combustion ash from an ash conveying system, including conveyor transfer points, in excess of five percent of the observation period (i.e., 9 minutes per three-hour period), as determined by Code of Federal Regulations, title 40, part 60, Appendix A, Method 22, as amended. This limit does not apply to visible emissions discharged inside buildings or enclosures of ash conveying systems; however, the emission limit does cover visible emissions discharged to the atmosphere from buildings or enclosures of ash conveying systems.	Minn. R. 7011.1225, subp. 1(B)
Front-half Particulate Matter: less than or equal to 0.012 grains/dry standard cubic foot , front-half, corrected to seven percent oxygen as determined by performance test in accordance with Minn. R. 7011.1265.	Minn. R. 7011.1227, Table 1, Minn. R. 7011.1225, subp. 1; Minn. R. 7011.1265
Total Particulate Matter: less than or equal to 0.020 grains/dry standard cubic foot , total, corrected to seven percent oxygen as determined by performance test in accordance with Minn. R. 7011.1265.	Minn. R. 7011.1227, Table 1; Minn. R. 7011.1225, subp. 1; Minn. R. 7011.1265;
Opacity: less than or equal to 10 percent opacity using a six-minute average, calculated using 36 or more data points equally spaced over a six-minute period	Minn. R. 7011.1227, Table 1; Minn. R. 7011.1260, subp. 4(F)
Sulfur Dioxide Emissions: SO2 emission concentration shall be determined by SO2 continuous emissions monitor in accordance with Minn. R. 7011.1260, subp 4a(A).	Minn. R. 7011.1260, subp 4a(A)
SO2 Limit: Whichever is less stringent of the following:1) 75 percent reduction of sulfur dioxide; or 2) a concentration, corrected to seven percent oxygen, of Sulfur Dioxide: less than or equal to 29 parts per million using 24-hour Geometric Average	Minn. R. 7011.1227, Table 1
CO Limit: A concentration corrected to 7 percent oxygen, of Carbon Monoxide: less than or equal to 200 parts per million using 24-hour Block Average	Minn. R. 7011.1227, Table 1
Carbon Monoxide Emissions: CO emission concentrations shall be determined by CO continuous emissions monitors in accordance with Minn. R. 7011.1260.	Minn. R. 7007.0800, subp. 2
Nitrogen oxides at a concentration corrected to 7 percent oxygen less than or equal to 230 ppmv when averaged over all combustor units or, for each individual unit a concentration corrected to seven percent oxygen, of Nitrogen Oxides: less than or equal to 250 parts per million using 24-hour Block Average	Minn. R. 7011.1228; Minn. R. 7011.1260, subp. 4. E.

Facility Name: Xcel Energy - Key City/ Wilmarth

Permit Number: 01300015 - 001

Nitrogen Oxides Emissions: NOx emission concentrations shall be determined by NOx continuous emissions monitor in accordance with Minn. R. 7011.1260, subp 4a(B).	Minn. R. 7011.1260, subp 4a(B)
Nitrogen Oxides Emissions Averaging: Before Permittee may implement emissions averaging to demonstrate compliance with the nitrogen oxides emission limit, Permittee shall identify units that are included in the nitrogen oxides emissions averaging plan in either 1) the compliance report required by Minn. R. 7017.2035 that contains the results of the units' initial performance tests required by Minn. R. 7011.1270, item A, subitem (1); or 2) in the annual report required in part 7011.1285, as applicable prior to implementing the averaging plan. The units being included in the averaging plan may be redesignated every calendar year. Partial year averaging is allowable upon written commissioner approval.	Minn. R. 7011.1228
Lead: less than or equal to 440 micrograms/DSCM corrected to seven percent oxygen as determined in accordance with Minn. R. 7011.1265, subp. 3(C).	Minn. R. 7011.1227, Table 1
Muni Waste Combust Organics: less than or equal to 30 nanograms/DSCM corrected to seven percent oxygen, measured as Total PCDD/PCDF as determined in accordance with Minn. R. 7011.1265, subp. 3(B).	Minn. R. 7011.1227, Table 1
Cadmium compounds: less than or equal to 40 micrograms/DSCM measured as cadmium, corrected to 7% oxygen as determined in accordance with Minn. R. 7011.1265, subp. 3(C).	Minn. R. 7011.1227, Table 1
Performance Test: due 45 days after Permit Issuance for HCl. For additional applicable performance test requirements, see 'General Performance Test Requirements' in Table A, Subject Item "Total Facility".	Minn. R. 7007.0800, subp. 2
HCl Limit: Whichever is less stringent of the following:1) 95 percent reduction of hydrochloric acid; or 2) a concentration, corrected to seven percent oxygen, of Hydrochloric acid: less than or equal to 29 parts per million using 1-Hour Average	Minn. R. 7011.1227, Table 1
Hydrochoric Acid Emissions: HCl emission concentration shall be determined by HCl performance testing in accordance with Minn. R. 7011.1265, subp. 3. A.	Minn. R. 7011.1265, subp. 3. A.
Mercury: less than or equal to 50 micrograms/DSCM corrected to seven percent oxygen; or 85% removal (short term), whichever is less stringent as determined in accordance with Minn. R. 7011.1265, subp. 3(C) and 3(D).	Minn. R. 7011.1227, Table 1
Mercury: less than or equal to 30 micrograms/DSCM corrected to seven percent oxygen; or 85% removal (long-term), whichever is less stringent as determined in accordance with Minn. R. 7011.1265, subp. 3(C) and 3(D).	Minn. R. 7011.1227, Table 1
AVERAGING PERIODS	hdr
Averaging Periods: For emission limits or operational limits which are monitored continously the following averaging periods shall be used: A) for particulate matter control device inlet temperature monitoring, four-hour arithmetic block averages calculated from four continuous one-hour arithmetic averages. B) for unit load, a four-hour arithmetic block average C) the averaging period for carbon monoxide shall be a daily 24-hour arithmetic average measured between 12 midnight and the following midnight. The 24-hour average shall be calculated from one-hour arithmetic averages. At least four points equally spaced in time shall be used to calculate each one-hour average. Each one-hour average shall be corrected to seven percent oxygen on an hourly basis using the one-hour arithmetic average of the oxygen or carbon dioxide continuous emissions monitoring system.	Minn. R. 7011.1260, subp. 4
Averaging Periods (continued) D) for SO2, the geometric average of the 1-hour arithmetic average emission rates concentration during each 24-hour daily period measured from midnight to midnight. At least 4 data points equally spaced in time shall be used to calculate each 1-hour arithmetic average. Each 1-hour average shall be corrected to 7 % O2 on an hourly basis using the one-hour arithmetic average of the O2 or CO2 continuous emissions monitoring system; E) for NOx, the arithmetic average of the 1-hour arithmetic average emission rates concentration during each 24-hour daily period measured from midnight to midnight. At least 4 data points equally spaced in time shall be used to calculate each 1-hour arithmetic average. Each 1-hour average shall be corrected to 7 % O2 on an hourly basis using the 1-hour arithmetic average of the O2 or CO2; F) For opacity, a 6-minute average, calculated using 36 or more data points equally spaced over a 6-minute period.	Minn. R. 7011.1260, subp. 4 (continued)

Sulfur dioxide emissions average calculation. Code of Federal Regulations, title 40, part 60, Appendix A, Method 19, section 5.4, as amended, shall be used to determine the daily geometric average percent reduction in the potential sulfur dioxide emission concentration. Method 19, section 4.3, as amended, shall be used to determine the daily geometric average sulfur dioxide emission concentration using a continuous emission monitor. From these data, a 24-hour daily geometric mean emission concentration and daily geometric mean percent reduction shall be calculated using Method 19, sections 4.3 and 5.4, as amended, as applicable.	Minn. R. 7011.1260, subp. 4a
Nitrogen oxides emissions calculations. Code of Federal Regulations, title 40, part 60, Appendix A, Method 19, section 4.1, as amended, shall be used for determining the daily arithmetic average nitrogen oxides emission concentration by using a continuous emission monitor. From these data, a 24-hour daily arithmetic average emission concentration shall be calculated using Method 19, section 4.1, as amended.	Minn. R. 7011.1260, subp. 4a
OPERATIONAL LIMITS/REQUIREMENTS	hdr
Start-up on RDF Prohibited: During start-up from a cold furnace, use auxiliary fuel to achieve combustion chamber operating temperature.	Minn. R. 7011.1240. subp. 3
Auxiliary Fuel Use: Use natural gas to maintain good combustion conditions in the combustion chamber from the time the RDF feed has been discontinued until the combustion chamber is clear of combustible material or active combustion ceases.	Minn. R. 7007.0800, subp. 2
Maximum Demonstrated Capacity: Permittee shall not operate the waste combustor at a level above 110 percent of the maximum demonstrated capacity of the combustion system as determined during the last PCDD/PCDF performance test without conducting a performance test to establish a new maximum demonstrated capacity under part 7011.1265, (or as specified by Minn. R. 7011.1201, subp. 32) which demonstrates compliance with the emission limitations of 7011.1225 except during the annual PCDD/PCDF performance test and the two weeks prior to this test as limited below.	Minn. R. 7011.1240, subp. 5
During the annual PCDD/PCDF performance test and the two weeks prior to this test, no waste combustor load limitations are applicable. The commissioner shall waive the waste combustor load limits for the purpose of evaluating system performance, URGE testing, testing new technology or control technologies, diagnostic testing or related activities for the purpose of improving facility performance or advancing the state-of-the-art for controlling facility emissions, provided a written notification is submitted to the commissioner 30 days prior to undertaking any of the activities identified above, with the following information: 1) a description of the proposed project, and the outcome the project is designed to evaluate; 2) how the project conforms with the activities described above for which the waste combustor load limit can be waived; 3) the length of time the project will take to complete.	Minn. R. 7011.1240, subp. 5 (continued)
Allowed and Prohibited Fuels: The waste combustor may burn natural gas, distillate fuel oil, used oil generated on site, RDF as defined in Minn. Stat. 115A.03, subp. 21, and other nonhazardous wastes approved through the facility's Industrial Waste Management Plan, except as noted elsewhere in Table A. Used oil shall be burned at a rate no greater than 180 gallons per hour. Used oil means on-specification used oil as defined in Minn. R. 7045.0020, subp.60a and the sorbents that hold the used oil. Permittee shall not combust yard waste or tires.	Minn. R. 7011.1220, subp.2; Minn. R. 7007.0800, subp. 2
Facility Operation: Properly maintain and operate air pollution control equipment at all times when the waste combustor is in operation and combusting RDF. By-pass of the particulate matter pollution control equipment is allowed only during periods of start-up while combusting only natural gas.	Minn. R. 7007.0800, subp. 16(J)
QA Plan Required: Develop and implement a written quality assurance plan which covers each CEMS and COMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain the written procedures listed in Minn. R. 7017.1210, subp. 1.	Minn. R. 7017.1210
RECORDKEEPING	hdr
Recordkeeping: Maintain a file of all of the following CEMS and COMS information, in a form suitable for inspection, on site for a period of 5 years from the date of each record: each one-hour emission average recorded by the CEMS; each six-minute opacity average recorded by the COMS; monitor certification test reports; EERs, RATAs, CGAs, calibration error audit reports; results of daily drift checks; log of adjustments made to the CEMS/COMS and maintenance performed on each CEMS/COMS; and an up-to-date monitor QA/QC plan.	Minn. R. 7017.1130
Recordkeeping: Permittee will maintain a record of continuously measured parameters, as specified in Minn. R. 7011.1260, subp. 6.	Minn. R. 7011.1260, subp. 6; Minn. R. 7007.0800, subp. 2

Recordkeeping: record in the daily operating record the four-hour arithmetic average gas stream temperature as measured at the baghouse inlet during the most recent PCDD/PCDF performance test demonstrating compliance with the PCDD/PCDF emission limit in part 7011.1225.	Minn. R. 7011.1265, subp. 8; Minn. R. 7011.1240, subp. 2
Recordkeeping: record in the daily operating record: 1) the time when RDF begins feeding and the unit load of the steam turbine at that time, 2) the time when the RDF feed to the combustion chamber ceases, 3) the time when pm control equipment bypass begins, and 4) the time when pm control equipment bypass ceases.	Minn. R. 7007.0800, subp. 2
Recordkeeping: Record in the daily operating record: 1) the quantity of waste oil burned on a gallon per hour basis; 2) the hours of the day that the waste oil is burned; and 3) the source of the waste oil.	Minn. R. 7007.0800, subp. 2
Recordkeeping: record time when use of auxiliary fuel begins and is discontinued.	Minn. R. 7007.0800, subp. 2
Shutdown or Breakdown Reporting Requirements. Permittee shall meet the requirements of part 7019.1000 and Minnesota Statutes, section 116.85. Notification to the commissioner for any shutdowns/breakdown is not required if RDF feed is taken off-line in conjunction with a shutdown.	Minn. R. 7011.1240, subp. 8
Recordkeeping: Permittee shall continuously read and record the temperatures of the flue gas at the inlet of the each particulate control device.	Minn. R. 7011.1260, subp. 2
MONITORING REQUIREMENTS	hdr
Continuous Monitoring: Permittee shall install and operate monitors that continuously read and record: a) unit load level as determined through steam flow measurement b) oxygen concentrations at each location where CO, SO2 and NOx emissions are monitored. c) temperatures of the flue gas at the inlet of each particulate matter control device.	Minn. R. 7011.1260, subp. 3; Minn. R. 7011.1265, subp. 4
Installation Notification: due 60 days before installing the COMS/CEMS. Install the CEMS according to the procedures in 40 CFR Appendix B.	Minn. R. 7017.1040, subp. 1; Minn. R. 7011.1260, subp. 3
CEMS Installation: Permittee shall install and operate CEMS for each of the following pollutants: CO, NOx, and SO2.	Minn. R. 7011.1260, subp. 3
Emissions Monitoring: The owner or operator shall use a CEMS to measure NOx, SO2 and CO emissions from this emission unit. The owner or operator shall use a COMS to measure opacity emissions from this emission unit.	Minn. R. 7011.1260, subp. 3; Minn. R. 7017.1006
CEMS QA/QC: The owner or operator of an affected facility shall operate, calibrate, and maintain each CEMS according to the QA/QC procedures in 40 CFR pt. 60, Appendix F, section 3, as amended.	Minn. R. 7011.1260, subp. 5(G)
COMS installation: Permittee shall install and operate a continuous opacity monitoring system (COMS).	Minn. R. 7011.1260, subp. 3
COMS Monitoring Data: Owners or operators of all COMS shall reduce all data to 6 minute averages. Opacity averages shall be calculated from all equally spaced consecutive 10-second (or shorter) data points in the 6 minute averaging period.	Minn. R. 7017.1200, subp. 1, 2, & 3; Minn. R. 7007.0800, subp. 2
CEMS/COMS Continuous Operation: CEMS/COMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit startup, shutdown, or malfunction. This requirement applies whether or not a numerical emission limit applies during these periods. A CEMS/COMS must not be bypassed except in emergencies where failure to bypass the CEMS/COMS would endanger human health, safety, or plant equipment. Monitoring data shall be obtained for at least 75 percent of the hours per day for 90 percent of the days per calendar quarter that the combustor is operating and combusting RDF.	Minn. R. 7011.1260, subp. 5(B); Minn. R. 7017.1090, subp. 1; Minn. R. 7007.0800, subp. 2
CEM/COMS Certification Test: due 90 days after first Excess Emissions Report. This requirement applies to any CEMS which have not previously been certified.	Minn. R. 7017.1050, subp. 1 and Minn. R. 7007.0800, subp. 2
CEM/COMS Certification Test Plan: due 30 days before CEM/COM Certification Test	Minn. R. 7017.1060, subp. 1 and 2 and Minn. R. 7007.0800, subp. 2
CEM/COMS Certification Test Pretest Meeting: due 7 days before CEM/COMS Certification Test	Minn. R. 7017.1060, subp. 3 and Minn. R. 7007.0800, subp. 2
CEM/COMS Certification Test Report: due 45 days after CEM/COMS Certification Test	Minn. R. 7017.1080, subp. 1, 2, and 4 and Minn. R. 7007.0800, subp. 2
CEM/COMS Certification Test Report - Microfiche Copy: due 105 days after CEM/COMS Certification Test	Minn. R. 7017.1080, subp. 3 and Minn. R. 7007.0800, subp. 2
COMS Daily Calibration Drift (CD) Check: The CD shall be quantified and recorded at zero (low-level) and upscale (high-level) opacity at least once daily from each COMS according to the procedures listed in 40CFR 60.13.	Minn. R. 7011.1260, subp. 5(E); Minn. R. 1210, subp. 2

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: Xcel Energy - Key City/ Wilmarth

Permit Number: 01300015 - 001

CEMS Daily Calibration Drift (CD) Test: The CD shall be quantified and recorded at zero (low-level) and upscale (high-level) gas concentrations at least once daily according to the procedures of 40CFR 60.13. 40 CFR pt. 60, Appendix F, shall be used to determine out-of-control periods for CEMS.	Minn. R. 7011.1260, subp. 5(E); Minn. R. 7017.1170, subp. 3
COMS Calibration Error Audit: due before end of each calendar half-year following Permit Issuance. Conduct audits at least 3 months apart but no greater than 8 months apart. Follow the procedures of 40CFR 60, Appendix B, Performance Specification 1.	Minn. R. 7017.1210, subp 3; Minn. R. 7007.0800, subp. 2
COMS Calibration Error Audit Results Summary: due 30 days after end of each calendar quarter following COMS Calibration Error Audit.	Minn. R. 7017.1220; Minn. R. 7007.0800, subp. 2
Cylinder Gas Audit: due before end of each calendar quarter following Permit Issuance except for quarters in which a RATA was performed. This requirement applies to each CEMS as well as each diluent monitor.	Minn. R. 7011.1260, subp. 5(G); Minn. R. 7007.0800, subp. 2
Cylinder Gas Audit (CGA) Results Summary: due 30 days after end of each calendar quarter following Cylinder Gas Audit	Minn. R. 7011.1285, subp. 3(G); Minn. R. 7007.0800, subp. 2; Minn.R. 7017.1180, subp. 1.
CEMS Relative Accuracy Test Audit (RATA): due before end of each calendar year following Permit Issuance. Follow the procedure in 40 CFR pt. 60, Appendix F. The RATA shall be conducted during the calendar quarter in which a cylinder gas audit (CGA) is not performed. This requirement applies to each CEMS individually.	Minn. R. 7011.1260, subp. 5(G); Minn. R. 7007.0800, subp. 2
Relative Accuracy Test Audit (RATA) Notification: Due 30 days before CEMS Relative Accuracy Test Audit (RATA)	Minn. R. 7007.0800, subp. 2; MInn. R. 7017.1180, subp. 2.
Relative Accuracy Test Audit (RATA) Results Summary: due 30 days after end of the calendar quarter in which the Audit was performed	Minn. R. 7011.1285, subp. 3(G); Minn. R. 7007.0800, subp. 2; Minn. R. 7017.1180, subp. 3.
TESTING REQUIREMENTS	hdr
Permittee shall use the performance test methods and procedures specified in Minn. R. 7017.2001 to 7017.2060 except as modified in Minn. R. 7011.1265. Not operating a sorbent injection system for the sole purpose of testing in order to demonstrate compliance with the percent reduction standards for hydrogen chloride is not a modification under Minn. R. 7007.0100, subpart 14.	Minn. R. 7011.1265, subp. 1
Steam flow measurement method. The method contained in ASME Power Test Codes: Test Codes for Steam Generating Units, PTC 4.1 (1972), section 4, shall be used for calculating the steam flow required under Minn. R. 7011.1260, subpart 3, item A, subitem (2). The recommendations of Instruments and Apparatus: Measurement of Quantity of Materials, Interim Supplement 19.5 (1971), chapter 4, shall be followed for design, construction, installation, calibration, and use of nozzles and orifices, except that measurement devices such as flow nozzles and orifices are not required to be recalibrated after they are installed. All signal conversion elements associated with steam flow measurements must be calibrated according to the manufacturer's instructions before each PCDD/PCDF test, and at least once per year. This annual calibration shall be recorded in the daily operating record as described in Minn. R. 7011.1285, subpart 2.	Minn. R. 7011.1265, subp. 4
Operation during performance testing. Permittee shall report to the commissioner the operating conditions including including operating parameters of the air pollution control equipment, flue gas temperatures, and air flow rates.	Minn. R. 7011.1265, subp. 6
Particulate matter control device temperature. Permittee shall determine and record the four-hour arithmetic average gas stream temperature as measured at the inlet to each particulate matter control device during the initial and each subsequent performance test for PCDD/PCDF demonstrating compliance with the PCDD/PCDF emission limit in Minn. R. 7011.1225.	Minn. R. 7011.1265, subp. 8
Exceedance of emission limits: If accurate and valid data results from a performance test demonstrate an exceedance of a standard as set forth in this permit for EU001, Permittee shall undertake the following actions: A. report the exceedance as soon as reasonably possible giving considerations to matters of plant or worker safety, or access to communications and the applicable reporting provisions of Minn. R. 7007.0800, subp. 6; B. within 60 days of the report of the initial exceedance, conduct a performance test and submit the results to the commissioner to demonstrate compliance with this permit; C. If Permittee does not demonstrate compliance within 60 days of the initial report of the exceedance, shut down EU001 on the 61st day;	Minn. Stat. 116.85, subd 3.
D. EU001 may then be restarted solely to conduct performance testing after Permittee has notified the commissioner in writing of the date on which Permittee plans to restart operation of EU001. Notification must be at least 10 days in advance of the date EU001 will resume operation. The notice must state the date performance testing will be conducted. E. Notwithstanding item D, if shutdown under item C is required, EU001 may be restarted after demonstrating compliance and upon approval by the commissioner.	Minn. R. 7011.1265, subp. 11; M.S. 116.85, subd 3. (continued)

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: Xcel Energy - Key City/ Wilmarth

Permit Number: 01300015 - 001

Initial Performance Test: due 180 days after Initial Startup but not to exceed 60 days after achieving the maximum production rate at which the affected facility will be operated to measure front-half PM, Total PM, Total PCDD/PCDF, Opacity, Cd, HCl, Hg, and Pb emissions. Fugitive emissions from the ash conveying system, or buildings or enclosures of ash conveying systems, including conveyor transfer points, must also be conducted. For additional applicable performance test requirements, see 'General Performance Test Requirements' in Table A, Subject Item "Total Facility".	Minn.R. 7017.2020, subp. 1
Performance Test: due before end of each year following Initial Performance Test to measure front-half PM, Total PM, Total PCDD/PCDF, Opacity, Cd, HCl, Hg, Pb fugitive particulate emissions. A year is defined as 12 months. The tests shall be conducted at an interval not to exceed 12 months between test dates. For additional applicable performance test requirements, see 'General Performance Test Requirements' in Table A, Subject Item "Total Facility". If Permittee meets the criteria for decreased testing, per Minn. R. 7011.1270, the Permittee shall submit a notification stating testing will not be conducted that year. The basis for not testing must be stated. In addition, the notification shall specify the Total PCDD/PCDF results from the previous test. When the Permittee provides notification that a test will not be conducted because permit criteria are met for less frequent testing, the test plan, pre-test meeting, test report, and microfiche copy of the test report requirements are waived for that yearly test	Minn. R. 7017.2020, subp. 1 Minn. R. 7011.1270(A); Minn. R. 7000.7000; MInn. R. 7017.2030, subp. 1; Minn. R. 7007.0800, subp. 2
Permittee shall conduct performance tests as described below: If all PCDD/PCDF performance tests for all units for a two-year period indicate that PCDD/PCDF emissions are less than or equal to 15 ng/dscm corrected to seven percent oxygen from each unit, then Permittee may choose to test one unit for PCDD/PCDF once annually thereafter, but not more than 12 months following the previous performance test. Permittee may continue to test a different unit for PCDD/PCDF each year, in sequence (e.g. unit 1, unit 2, etc.). If any annual performance test demonstrates a PCDD/PCDF concentration greater than 15 ng/dscm corrected to seven percent oxygen, performance tests thereafter shall be conducted annually on all units and until all annual performance tests for all units for a two-year period indicate a PCDD/PCDF emission concentration less than or equal to 15 ng/dscm.	Minn. R. 7017.2020, subp. 1 Minn. R. 7011.1270
Hg test frequency: If a test shows that an emission limit for mercury from EU001 is exceeded, the commissioner shall require testing every three months thereafter until compliance with the standard is demonstrated.	Minn. R. 7017.2020, subp. 1; Minn. R. 7011.1270; Minn. R. 7011.1265, subp.(A)(5)

TABLE A: LIMITS AND OTHER REQUIREMENTS

04/29/02

Facility Name: Xcel Energy - Key City/ Wilmarth

Permit Number: 01300015 - 001

Subject Item: **EU 002 Boiler #2**

Associated Items: CE 003 Gas Scrubber (General, Not Classified)

CE 004 Fabric Filter - High Temperature, i.e., T>250 Degrees F

GP 001 Waste Combustors

MR 008

MR 009

MR 010 Inlet

MR 011 Inlet

MR 012 Outlet

MR 013 Outlet

MR 014

MR 017

MR 018

SV 002

What to do	Why to do it
EMISSION LIMITS AND COMPLIANCE SCHEDULES	hdr
Applicability of Standards: the standards of Minn. R. 7011.1227, 7011.1228 and 7011.1240, subp. 2, and the emission limits established in this permit and control device inlet temperatures apply at all times when RDF or other fuel is being continuously burned. The standards do not apply, up to a maximum of three hours, during periods of start-up, shutdown or malfunction. Fugitive emissions standards applicable to the ash conveying system do not apply during periods of maintenance and repair of the ash conveying system.	Minn. R. 7011.1215, subp. 4
Applicability of Standards: Permittee shall not cause to be emitted into the atmosphere from EU002 gases in excess of the standards of performance shown in Minn.R. 7011.1227, 7011.1228. Emissions (except for opacity) shall be calculated under standard conditions corrected to seven percent oxygen on a dry volume basis.	Minn. R. 7011.1225, subp. 1(A)
Percent reduction limits must be verified by simultaneously conducting inlet and outlet testing.	Minn. R. 7007.0800, subp. 2
Permittee shall not cause to be emitted into the atmosphere visible emissions of combustion ash from an ash conveying system, including conveyor transfer points, in excess of five percent of the observation period (i.e., 9 minutes per three-hour period), as determined by Code of Federal Regulations, title 40, part 60, Appendix A, Method 22, as amended. This limit does not apply to visible emissions discharged inside buildings or enclosures of ash conveying systems; however, the emission limit does cover visible emissions discharged to the atmosphere from buildings or enclosures of ash conveying systems.	Minn. R. 7011.1225, subp. 1(B)
Front-half Particulate Matter: less than or equal to 0.012 grains/dry standard cubic foot , front-half, corrected to seven percent oxygen as determined by performance test in accordance with Minn. R. 7011.1265.	Minn. R. 7011.1227, Table 1, Minn. R. 7011.1225, subp. 1; Minn. R. 7011.1265
Total Particulate Matter: less than or equal to 0.020 grains/dry standard cubic foot , total, corrected to seven percent oxygen as determined by performance test in accordance with Minn. R. 7011.1265.	Minn. R. 7011.1227, Table 1; Minn. R. 7011.1225, subp. 1; Minn. R. 7011.1265;
Opacity: less than or equal to 10 percent opacity using a six-minute average, calculated using 36 or more data points equally spaced over a six-minute period	Minn. R. 7011.1227, Table 1; Minn. R. 7011.1260, subp. 4(F)
Sulfur Dioxide Emissions: SO2 emission concentration shall be determined by SO2 continuous emissions monitor in accordance with Minn. R. 7011.1260, subp 4a(A).	Minn. R. 7011.1260, subp 4a(A)
SO2 Limit: Whichever is less stringent of the following:1) 75 percent reduction of sulfur dioxide; or 2) a concentration, corrected to seven percent oxygen, of Sulfur Dioxide: less than or equal to 29 parts per million using 24-hour Geometric Average	Minn. R. 7011.1227, Table 1
CO Limit: A concentration corrected to 7 percent oxygen, of Carbon Monoxide: less than or equal to 200 parts per million using 24-hour Block Average	Minn. R. 7011.1227, Table 1
Carbon Monoxide Emissions: CO emission concentrations shall be determined by CO continuous emissions monitors in accordance with Minn. R. 7011.1260.	Minn. R. 7007.0800, subp. 2
Nitrogen oxides at a concentration corrected to 7 percent oxygen less than or equal to 230 ppmv when averaged over all combustor units or, for each individual unit a concentration corrected to seven percent oxygen, of Nitrogen Oxides: less than or equal to 250 parts per million using 24-hour Block Average	Minn. R. 7011.1228; Minn. R. 7011.1260, subp. 4. E.

Nitrogen Oxides Emissions: NOx emission concentrations shall be determined by NOx continuous emissions monitor in accordance with Minn. R. 7011.1260, subp 4a(B).	Minn. R. 7011.1260, subp 4a(B)
Nitrogen Oxides Emissions Averaging: Before Permittee may implement emissions averaging to demonstrate compliance with the nitrogen oxides emission limit, Permittee shall identify units that are included in the nitrogen oxides emissions averaging plan in either 1) the compliance report required by Minn. R. 7017.2035 that contains the results of the units' initial performance tests required by Minn. R. 7011.1270, item A, subitem (1); or 2) in the annual report required in part 7011.1285, as applicable prior to implementing the averaging plan. The units being included in the averaging plan may be redesignated every calendar year. Partial year averaging is allowable upon written commissioner approval.	Minn. R. 7011.1228
Lead: less than or equal to 440 micrograms/DSCM corrected to seven percent oxygen as determined in accordance with Minn. R. 7011.1265, subp. 3(C).	Minn. R. 7011.1227, Table 1
Muni Waste Combust Organics: less than or equal to 30 nanograms/DSCM corrected to seven percent oxygen, measured as Total PCDD/PCDF as determined in accordance with Minn. R. 7011.1265, subp. 3(B).	Minn. R. 7011.1227, Table 1
Cadmium compounds: less than or equal to 40 micrograms/DSCM measured as cadmium, corrected to 7% oxygen as determined in accordance with Minn. R. 7011.1265, subp. 3(C).	Minn. R. 7011.1227, Table 1
Performance Test: due 45 days after Permit Issuance for HCl. For additional applicable performance test requirements, see 'General Performance Test Requirements' in Table A, Subject Item "Total Facility".	Minn. R. 7007.0800, subp. 2
HCl Limit: Whichever is less stringent of the following:1) 95 percent reduction of hydrochloric acid; or 2) a concentration, corrected to seven percent oxygen, of Hydrochloric acid: less than or equal to 29 parts per million using 1-Hour Average	Minn. R. 7011.1227, Table 1
Hydrochoric Acid Emissions: HCl emission concentration shall be determined by HCl performance testing in accordance with Minn. R. 7011.1265, subp. 3. A.	Minn. R. 7011.1265, subp. 3. A.
Mercury: less than or equal to 50 micrograms/DSCM corrected to seven percent oxygen; or 85% removal (short term), whichever is less stringent as determined in accordance with Minn. R. 7011.1265, subp. 3(C) and 3(D).	Minn. R. 7011.1227, Table 1
Mercury: less than or equal to 30 micrograms/DSCM corrected to seven percent oxygen; or 85% removal (long-term), whichever is less stringent as determined in accordance with Minn. R. 7011.1265, subp. 3(C) and 3(D).	Minn. R. 7011.1227, Table 1
AVERAGING PERIODS	hdr
Averaging Periods: For emission limits or operational limits which are monitored continously the following averaging periods shall be used: A) for particulate matter control device inlet temperature monitoring, four-hour arithmetic block averages calculated from four continuous one-hour arithmetic averages. B) for unit load, a four-hour arithmetic block average C) the averaging period for carbon monoxide shall be a daily 24-hour arithmetic average measured between 12 midnight and the following midnight. The 24-hour average shall be calculated from one-hour arithmetic averages. At least four points equally spaced in time shall be used to calculate each one-hour average. Each one-hour average shall be corrected to seven percent oxygen on an hourly basis using the one-hour arithmetic average of the oxygen or carbon dioxide continuous emissions monitoring system.	Minn. R. 7011.1260, subp. 4
Averaging Periods (continued) D) for SO2, the geometric average of the 1-hour arithmetic average emission rates concentration during each 24-hour daily period measured from midnight to midnight. At least 4 data points equally spaced in time shall be used to calculate each 1-hour arithmetic average. Each 1-hour average shall be corrected to 7 % O2 on an hourly basis using the one-hour arithmetic average of the O2 or CO2 continuous emissions monitoring system; E) for NOx, the arithmetic average of the 1-hour arithmetic average emission rates concentration during each 24-hour daily period measured from midnight to midnight. At least 4 data points equally spaced in time shall be used to calculate each 1-hour arithmetic average. Each 1-hour average shall be corrected to 7 % O2 on an hourly basis using the 1-hour arithmetic average of the O2 or CO2; F) For opacity, a 6-minute average, calculated using 36 or more data points equally spaced over a 6-minute period.	Minn. R. 7011.1260, subp. 4 (continued)

Sulfur dioxide emissions average calculation. Code of Federal Regulations, title 40, part 60, Appendix A, Method 19, section 5.4, as amended, shall be used to determine the daily geometric average percent reduction in the potential sulfur dioxide emission concentration. Method 19, section 4.3, as amended, shall be used to determine the daily geometric average sulfur dioxide emission concentration using a continuous emission monitor. From these data, a 24-hour daily geometric mean emission concentration and daily geometric mean percent reduction shall be calculated using Method 19, sections 4.3 and 5.4, as amended, as applicable.	Minn. R. 7011.1260, subp. 4a
Nitrogen oxides emissions calculations. Code of Federal Regulations, title 40, part 60, Appendix A, Method 19, section 4.1, as amended, shall be used for determining the daily arithmetic average nitrogen oxides emission concentration by using a continuous emission monitor. From these data, a 24-hour daily arithmetic average emission concentration shall be calculated using Method 19, section 4.1, as amended.	Minn. R. 7011.1260, subp. 4a
OPERATIONAL LIMITS/REQUIREMENTS	hdr
Start-up on RDF Prohibited: During start-up from a cold furnace, use auxiliary fuel to achieve combustion chamber operating temperature.	Minn. R. 7011.1240. subp. 3
Auxiliary Fuel Use: Use natural gas to maintain good combustion conditions in the combustion chamber from the time the RDF feed has been discontinued until the combustion chamber is clear of combustible material or active combustion ceases.	Minn. R. 7007.0800, subp. 2
Maximum Demonstrated Capacity: Permittee shall not operate the waste combustor at a level above 110 percent of the maximum demonstrated capacity of the combustion system as determined during the last PCDD/PCDF performance test without conducting a performance test to establish a new maximum demonstrated capacity under part 7011.1265, (or as specified by Minn. R. 7011.1201, subp. 32) which demonstrates compliance with the emission limitations of 7011.1225 except during the annual PCDD/PCDF performance test and the two weeks prior to this test as limited below.	Minn. R. 7011.1240, subp. 5
During the annual PCDD/PCDF performance test and the two weeks prior to this test, no waste combustor load limitations are applicable. The commissioner shall waive the waste combustor load limits for the purpose of evaluating system performance, URGE testing, testing new technology or control technologies, diagnostic testing or related activities for the purpose of improving facility performance or advancing the state-of-the-art for controlling facility emissions, provided a written notification is submitted to the commissioner 30 days prior to undertaking any of the activities identified above, with the following information: 1) a description of the proposed project, and the outcome the project is designed to evaluate; 2) how the project conforms with the activities described above for which the waste combustor load limit can be waived; 3) the length of time the project will take to complete.	Minn. R. 7011.1240, subp. 5 (continued)
Allowed and Prohibited Fuels: The waste combustor may burn natural gas, distillate fuel oil, used oil generated on site, RDF as defined in Minn. Stat. 115A.03, subp. 21, and other nonhazardous wastes approved through the facility's Industrial Waste Management Plan, except as noted elsewhere in Table A. Used oil shall be burned at a rate no greater than 180 gallons per hour. Used oil means on-specification used oil as defined in Minn. R. 7045.0020, subp.60a and the sorbents that hold the used oil. Permittee shall not combust yard waste or tires.	Minn. R. 7011.1220, subp.2; Minn. R. 7007.0800, subp. 2
Facility Operation: Properly maintain and operate air pollution control equipment at all times when the waste combustor is in operation and combusting RDF. By-pass of the particulate matter pollution control equipment is allowed only during periods of start-up while combusting only natural gas.	Minn. R. 7007.0800, subp. 16(J)
QA Plan Required: Develop and implement a written quality assurance plan which covers each CEMS and COMS. The plan shall be on site and available for inspection within 30 days after monitor certification. The plan shall contain the written procedures listed in Minn. R. 7017.1210, subp. 1.	Minn. R. 7017.1210
RECORDKEEPING	hdr
Recordkeeping: Maintain a file of all of the following CEMS and COMS information, in a form suitable for inspection, at facility for a period of 5 years from the date of each record: each one-hour emission average recorded by the CEMS; each six-minute opacity average recorded by the COMS; monitor certification test reports; EERs, RATAs, CGAs, calibration error audit reports; results of daily drift checks; log of adjustments made to the CEMS/COMS and maintenance performed on each CEMS/COMS; and an up-to-date monitor QA/QC plan.	Minn. R. 7017.1130
Recordkeeping: Permittee will maintain a record of continuously measured parameters, as specified in Minn. R. 7011.1260, subp. 6.	Minn. R. 7011.1260, subp. 6; Minn. R. 7007.0800, subp. 2

Recordkeeping: record in the daily operating record the four-hour arithmetic average gas stream temperature as measured at the baghouse inlet during the most recent PCDD/PCDF performance test demonstrating compliance with the PCDD/PCDF emission limit in part 7011.1225.	Minn. R. 7011.1265, subp. 8; Minn. R. 7011.1240, subp. 2
Recordkeeping: record in the daily operating record: 1) the time when RDF begins feeding and the unit load of the steam turbine at that time, 2) the time when the RDF feed to the combustion chamber ceases, 3) the time when pm control equipment bypass begins, and 4) the time when pm control equipment bypass ceases.	Minn. R. 7007.0800, subp. 2
Recordkeeping: Record in the daily operating record: 1) the quantity of waste oil burned on a gallon per hour basis; 2) the hours of the day that the waste oil is burned; and 3) the source of the waste oil.	Minn. R. 7007.0800, subp. 2
Recordkeeping: record time when use of auxiliary fuel begins and is discontinued.	Minn. R. 7007.0800, subp. 2
Shutdown or Breakdown Reporting Requirements. Permittee shall meet the requirements of part 7019.1000 and Minnesota Statutes, section 116.85. Notification to the commissioner for any shutdowns/breakdown is not required if RDF feed is taken off-line in conjunction with a shutdown.	Minn. R. 7011.1240, subp. 8
Recordkeeping: Permittee shall continuously read and record the temperatures of the flue gas at the inlet of the each particulate control device.	Minn. R. 7011.1260, subp. 2
MONITORING REQUIREMENTS	hdr
Continuous Monitoring: Permittee shall install and operate monitors that continuously read and record: a) unit load level as determined through steam flow measurement b) oxygen concentrations at each location where CO, SO2 and NOx emissions are monitored. c) temperatures of the flue gas at the inlet of each particulate matter control device.	Minn. R. 7011.1260, subp. 3; Minn. R. 7011.1265, subp. 4
Installation Notification: due 60 days before installing the COMS/CEMS. Install the CEMS according to the procedures in 40 CFR Appendix B.	Minn. R. 7017.1040, subp. 1; Minn. R. 7011.1260, subp. 3
CEMS Installation: Permittee shall install and operate CEMS for each of the following pollutants: CO, NOx, and SO2.	Minn. R. 7011.1260, subp. 3
Emissions Monitoring: The owner or operator shall use a CEMS to measure NOx, SO2 and CO emissions from this emission unit. The owner or operator shall use a COMS to measure opacity emissions from this emission unit.	Minn. R. 7011.1260, subp. 3; Minn. R. 7017.1006
CEMS QA/QC: The owner or operator of an affected facility shall operate, calibrate, and maintain each CEMS according to the QA/QC procedures in 40 CFR pt. 60, Appendix F, section 3, as amended.	Minn. R. 7011.1260, subp. 5(G)
COMS installation: Permittee shall install and operate a continuous opacity monitoring system (COMS).	Minn. R. 7011.1260, subp. 3
COMS Monitoring Data: Owners or operators of all COMS shall reduce all data to 6 minute averages. Opacity averages shall be calculated from all equally spaced consecutive 10-second (or shorter) data points in the 6 minute averaging period.	Minn. R. 7017.1200, subp. 1, 2, & 3; Minn. R. 7007.0800, subp. 2
CEMS/COMS Continuous Operation: CEMS/COMS must be operated and data recorded during all periods of emission unit operation including periods of emission unit startup, shutdown, or malfunction. This requirement applies whether or not a numerical emission limit applies during these periods. A CEMS/COMS must not be bypassed except in emergencies where failure to bypass the CEMS/COMS would endanger human health, safety, or plant equipment. Monitoring data shall be obtained for at least 75 percent of the hours per day for 90 percent of the days per calendar quarter that the combustor is operating and combusting RDF.	Minn. R. 7011.1260, subp. 5(B); Minn. R. 7017.1090, subp. 1; Minn. R. 7007.0800, subp. 2
CEM/COMS Certification Test: due 90 days after first Excess Emissions Report. This requirement applies to any CEMS which have not previously been certified.	Minn. R. 7017.1050, subp. 1 and Minn. R. 7007.0800, subp. 2
CEM/COMS Certification Test Plan: due 30 days before CEM/COM Certification Test	Minn. R. 7017.1060, subp. 1 and 2 and Minn. R. 7007.0800, subp. 2
CEM/COMS Certification Test Pretest Meeting: due 7 days before CEM/COMS Certification Test	Minn. R. 7017.1060, subp. 3 and Minn. R. 7007.0800, subp. 2
CEM/COMS Certification Test Report: due 45 days after CEM/COMS Certification Test	Minn. R. 7017.1080, subp. 1, 2, and 4 and Minn. R. 7007.0800, subp. 2
CEM/COMS Certification Test Report - Microfiche Copy: due 105 days after CEM/COMS Certification Test	Minn. R. 7017.1080, subp. 3 and Minn. R. 7007.0800, subp. 2
COMS Daily Calibration Drift (CD) Check: The CD shall be quantified and recorded at zero (low-level) and upscale (high-level) opacity at least once daily from each COMS according to the procedures listed in 40CFR 60.13.	Minn. R. 7011.1260, subp. 5(E); Minn. R. 1210, subp. 2

Facility Name: Xcel Energy - Key City/ Wilmarth

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CEMS Daily Calibration Drift (CD) Test: The CD shall be quantified and recorded at zero (low-level) and upscale (high-level) gas concentrations at least once daily according to the procedures of 40CFR 60.13. 40 CFR pt. 60, Appendix F, shall be used to determine out-of-control periods for CEMS.	Minn. R. 7011.1260, subp. 5(E) and Minn. R. 7017.1170, subp. 3
COMS Calibration Error Audit: due before end of each calendar half-year following Permit Issuance. Conduct audits at least 3 months apart but no greater than 8 months apart. Follow the procedures of 40CFR 60, Appendix B, Performance Specification 1.	Minn. R. 7017.1210, subp 3; Minn. R. 7007.0800, subp. 2
COMS Calibration Error Audit Results Summary: due 30 days after end of each calendar quarter following COMS Calibration Error Audit.	Minn. R. 7017.1220; Minn. R. 7007.0800, subp. 2
Cylinder Gas Audit: due before end of each calendar quarter following Permit Issuance except for quarters in which a RATA was performed. This requirement applies to each CEMS as well as each diluent monitor.	Minn. R. 7011.1260, subp. 5(G); Minn. R. 7007.0800, subp. 2
Cylinder Gas Audit (CGA) Results Summary: due 30 days after end of each calendar quarter following Cylinder Gas Audit	Minn. R. 7011.1285, subp. 3(G); Minn. R. 7007.0800, subp. 2; Minn. R. 7017.1180, subp. 1.
CEMS Relative Accuracy Test Audit (RATA): due before end of each calendar year following Permit Issuance. Follow the procedure in 40 CFR pt. 60, Appendix F. The RATA shall be conducted during the calendar quarter in which a cylinder gas audit (CGA) is not performed. This requirement applies to each CEMS individually.	Minn. R. 7011.1260, subp. 5(G); Minn. R. 7007.0800, subp. 2
Relative Accuracy Test Audit (RATA) Notification: Due 30 days before CEMS Relative Accuracy Test Audit (RATA)	Minn. R. 7007.0800, subp. 2; Minn. R. 7017.1180, subp. 2.
Relative Accuracy Test Audit (RATA) Results Summary: due 30 days after end of the calendar quarter in which the Audit was performed	Minn. R. 7011.1285, subp. 3(G); Minn. R. 7007.0800, subp. 2; Minn. R. 7017.1180, subp. 3.
TESTING REQUIREMENTS	hdr
Permittee shall use the performance test methods and procedures specified in Minn. R. 7017.2001 to 7017.2060 except as modified in Minn. R. 7011.1265. Not operating a sorbent injection system for the sole purpose of testing in order to demonstrate compliance with the percent reduction standards for hydrogen chloride is not a modification under Minn. R. 7007.0100, subpart 14.	Minn. R. 7011.1265, subp. 1
Steam flow measurement method. The method contained in ASME Power Test Codes: Test Codes for Steam Generating Units, PTC 4.1 (1972), section 4, shall be used for calculating the steam flow required under Minn. R. 7011.1260, subpart 3, item A, subitem (2). The recommendations of Instruments and Apparatus: Measurement of Quantity of Materials, Interim Supplement 19.5 (1971), chapter 4, shall be followed for design, construction, installation, calibration, and use of nozzles and orifices, except that measurement devices such as flow nozzles and orifices are not required to be recalibrated after they are installed. All signal conversion elements associated with steam flow measurements must be calibrated according to the manufacturer's instructions before each PCDD/PCDF test, and at least once per year. This annual calibration shall be recorded in the daily operating record as described in Minn. R. 7011.1285, subpart 2.	Minn. R. 7011.1265, subp. 4
Operation during performance testing. Permittee shall report to the commissioner the operating conditions including including operating parameters of the air pollution control equipment, flue gas temperatures, and air flow rates.	Minn. R. 7011.1265, subp. 6
Particulate matter control device temperature. Permittee shall determine and record the four-hour arithmetic average gas stream temperature as measured at the inlet to each particulate matter control device during the initial and each subsequent performance test for PCDD/PCDF demonstrating compliance with the PCDD/PCDF emission limit in Minn. R. 7011.1225.	Minn. R. 7011.1265, subp. 8
Exceedance of emission limits: If accurate and valid data results from a performance test demonstrate an exceedance of a standard as set forth in this permit for EU002, Permittee shall undertake the following actions: A. report the exceedance as soon as reasonably possible giving considerations to matters of plant or worker safety, or access to communications and the applicable reporting provisions of Minn. R. 7007.0800, subp. 6; B. within 60 days of the report of the initial exceedance, conduct a performance test and submit the results to the commissioner to demonstrate compliance with this permit; C. If Permittee does not demonstrate compliance within 60 days of the initial report of the exceedance, shut down EU002 on the 61st day;	Minn. Stat. 116.85, subd. 3
D. EU002 may then be restarted solely to conduct performance testing after Permittee has notified the commissioner in writing of the date on which Permittee plans to restart operation of EU002. Notification must be at least 10 days in advance of the date EU002 will resume operation. The notice must state the date performance testing will be conducted. E. Notwithstanding item D, if shutdown under item C is required, EU002 may be restarted after demonstrating compliance and upon approval by the commissioner.	Minn. R. 7011.1265, subp. 11 (continued)

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: Xcel Energy - Key City/ Wilmarth

Permit Number: 01300015 - 001

Initial Performance Test: due 180 days after Initial Startup but not to exceed 60 days after achieving the maximum production rate at which the affected facility will be operated to measure front-half PM, Total PM, Total PCDD/PCDF, Opacity, Cd, HCl, Hg, and Pb emissions. Fugitive emissions from the ash conveying system, or buildings or enclosures of ash conveying systems, including conveyor transfer points, must also be conducted. For additional applicable performance test requirements, see 'General Performance Test Requirements' in Table A, Subject Item "Total Facility".	Minn.R. 7017.2020, subp. 1
Performance Test: due before end of each year following Initial Performance Test to measure front-half PM, Total PM, Total PCDD/PCDF, Opacity, Cd, HCl, Hg, Pb and fugitive particulate emissions. A year is defined as 12 months. The tests shall be conducted at an interval not to exceed 12 months between test dates. For additional applicable performance test requirements, see 'General Performance Test Requirements' in Table A, Subject Item "Total Facility". If Permittee meets the criteria for decreased testing, per Minn. R. 7011.1270, the Permittee shall submit a notification stating testing will not be conducted that year. The basis for not testing must be stated. In addition, the notification shall specify the Total PCDD/PCDF results from the previous test. When the Permittee provides notification that a test will not be conducted because permit criteria are met for less frequent testing, the test plan, pre-test meeting, test report, and microfiche copy of the test report requirements are waived for that yearly test	Minn. R. 7017.2020, subp. 1 Minn. R. 7011.1270(A); Minn. R. 7000.7000; MInn. R. 7017.2030, subp. 1; Minn. R. 7007.0800, subp. 2
Permittee shall conduct performance tests as described below: If all PCDD/PCDF performance tests for all units for a two-year period indicate that PCDD/PCDF emissions are less than or equal to 15 ng/dscm corrected to seven percent oxygen from each unit, then Permittee may choose to test one unit for PCDD/PCDF once annually thereafter, but not more than 12 months following the previous performance test. Permittee may continue to test a different unit for PCDD/PCDF each year, in sequence (e.g. unit 1, unit 2, etc.). If any annual performance test demonstrates a PCDD/PCDF concentration greater than 15 ng/dscm corrected to seven percent oxygen, performance tests thereafter shall be conducted annually on all units and until all annual performance tests for all units for a two-year period indicate a PCDD/PCDF emission concentration less than or equal to 15 ng/dscm.	Minn. R. 7017.2020, subp. 1 Minn. R. 7011.1270
Hg test frequency: If a test shows that an emission limit for mercury from EU002 is exceeded, the commissioner shall require testing every three months thereafter until compliance with the standard is demonstrated.	Minn. R. 7017.2020, subp. 1; Minn. R. 7011.1270; Minn. R. 7011.1265, subp.(A)(5)

TABLE B: SUBMITTALS

04/29/02

Facility Name: Xcel Energy - Key City/ Wilmarth

Permit Number: 01300015 - 001

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

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

Send any application for a permit or permit amendment to:

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

Also, where required by an applicable rule or permit condition, send to the Permit Technical Advisor notices of:
- accumulated insignificant activities,
- installation of control equipment,
- replacement of an emissions unit, and
- changes that contravene a permit term.

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

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

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

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

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

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

TABLE B: ONE TIME SUBMITTALS OR NOTIFICATIONS

04/29/02

Facility Name: Xcel Energy - Key City/ Wilmarth

Permit Number: 01300015 - 001

What to send	When to send	Portion of Facility Affected
Application for Permit Reissuance	due 180 days before expiration of Existing Permit	Total Facility
Deviations Report	due 2 days after Discovery of Deviation . Submit a written description of any deviations endangering human health or the environment to the Commissioner. Include the following information in this written description: cause of the deviation; exact dates of the period of the deviation; if the deviation has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the deviation.	Total Facility
Fugitive Control Plan	due 60 days after Permit Issuance. The plan shall identify all fugitive emission sources, primary and contingent control measures, and recordkeeping. Permittee shall follow the actions and recordkeeping specified in the control plan.	Total Facility
Notification	due 30 days after Resuming Operation on distillate fuel oil by any emission unit in GP 003. The notification shall specify the date that distillate fuel oil combustion commenced.	GP003
Submittal	due 30 days after Initial Performance Test, the intial performance test data, performance evaluation of the CEMS using applicable performance specifications in Minn. R. 7017.1000, and the maximum demonstrated capacity and particulate matter control device temperature established during PCDD/PCDF testing.	GP001
Submittal	due 90 days after Permit Issuance a plan for handling waste that has not been processed into refuse derived fuel (RDF).	Total Facility
Submittal	due 90 days after Permit Issuance the plans required by Minn. R. 7011.1245 A to H as described in the Total Facility Section of Table A, identifying which required portions are not applicable. Keep the plans with the Operating Manual.	Total Facility
Submittal	due 90 days after Permit Issuance, a fractional analysis of the waste stream from which the refuse derived fuel (RDF) is produced as decribed in Minn. R. 7007.0501, subp 2(A)(1) including a measurement of the noncombustible fraction of solid waste.	Total Facility
Submittal	due before 12/31/2003, a waste composition study (conducted on each waste stream from which the RDF is produced) every five years as described in Minn. R. 7007.0501, subp. 2A. The Waste Composition Study and Sample Analysis Report is due 45 days after the end of each five years starting from 12/1998.	Total Facility

TABLE B: RECURRENT SUBMITTALS

04/29/02

Facility Name: Xcel Energy - Key City/ Wilmarth

Permit Number: 01300015 - 001

What to send	When to send	Portion of Facility Affected
Excess Emissions/Downtime Reports (EER's)	due 30 days after end of each calendar quarter following Permit Issuance (Submit Deviations Reporting Form DRF-1 as amended). The EER shall indicate all periods of CEMS/COMS bypass and all periods of exceedances of the limit including exceedances allowed by an applicable standard, i.e. during startup, shutdown, and malfunctions.	GP001
Quarterly Report	due 30 days after end of each calendar quarter following Permit Issuance. The Report contents are listed in the Group 001 Section of Table A.	GP001
Semiannual Deviations Report	due 30 days after end of each calendar half-year following Permit Issuance. The first semiannual report submitted by 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. Use of the Quarterly EER is permitted for Deviations Report Form-1.	Total Facility
Compliance Certification	due 31 days after end of each calendar year following Permit Issuance (for the previous calendar year). To be submitted on a form approved by the Commissioner, 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
Submittal	due 73 days after end of each calendar year following Permit Issuance an Ash Testing Report. Submit the annual ash testing report to the Commissioner by March 15 of each year. The report must contain at a minimum the information in Minn. R. 7035.2910, subp. 10A - F.	Total Facility

APPENDIX MATERIAL
Facility Name:NSP - Key City/ Wilmarth
Permit Number: 01300015-001

APPENDIX I

Visible Emissions Checklist(s) Requirements

Emission Units and Stack/Vents:
Lime storage silo (EU 015)

Visible Emissions Checklist(s): The Permittee shall check for visible emissions during daylight hours at least once each month. If visible emissions are observed, the permittee shall determine the cause and take corrective actions as soon as possible. The results of the check shall be recorded on a checklist containing the following:

1) Printed name of observer;
2) Signature of observer;
3) Date and time of observation;
4) Indication of process and control equipment performance, either "requires attention", or "does not require attention". This determination is based upon an observed change in visible emission characteristics from that observed when this source and its pollution control equipment are properly operated and maintained. A change in visible emission characteristics will be indicative of "requires attention";
5) Description of investigation and corrective actions completed for each “requires attention” observation;
6) Weather conditions (temperature, cloud cover, wind, precipitation);
7) Indication if plume were limited by visible moisture in the plume;
8) Emission unit (EU) and Stack/Vent (SV) ID number(s); and
9) Short description of emission unit.

APPENDIX II

RDF TRANSFER STATION AND UNLOADING AREA HOUSEKEEPING PLAN

Introduction

During the course of normal unloading activities, RDF can become airborne from the open side of the RDF unloading area from semi-trailers unloading RDF on to the walking floor conveyer. It is necessary to implement the following housekeeping procedures to minimize fugitive RDF or particulate emissions from open doors.

Precautions

Fugitive RDF should be collected and placed in the RDF storage area or the conveying system.

Housekeeping

To minimize the opportunity for RDF to become airborne, facility personnel shall conduct the following:

1. Clean up of truck bays and conveying system at the receiving facility by plant personal as needed.
2. Clean up of receiving facility grounds by plant personnel as needed.
3. Doors between Transfer station and Receiving facility will be kept closed unless RDF is being loaded loading from transfer station to conveying system.
4. Drivers hauling RDF are to inspect and clean off loose RDF or debris caught on door ledges or tires of the trailers before leaving the site.

Traffic Control

Any equipment utilized in the area shall be confined to the Processing Facility. If necessary to take unit from facility, all wheels shall be inspected for loose RDF prior to leaving.

Inspections

Visual inspections of the Unloading area are conducted at least weekly by Plant Operators while performing routine walk downs of the plant systems and equipment

APPENDIX III

INSIGNIFICANT ACTIVITIES

Insignificant Activities Applicable Requirements

Stationary Internal Combustion Engine Requirements

Minn. R	Requirement
7011.2300, subp. 1	Opacity: less than or equal to 20% once operating temperatures have been attained.
7011.2300, subp. 2	Sulfur dioxide: less than or equal to 0.5 lbs./MMBtu heat input.

RDF Conveyor

Minn. R	Requirement
7011.0715, subp. 1(A)	Particulate Matter: less than or equal to 31.23 lb./hr.
7011.0715, subp. 1(B)	Opacity: less than or equal to 20%.
7007.0800, subp. 2	Biannual Method 9 Test

Auxiliary Boiler

Minn. R	Requirement
7011.0515, subp. 1	Total particulate matter: less than or equal to 0.4 lb./MMBtu heat input.
7011.0515, subp. 2	Opacity: less than or equal to 20% except for one six-minute period per hour of not more than 60% opacity. An exceedance of this opacity standard occurs whenever any one-hour period contains two or more six-minute periods during which the average opacity exceeds 20% or whenever any one-hour period contains one or more six-minute

	periods during which the average opacity exceeds 60%.

Lime Silo Storage

Minn. R	Requirement
7011.0715, subp. 1(A)	Particulate Matter: less than or equal to 0.100 gr./dscf.
7011.0715, subp. 1(B)	Opacity: less than or equal to 20%.
7007.0800, subp. 2	Visible emissions check: Permittee shall check visible emissions from the lime storage silo whenever filling. A checklist meeting the requirements set forth in Appendix I of the Additional Appendix Material. Appendix I shall be used to indicate whether the control equipment requires attention. In the event the Permittee makes a finding that attention is required, the Permittee shall investigate the control equipment performance and implement corrective action if necessary.

RDF Unloading

Minn. R	Requirement
7011.0715, subp. 1(A)	Particulate Matter: less than or equal to 31.23 lb./hr.
7011.0715, subp. 1(B)	Opacity: less than or equal to 20%.
7007.0800, subp. 2	Comply with RDF Transfer Station and Unloading Housekeeping Plan in Appendix II of the Additional Appendix Material. Annual Method 22 Test

RDF Transfer Station

Minn. R	Requirement
7011.0715, subp. 1(A)	Particulate Matter: less than or equal to 13.36 lb./hr.
7011.0715, subp. 1(B)	Opacity: less than or equal to 20%.
7007.0800, subp. 2	Comply with RDF Transfer Station and Unloading Housekeeping Plan in Appendix II of the Additional Appendix Material. Annual Method 22 Test

Insignificant Activities Without Applicable Requirements

The following activities/emission units are insignificant activities for which there are no applicable requirements:

- fuel oil storage tanks;
- cleaning solvent usage;
- space heaters;
- welding equipment;
- road and parking lot fugitive emissions; and
- analysis laboratory.

TECHNICAL SUPPORT DOCUMENT

For

AIR EMISSION PERMIT NO. 01300015-001

This Technical Support Document (TSD) is for all interested parties of the permit for the **Northern States Power Company (doing business as Excel Energy) - Key City/Wilmarth**, located in Mankato, Minnesota. This document also meets the requirements set forth by federal regulations and Minnesota Rules (40 CFR, § 70.7(a)(5) and Minn. R. 7007.0850, subp. 1). The purpose of this document is to provide the legal and factual justification for each applicable requirement or policy decision considered in the preliminary determination to issue the permit.

CONTENT:

1. General Information

1.1. Applicant and Stationary Source Location

Applicant/Address	Stationary Source/Address (SIC Code: 4911)
Northern States Power Company d/b/a Excel Energy 414 Nicollet Mall Minneapolis, MN 55401-1993	Northern States Power Company d/b/a Excel Energy - Key City/Wilmarth 1020 Summit Ave/1040 Summit Ave. (Key City/Wilmarth) Mankato, MN 56001

1.2. Description of the Facility

The facility covered by the proposed permit, Air Emissions Permit No. 01300015-001, Key City/Wilmarth is an electric power generating station located along the Minnesota River in Mankato Minnesota. The Wilmarth plant is rated at 25 megawatts (MW) and has two boilers that primarily burn refuse derived fuel (RDF). The Key City plant is rated at 80 MW and has four turbine/generator sets that burn natural gas. The RDF burned at this facility is processed under contract with the Elk River Resource Recover Facility in Elk River, MN; Ramsey/Washington Resource Recovery Facility in Newport, MN; the Prairieland Compost Facility in Truman, MN and Minnesota Waste Processing Company (MWPC) located on-site.

Energy is produced through combustion of RDF in two traveling grate boilers. The units are identified in the permit as emissions units 1 and 2 (EU 001 and EU 002). The units are 180 Million Btu/hr each, which to equates 16.4 tons of RDF per hour (at an assumed heat content of 5,500 Btu/lb.). The combustors can also burn natural gas and distillate fuel oil. Natural gas is used at start-up and as necessary to maintain proper combustion conditions. The boilers were installed in 1947, and converted to burn RDF in 1985.

Each boiler exhausts through separate pollution control equipment, a scrubber for the control of acid gases and a baghouse for the control of Particulate Matter (PM) and a 158-ft. tall stack. Exhaust gases from each boiler are continuously monitored for Carbon Monoxide (CO), Sulfur Dioxide (SO_2), Nitrogen Oxides (NO_x), opacity, and Oxygen (O_2). A number of operating parameters, including baghouse inlet temperature, and steam flow rate, are also monitored continuously.

Hot water for internal use when the EU 001 and EU 002 are down is provided by a natural gas-fired boiler. A diesel fuel fired generator provides emergency electrical power.

Ash produced in the course of waste combustion is stored in an enclosed area at the facility. The ash is transported using covered trucks to the Wilmarth RDF Ash Landfill. Other sources of PM emissions are the lime storage silo and RDF receiving building and RDF transfer station.

Electrical energy is also produced at this facility by four 20 MW gas turbines (EU004, EU005, EU006, and EU007). These units were installed in 1971, and are intended to provide peaking capacity. The primary fuel burned is natural gas; distillate fuel is used as the backup fuel. The facility has two 1,000,000-gallon fuel oil tanks.

1.3. Description of the Permit Action

This permit action is for the reissuance of total facility operating permit. The proposed permit satisfies the permitting requirements under Title V of the 1990 Clean Air Act Amendments, codified in 40 CFR pt. 70. The permit meets the requirements of Minn. R. 7007.0800 and 7007.0801, which respectively, specify the conditions necessary for Part 70 operating permits and waste combustor air emission permits.

1.3.1 Proposed Permit

The Wilmarth facility is subject to federal emission guidelines that are enforced through Minnesota Rules. The MPCA promulgated rules regulating waste combustors in 1994, in response to federal emission guidelines that were promulgated in 1991. New federal rules were promulgated in December 1995. The rules were vacated by the federal courts in December 1996, but the rules, as applicable to large waste combustors, were reinstated March 21, 1997. The federal rules were further amended in August 1997. The MPCA amended the Minnesota waste combustor rules to comply with the federal emission guidelines, effective date May 4, 1998.

1.3.2 Permitting History

The application for this Title V permit was received on September 15, 1995, in compliance with Minn. R. 7007.0350.

Previous to this permit, the Wilmarth and Key City facilities were permitted separately. Since these facilities meet the criteria of a single facility, they have been combined and a single total facility permit will be issued. The last total facility permit for the Wilmarth facility was issued in 1985, which authorized the Wilmarth facility to burn RDF in addition to coal. The last total facility permit issued to the Key City facility was in 1992. Since the last total facility permits were issued, several permit amendments and Installation and Operation permits (I/O) have been issued for the facilities. The existing total facility permits have expired; Key City and Wilmarth facilities have continued operating under the expired permit as allowed by Minn. R. 7007.0450. The permit histories of Key City and Wilmarth facilities are as follows:

Table 1
Permit History of Key City/ Wilmarth

Date	Wilmarth, Permitting Action	Key City, Permitting Action
12/18/72	Operating permit	
5/6/80	Install electrostatic precipitator	
7/23/80		Operating permit
5/30/85	Convert to allow the burning of RDF	
3/28/86	Add • Auxiliary boiler, • air sweep RDF feeders, and • additional monitoring requirements.	
10/24/86		Reissue operating permit
9/1/87	Require: • ash management plan, • operator training, • O&M plan, • 425 ton/day unit charging rate, and • approved special wastes.	
1/27/89	Add SO_2 CEMs	
6/26/89	Install: • fabric filter, and • additional monitoring. Add: • HCl limit, • PCDD/PCDF limit, • performance testing, and • load limit.	
3/16/90	Install RDF conveyor vacuum system	

6/6/90	Change installation date of fabric filter	
10/11/90	(Installation/Operation Permit) Install: • facility cleaning vacuum system, and • lime storage silo.	
9/28/92		Reissue operating permit
7/26/93	(Installation/Operation Permit) Install 172 kW emergency generator	(Installation/Operation Permit) Install 108 kW emergency generator
3/27/97	Clarify permit conditions regarding burning waste oil	
10/2/98	Change some monitoring to reflect recently promulgated waste combustor rule (this application was rolled into this permitting action).	

1.3.3 Changes Incorporated Into The Proposed Permit

- A limit on each of the following pollutants has been added:

Cadmium
Lead
Mercury
Nitrogen Oxides
Carbon Monoxide
Condensible Particulate Matter

- The limit on each of the following pollutants has become more stringent:

Sulfur Dioxide
Opacity
Polychlorinated Dibenzo Dioxins and Polychlorinated Dibenzo Furans (PCDD/PCDF)
Hydrogen Chloride

- The combustion efficiency furnace temperature monitoring requirements have been removed.
- Performance testing and continuous monitoring requirements have changed.
- Operator training and certification requirements have changed.
- Reporting requirements have changed. Excess emissions reporting requirements have been added.

1.3.4 Permitting Issues

The following were major items of discussion during the review of the Wilmarth permit application:

1.3.4.1 Stationary Internal Combustion Engines

Each of the four turbines at the Key City facility has a reciprocating start-up engine. Each start-up engine is a 300-hp diesel engine and is operated only to start the associated turbine. Once the associated turbine is started, the engine is shutdown. The proposed permit treats each of the start-up engines as separate units from the associated turbines. The Wilmarth facility also has two emergency generators rated at 163 and 314 hp. Each of these engines meets the definition of an insignificant activity under Minnesota Rules.

These engines, the start-up engines and emergency engines, are also subject to Minnesota Rules for Standards of Performance for Stationary Internal Combustion Engines. The Additional Appendix Materials of the proposed permit contains the applicable requirements for these emissions units.

1.3.4.2 Coal and Other Fuels

The Wilmarth facility at one time was permitted to burn may different types of fuel including several coals. The systems for storing and handling these fuels have been long ago removed. The application included these fuels. However, installation of necessary handling systems for these fuels would trigger New Source Review. After discussing the regulatory requirements regarding burning these fuels, it was the decision of Northern States Power Co., to limit the fuels that the Wilmarth facility is allowed to burn to RDF, natural gas, waste wood and waste oil (in limited quantities). The facility is capable of, and has been, permitted to burn these fuels. Therefore, New Source review is not a consideration. The applicability analysis and limits have been established taking into consideration each of the allowable fuels burned and the allowed quantities (180 gallons per hour for waste oil).

The permit amendments of September 1, 1987, added provisions for the Wilmarth facility to burn special wastes upon approval of the commissioner. The proposed permit clarifies the approval mechanism. Other nonhazardous wastes can be approved through an amendment to the Wilmarth Industry Waste Management Plan. Implicit in this condition is the requirement for Wilmarth to demonstrate that burning that waste in the quantities specified in the plan will not result in a violation of any applicable requirements including the significance level for NSR. (See the February 23, 1994, letter from Ms. Anne Jackson of the MPCA to Ms. Nancy Glass of Northern States Power Co.)

1.3.4.3 Waste Composition Study at MWPC

Minnesota Rules and the proposed permit require the permittee to conduct and submit a waste composition study every five years. The Wilmarth facility has four sources of RDF for Units 1 and 2. According to 1997 records, the portions of RDF burned at the Wilmarth facility are as follows: NRG Energy Inc., owns two facilities Elk River Resource Recovery Facility and Ramsey/Washington County Resource Recovery Facility which provided approximately 93 percent; the Prairieland Compost Facility provided approximately 4.5 percent and Minnesota Waste Processing Company (MWPC) provided approximately 2.5 percent. The permittee will conduct waste sorts for each of the facilities except MWPC.

The waste received at MWPC is industrial/commercial waste that is shredded into RDF. The facility is operated on an as-needed basis; it may receive several loads during one day and then sit idle for several days. The waste loads received are generally homogenous in that it typically comes from a single source that has contracted with MWPC to dispose of unique wastes. These unique wastes are typically materials that the source wants destroyed rather that landfilled, waste such as outdated consumer products or contaminated foods. This facility is also operated in accordance with the industrial waste management plan cited in the facility permit issued in June 1995, which was incorporated in the January 7, 1994, application submitted by the Mankato Transfer Station (Permit SW-452).

Because the wastes received are typically homogenous and the facility does not operate on a regular schedule, it would be difficult, to do a waste sort that is representative of more than one or two waste sources. Also because the facility is operated in accordance with an accepted industrial waste management plan and the fraction of RDF that is burned at Wilmarth that is received from MWPC is small, it is reasonable to exclude this facility from the required waste composition study. If the waste types or quantity received by the Wilmarth facility from MWPC changes significantly, MWPC must be included in future waste composition studies.

1.3.4.4 Waste Oil and Sorbents

The proposed permit contains provisions for the Wilmarth facility to burn waste oil and sorbents that are generated within the NSP system up to 180 gallons per hour of waste oil. The proposed permit requires permittee to track the volume of waste oil or waste oil contaminated sorbent placed in the fuel stream, the hour(s) of the day that the waste oil is burned, and the source of the oil.

Without considering the effects of pollution control equipment, and with limiting each waste combustor unit to 180 gallons per hour of waste oil, each unit has the potential to emit approximately six additional pounds per hour of PM_{10}. Burning RDF alone, each unit has the potential to emit approximately 1,814 lb. per hour of PM_{10}. The potential to emit hydrochloric acid (the hazardous air pollutant with the greatest PTE) is approximately 2.6 lb./hr (not considering controls); the potential to emit HCl is approximately 145 lb./hr when burning RDF alone. Other hazardous air pollutants for which AP-42 has published emission factors for burning waste oil that are not listed for RDF combustion include: antimony, beryllium, cobalt, manganese, selenium, polycyclic organic matter, phenol, dichlorobenzene, and naphthalene. The highest estimated hourly potential to emit for these hazardous air pollutants (manganese) is 0.012 pounds. The estimated emission rates for burning waste oil are based on AP-42 emission factors. The emission estimates in section 1.4.1.1 are based, in part, on burning waste oil.

1.3.4.5 Insignificant Activities

Several emission units at the Wilmarth (and Key City) facility are considered insignificant activities. Insignificant activities are those activities or emission units that have potential (or in some cases actual) emissions that are of little or no consequence. While the emissions from these activities may be quite small, they are still none-the-less subject to certain requirements that must be included in the permit (the turbine start-up engines for example). Those insignificant activities with applicable requirements are included in the Additional Appendix Material that is attached to the permit.

The following activities/emissions units are insignificant activities for which applicable requirements exist:

- turbine start-up engines;
- RDF conveyor;
- back-up boiler;
- lime storage silo;
- RDF unloading; and
- RDF transfer station.

The following activities/emission units are insignificant activities for which there are no applicable requirements:

- fuel oil storage tanks;
- cleaning solvent usage;
- space heaters;
- welding equipment;
- road and parking lot fugitive emissions; and
- analysis laboratory.

1.3.4.6 Uniform Rating Generating Equipment (URGE) Testing

Uniform Rating Generating Equipment (URGE) testing is a requirement for electric utilities; electricity providers must demonstrate their ability to produce at their maximum generating capacity.

The proposed permit contains a condition which allows the permittee to operate the boilers at a rate greater than 110 percent of the maximum demonstrated capacity for the purpose of evaluating new technologies and operating methods for purposes of advancing the state-of-the-art of dioxin/furan emission control. This condition originated in the federal emission guidelines. In addition to the above-stated reasons, the proposed permit also allows the permittee to conduct URGE testing at a level above 110 percent of the maximum demonstrated capacity.

Northern States Power Co., Wilmarth is allowed to operate under these conditions for the two-week period prior to planned emissions testing for dioxin and only after written notification and approval by the commissioner. These are the only circumstances under which the permittee is allowed to operate any or both waste combustor unit(s) at a rate greater than 110 percent of the maximum demonstrated capacity. Maximum demonstrated capacity is the maximum load at which compliance with the dioxin/furan emission limit was demonstrated during the most recent performance test.

1.3.4.7 425 Ton per Day RDF Fuel Usage Limit

The proposed permit does not include the 425-ton per day RDF fuel usage limit contained in the previous permit. Review of files at the Agency and Northern States Power Co., revealed no record of a regulatory reason for this limit. It is reasonable to not include the ton/day RDF usage limit in the proposed permit for the following reasons:

- the waste combustor rules and the proposed permit contain a more effective limit based on the steam generation rate;
- the previous limit only applied to RDF combustion (wood waste was not included); and
- inclusion of this limit would be redundant.

1.4 Emissions of the Facility

Table 2 presents a summary of the potential emission rates for criteria pollutants and Hazardous Air Pollutants (HAPs) in tons per year (tpy), attributable to the facility, and the basis on which the emissions are estimated. The "uncontrolled, unlimited" PTE represents the worst case emissions estimate which could occur if all emission units operated 8,760 hours per year at maximum capacity without pollution control equipment. The "limited" PTE shown in Table 2 represents the maximum emissions which the facility, including pollution control equipment, could emit without violating permit limits (for example, 0.020 gr./dscf PM). For pollutants that are not affected by permit limits, the limited PTE represents the maximum potential emissions expected if control equipment is operating.

Table 2
Total Facility Potential to Emit and Actual Emissions Summary

Pollutant	Uncontrolled, Unlimited Potential to Emit (tons/year)	Limited, Controlled Potential to Emit (tons/year)	Actual Emissions (tons/year)
CRITERIA POLLUTANTS			
Particulate Matter (PM)	16,264 (based on 1991 performance test)	378 (gas turbines only)	
Particulate Matter less than 10 micron (PM_{10})	16,264 (based on 1991 performance test)	378 (gas turbines only)	47 (based on 1999 Emissions Inventory Report)
Particulate Matter (Front Half)		39 (waste combustors only)	
Particulate Matter (Total)		65 (waste combustors only)	
Sulfur Dioxide (SO_2) Fuel: RDF*	1,133 (based on 3rd quarter 1998 SO_2 data; avg. 218 ppmv inlet conc.)	518 (based on 218 ppm inlet concentration and 75% removal efficiency)	271 (based on 1999 Emissions Inventory Report)
Nitrogen Oxides (NO_x) Fuel: RDF*	4,836 (based on 1991 performance test)	5,006 (250 ppm limit)	539 (based on 1999 Emissions Inventory Report)
Carbon Monoxide (CO)	Estimated PTE based on AP-42 emission factors is less than limited PTE	1,012 (200 ppm limit)	201 (based on 1999 Emissions Inventory Report)
Volatile Organic Compounds (VOCs)/Ozone Fuel: RDF*	149	149	0.1 (based on 1999 Emissions Inventory Report)
Lead	0.4 (based on AP-42 emission factor & 1991 performance test using PM control)	0.98 (based on 440 µg/dscm, RDF fuel & 1991 performance test using PM control)	0.04 (based on 1999 Emissions Inventory Report)

HAZARDOUS AIR POLLUTANTS (HAP)			
2,4 Dinitrophenol (Not emitted with RDF)	0.0006	0.0006	0.0000
4 Nitrophenol (Not emitted with RDF)	0.0004	0.0004	0.0000
Acetaldehyde (Not emitted with RDF)	0.40	0.40	0.0000
Acrolein (Not emitted with RDF)	0.0006	0.0004	0.0000
Antimony (Not emitted with RDF)	0.14	0.14	0.0000
Arsenic	0.89	0.08	0.03
Benzene (Not emitted with RDF)	2.6	2.6	0.0000
Beryllium (Not emitted with RDF)	0.002	0.002	0.0000
Cadmium	1.3	0.11	0.6
Chromium	2.3	2.3	1.0
Cobalt (Not emitted with RDF)	0.07	0.07	0.0000
Dichlorobenzene (Not emitted with RDF)	0.0024	0.0024	0.0000
Dioxins/Furans (PCDD/PCDF, Municipal Waste Combustor Organics)	0.00000056 (based on 1991 performance test)	0.000042 (based on 1991 performance test)	0.00000033 (based on 1991 performance test)
Formaldehyde (Not emitted with RDF)	8.25	8.25	0.0006
Hexane (Not emitted with RDF)	3.5	3.5	0.014
Hydrogen Chloride	1,268 (based on 1991 performance test)	62.4 (29 ppmv limit)	1.54 (based on 1991 performance test)
Manganese (Not emitted with RDF)	4.10	2.93	0.0000
Mercury	0.041 (based on 1991 performance test using PM control)	0.09 (based on 1991 performance test using PM control)	0.0013 (based on 1991 performance test using PM control)
Naphthalene (Not emitted with RDF)	0.58	0.58	0.0000
Nickel	8.07	7.70	1.48
Phenol (Not emitted with RDF)	0.08	0.08	0.0000
Phosphorus	1.88	1.88	0.0000
POM (Not emitted with RDF)	0.556	0.556	0.0000
Selenium (Not emitted with RDF)	0.04	0.04	0.0000
Toluene (Not emitted with RDF)	0.0031	0.0031	0.0000
Total HAPS	1,303	81	4.7

* These estimates are based on burning RDF in emissions units 1 and 2. SO_2 PTE and controlled PTE while burning No. 2 fuel oil is 1173 tons/year (based on 0% control for emissions units 1 and 2); NO_x PTE while burning 100 % natural gas is 5127 tons/year; VOC PTE while burning 100 % wood is 183 tons/year.

1.4.1 Emission Calculations

Three different methods were used to calculate emissions from Wilmarth/Key City. An "F factor," AP-42 emission factor, and emissions inventory data (usually based on performance tests and actual throughputs).

1.4.1.1 Limited, Controlled Potential to Emit and Uncontrolled, Unlimited Potential to Emit Calculations

For the criteria pollutants, unless otherwise identified in Table 2, the Uncontrolled, Unlimited Potential to Emit estimates are based on an AP-42 (Compilation of Air Pollutant Emission Factors, Fifth Edition, January 1995) emissions factor; the Limited, Controlled Potential to Emit estimates are based on an "F factor;" and the Actual Emission are based on throughput information as reported to the Agency. For the hazardous air pollutants, unless otherwise identified in Table 2, all estimates are based on an AP-42 emissions factor. Emissions in lb./hr. or tons/yr. can be calculated using these methods, emission limits, and any other limiting factors.

An F factor is the calculated exhaust gas flow rate corrected to standards conditions (1 atm and 68 degrees Fahrenheit). The emission estimates in Table 2 are based on an F factor of 9,570 dscf/MMBtu and a heat content of 5,500 Btu/lb. of RDF (both of these values are the values used in AP-42). An F factor calculation is based on fuel analysis, the relative portions of hydrogen, carbon, nitrogen, sulfur, and oxygen and the heat value of the fuel. Emission estimates based on an F factor were calculated as follows:

For total PM, the emission limit is 0.020 gr./dscf corrected to 7 percent O_2. The maximum heat input rate from RDF is 180 million Btu tons per hour per unit.

Maximum Hourly Emission Rate

$$7.40\,lb/hr = \left(\frac{0.020\,gr}{dscf}\right)\left(\frac{9{,}570\,dscf}{10^6\ Btu}\right)\left(\frac{180\times10^6\ Btu}{hr.}\right)\left(\frac{1\,lb}{7{,}000\,gr}\right)\left(\frac{20.9\%\,O_2}{20.9\%-7\%\,O_2}\right)$$

Maximum Annual Emission Rate

$$32.4\,tons/unit\cdot year = \left(\frac{0.020\,gr}{dscf}\right)\left(\frac{9{,}570\,dscf}{10^6\,Btu}\right)\left(\frac{180\times10^6\,Btu}{hr}\right)\left(\frac{8760\,hr}{year}\right)\left(\frac{1\,lb}{7{,}000\,gr}\right)\left(\frac{1\,ton}{2{,}000\,lb.}\right)\left(\frac{20.9\%\,O_2}{20.9\%-7\%\,O_2}\right)$$

Turbine VOC emission estimates based on AP-42 emission factors were calculated as follows:

$$37.2\,tons\ of\ VOC/yr = \left(\frac{0.024\,lb\ of\ VOC}{million\ Btu}\right)\left(\frac{354\,million\ Btu}{hr}\right)\left(\frac{ton}{2{,}000\,lb}\right)\left(\frac{8{,}760\,hr}{yr}\right)$$

1.4.1.2 Actual Emission Calculations

The actual emissions are based on actual throughputs and fuel usage.

2. Applicable Rules (Regulatory and/or Statutory Basis of Emission Limits)

2.1 Federal New Source Review (NSR)

The NSR permit program was established by the 1977 Clean Air Act Amendments. This program sets emission thresholds for six criteria pollutants, based on a facility's PTE. The program applies to major new sources or modifications to existing sources, which could result in "significant" increases of one or more pollutants over specified levels. ("Major new source", "modification", "significant increase", and "potential to emit" (PTE) are all defined in 40 CFR pt. 52.) If the PTE of a new source or modification exceeds the set emission thresholds, the facility must demonstrate that "Best Available Control Technology" (BACT) will be used to control emissions prior to receiving a permit authorizing construction of the new source or modification. Alternatively, rather than conducting a BACT analysis, a facility may accept emission limits in a federally enforceable permit which reduce the PTE to below the applicable thresholds.

The Wilmarth facility was modified to burn RDF in 1985. This modification was specifically exempted in federal rule from triggering NSR applicability (40 CFR § 52.21(b)(2)(iii)(d)). None of the activities for which a permit amendment was required triggered NSR applicability.

As shown in Table 3 below, the area in which the facility is located is designated as attainment for all criteria pollutants. Although the facility was constructed prior to the effective date of NSR, Table 3 lists the pollutants for which the PTE of the Wilmarth facility as greater than the applicable threshold.

Table 3
Facility Classification

Classification	Major	Synthetic Minor	Minor
Prevention of Significant Deterioration	PM, PM_{10}, SO_2, NO_x, CO, VOCs		
Non Attainment Area		NA	
Operating Permit Program	PM, PM_{10}, SO_2, NO_x, CO, VOCs		

2.2 Federal New Source Performance Standards (40 CFR pt. 60)

2.2.1 40 CFR § 60.40b, Subpart Db, Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units

This standard of performance applies to boilers constructed, modified or reconstructed after June 19, 1984. Wilmarth was converted from burning coal to RDF after 1984. This change in the boilers did not meet the definitions of construction (originally installed prior to 1984), modification (40 CFR § 60.14), emissions decreased from burning coal, or reconstruction (40 CFR § 60.15) capital costs of the change to EU 001, and EU 002 were approximately 28.6 percent of the cost for comparable new units. The cost threshold in the definition of reconstruction is 50 percent. Therefore, these units were not and are not subject to 40 CFR § 60.40b.

2.2.2 40 CFR § 60.50, Subpart E, Standards of Performance for Incinerators.

New Source Performance Standard 40 CFR § 60.50, Subpart E does not apply to the Wilmarth facility. As per the November 29, 1974, Memorandum Richard D. Wilson, Director, Division of Stationary Source Enforcement to Nicholas Humber, Director, Resource Recovery Division, Office of Solid Waste Management Programs in which it was determined that existing fossil fuel-fired steam generators, which are changed to accommodate the use of municipal refuse are not subject to 40 CFR pt. 60, Subpart E.

2.2.3 40 CFR § 60.30b, Subpart Cb, Emissions Guidelines and Compliance Schedules for Municipal Waste Combustors.

The emissions guidelines promulgated by the EPA compel states to promulgate standards of performance for waste combustors. The MPCA recently promulgated the required standards of performance. These standards (Minnesota Rules) are at least as stringent as the emission guidelines and the proposed permit is at least as stringent as Minnesota Rules. See the discussion of the applicability of Minnesota Rules below for a further discussion of the requirements of the federal emission guidelines.

2.3 Federal Acid Rain Program

Title IV of the Clean Air Act Amendments of 1990, requires electric utilities which burn fossil fuels to substantially reduce emissions of SO_2 and NO_x, the primary pollutants that contribute to acid rain. 40 CFR §. 72.6(b)(7), states that a solid waste incinerator is not an affected unit under the Acid Rain Program if more than 80 percent (on a BTU basis) of the annual fuel consumed at such incinerator is a fuel other than fossil fuels. The Wilmarth facility derives more than 80 percent of its heat input from RDF, which is not a fossil fuel. Therefore, the Wilmarth facility is not subject to any Acid Rain Program regulations. Also, 40 CFR §. 72.6(b)(1) states that a simple combustion turbine that commenced commercial operation prior to November 15, 1990, is not an affected unit and is therefore the Key City facility is not subject to the requirements of the Acid Rain Program.

2.4 National and State Ambient Air Quality Standards (40 CFR pt. 50 and Minn. R. ch. 7009)

The National Ambient Air Quality Standards (NAAQS), as found in 40 CFR pt. 50, and the Minnesota Ambient Air Quality Standards (MAAQS), set the maximum concentration of pollutants allowed in the ambient air. As such, these standards apply to all air emissions sources. Ambient air monitoring and dispersion modeling is used to determine whether a facility's emissions could cause a violation of these standards.

Because the most recent actual SO_2 exceed 250 tpy (271.35 tons for 1999), in accordance with current MPCA policy, this permit requires that the Permittee conduct modeling for PM_{10}, NO_x and SO_2. The current MPCA modeling policy is available on the MPCA web site at http://www.pca.state.mn.us/air/modeling.html.

2.5 National Environmental Standards for Hazardous Air Pollutants (40 CFR pt. 61 and 63)

Air emission sources at the facility are included in the listed source categories for which National Environmental Standards for HAP will be promulgated under 40 CFR pt. 63. These are "Institutional/Commercial Boilers," and "Stationary Internal Combustion Engines," for which National Emission Standards for Hazardous Air Pollutant (NESHAP) are still pending with no firm promulgation date. If promulgation of these NESHAPs results in new requirements that apply to the facility, the permit will be modified as necessary at that time to reflect the new requirements.

2.5.1 40 CFR § 61.30 Subpart C - National Emission Standard for Beryllium.

This regulation does not apply because Northern States Power Co., Wilmarth does not process waste from beryllium processing plants.

2.5.2 40 CFR § 61.50, Subpart E - National Emission Standards for Mercury.

This regulation does not apply to the facility because it does not incinerate sewage sludge.

2.6 State Performance Standards

Several state rules apply to the facility. Some of these are discussed under Part 3 below. In cases where general state rules (e.g., Minn. R. ch. 7017) conflict with industry-specific rules such as the waste combustor rules, then the industry-specific rules take precedence.

The recently promulgated Minnesota waste combustor rules adopt, and are at least as stringent as, the federal emission guidelines for large waste combustors. These rules apply to the Wilmarth facility. The proposed permit is at least as stringent as the Minnesota rules. The rules and the proposed permit include provisions that regulate, in addition to the above-listed emission limits, operator training and certification, combustor unit and control equipment operating conditions, record keeping and reporting, types of fuels allowed in the combustor units, performance testing, emissions monitoring, and ash disposal.

Minnesota standards of performance, other than the waste combustor rules, apply to some portions of the facility. The Industrial Process Equipment Rule (Minn. R. 7011.0700 to 7011.0735) applies to PM emission sources for which no other standard of performance applies. Minn. R. 7011.2300, Standard of Performance for Stationary Internal Combustion Engines applies to the four turbine generators and start-up engines, and two emergency generators. This results in opacity and SO_2 limits for the turbine generators.

2.7 Environmental Assessment

This permit does not authorize new construction or increases in air emissions that would be subject to environmental review under Minn. R. ch. 4410.

3. BASIS FOR SPECIFIC PERMIT CONDITIONS

The basis for permit terms is described in this part, either for individual requirements or for groups of related requirements. This document contains discussion primarily of conditions that are unique to the Wilmarth facility and discussion of how specific requirements are to be implemented through this permit by the permittee. There are many conditions in the permit that will not be discussed in this document. A discussion of these conditions can be found in the Statements of Need and Reasonableness for the Minnesota waste combustor rules that were promulgated on June 20, 1994, and May 18, 1998. A copy of these documents can be found at the Minnesota Pollution Control Agency.

3.1 TOTAL FACILITY

Total facility requirements that are applicable to all facilities in Minnesota are not discussed in this document because they are common to all air emission permits and are self-explanatory.

Minn. R. 7007.0501 and 7007.0801, contain permit application content and permit content requirements for all waste combustor permit applications and permits. These requirements are common to all waste combustors and will not be discussed in this document beyond the unique circumstances for the Wilmarth facility.

The proposed permit requires several plans from the permittee. Required plans include the following:

- Industrial Waste Management Plan;
- Security Plan;
- Inspection Plan;
- Household Hazardous Waste Management Plan;
- Emergency Preparedness and Prevention Plan;
- Chemical Emergency Episode Plan;
- Facility Closure Plan;
- Fugitive Emission Control Plan Operation and Maintenance Plan;
- Infectious Waste Management Plan;
- Ash Toxicity Reduction Plan;
- Ash Sampling Plan; and
- RDF Transfer Station and Unloading Area Housekeeping Plan.

The Wilmarth facility primarily burns RDF that has been processed by other companies, NRG Energy, Inc. (NRG), Elk River Resource Recovery Facility, Ramsey/Washington County Resource Recovery Facility, Prairieland Compost Facility (Prairieland), and Minnesota Waste Processors Co. (MWPC). For this reason, plans that deal with municipal solid waste (MSW) or otherwise unprocessed waste are and will continue to be prepared by these companies. These plans include the Industrial Waste Management Plan, Household Hazardous Waste Management Plan, and Ash Toxicity Reduction Plan (as much as it is affected by waste processing). The permittee is required by the permit to amend the plans provided by these companies as necessary to cover any situations that are not included in the plans. For example, the permittee is required to submit a plan for a handling waste that has not been processed into RDF and has therefore not been evaluated in accordance with the above-cited Industrial Waste Management Plans.

3.2 GP 001 Boilers 1 and 2 (EU 001 and EU 002)

The permit requirements contained at the "Group 1" (GP 001) level apply to both waste combustor units together.

3.3 Emission Limits

Table 4
Emission Limits

Pollutant	Emission Limit (emissions concentrations corrected to 7% O_2)
SO_2	75% removal or 29 ppm
HCl	95% removal or 29 ppm
CO	200 ppm
Front-half Particulate Matter	0.012 gr./dscf
Total Particulate Matter	0.020 gr./dscf
Opacity	10 %
Lead	440 μg/dscm
Dioxins/Furans (PCDD/PCDF)	30 ng/dscm
Cadmium	40 μg/dscm
NOx	230 ppmv when averaged over EU001 and EU002 or 250 ppmv for each unit
Mercury (short term)	85% removal or 50 μg/dscm
Mercury (long term)	85% removal 30 μg/dscm

3.4 Monitoring Requirements

3.4.1 CEMS/COMS

Continuous monitoring systems for NO_x, CO, O_2, SO_2 and opacity have been installed and certified at the facility as required in the recently promulgated Minnesota waste combustor rules.

3.4.2 Minimum Temperature

The existing permit contains a minimum combustion chamber operating temperature of 1800^{o}F with a minimum one-second residence time. Permits issued by MPCA prior to promulgation of the waste combustor rules typically included minimum operating temperatures to encourage good combustion practices. Optimal combustion is necessary to minimize formation of certain pollutants, including CO and PCDD/PCDF. As stated in the SONAR, p. 148, the goals of good combustion practice are to maximize destruction of pollutants in the furnace, minimize PM carry-over, and to minimize conditions downstream that allow for the low-temperature formation of dioxins. This includes maintaining temperatures that are high enough to cause thermal decomposition of hydrocarbons. A minimum boiler temperature is no longer included in the permit because, in accordance with the waste combustor rules, combustion temperature monitoring has been replaced with a number of other indicators of good combustion practice identified by EPA.

These include monitoring CO emissions, monitoring and controlling the temperature of the flue gas entering the PM control device, and monitoring and controlling boiler load, all of which are monitored continuously. Carbon monoxide is an indication of whether a combustor is achieving complete combustion. Flue gas temperature monitoring at the inlet to the PM control device has been identified as a key to preventing low-temperature dioxin formation as gases cool. Because the heat value of waste influences whether a facility will operate within its design operating window, boiler unit load monitoring can be used as a measure of the heat load to the combustor.

3.4.3 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. To achieve this objective, US EPA issued guidance (September 15, 1998 memorandum Periodic Monitoring Guidance for Title V Operating Permits Programs) on periodic monitoring requirements for permitted sources. In this guidance, EPA indicates that monitoring required by recently promulgated New Source Performance Standards (and therefore the Emission Guidelines upon which the Minnesota rule is based) meet the requirements for periodic monitoring. This provision applies to the waste combustors and ash handling equipment. Several emission units at the Wilmarth facility are not subject to the requirements of the recently promulgated Minnesota waste combustor rule and therefore monitoring must be considered.

In evaluating the monitoring requirements included in the proposed permit for these emissions units, the agency considered the following as per the September 15, 1998, memorandum:

- the likelihood of violating the applicable requirement;
- whether add-on control are necessary to meet the emission limit;
- 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.

Table 5 summarizes the periodic monitoring requirements for those emission units for which the monitoring required by other rules is nonexistent or inadequate.

Table 5
Emission Units Subject to Additional Monitoring

Emission Unit	Emission limit	Additional Monitoring	Discussion
Turbines	Opacity: $\leq$ 20 % after operating temp is achieved. SO_2: $\leq$ 0.5 lb./ MMBtu	Biannual Method 9 Test, Monitor sulfur content of each load of fuel.	Fuel sulfur limit makes the likelihood of violating SO_2 emission limit very small.

Boiler No. 3 (back-up boiler)	PM: ≤ 0.4 lb./ MMBtu Opacity: ≤ 20 % with exceptions	None	Boiler is fired by natural gas and therefore the likelihood of violating either of the emission limits is very small.
RDF Conveyor	Opacity: ≤ 20 %. PM: ≤ 31.23 lb./hr. (limits based on 40 tph throughput)	Biannual Method 9 Test	The potential to emit (uncontrolled) of this emission unit is approximately 0.007 lb./hr. Therefore, the rule limit is more than 4,000 times the potential to emit.
RDF Transfer Station	Opacity: ≤ 20% PM: ≤ 13.36 lb./hr. (limits based on 200 tpd throughput)	Annual Method 22 Test, Housekeeping Requirements	Given the design of the RDF transfer station (one side open for semi trailers and the other open for access to the RDF unloading area), it is technically impossible to conduct a PM performance test. Housekeeping requirements (minimizing the opportunity for RDF to become airborne) provide a feasible alternative to conducting a performance test that is impossible to conduct. These house-keeping requirements are included in the additional appendix material of the permit.
RDF Unloading	Opacity: ≤ 20% PM: ≤ 31.23 lb./hr. (limits based on 40 tph throughput)	Annual Method 22 Test, Housekeeping Requirements	Given the design of the RDF unloading building (one side open for semi trailers and the other open for access to the RDF transfer station), it is technically impossible to conduct a PM performance test. Housekeeping requirements (minimizing the opportunity for RDF to become airborne) provide a feasible alternative to conducting a performance test that is impossible to conduct. These house-keeping requirements are included in the additional appendix material of the permit.
Lime Storage Silo.	Opacity: ≤ 20 %. PM: ≤ 0.100 gr./dscf	Annual Method 9 Test, VE Checks While Loading Silo	The lime storage silo is equipped with a passive fabric filter (no exhaust fan). Assuming that the airflow through the system is 1,176 cfm (the design rate of the filter), the limit would allow an emission rate of approximately 1. 0 lb./hr.. The potential to emit (uncontrolled) of this emission unit is approximately 0.34 lb./hr., 1/ 3 of the rule's limit. Assuming that the filter is 99 % efficient, the controlled potential to emit is 0.002 lb./hr., 1/ 500 of the rule's limit.

3.5 PERMIT TABLE B Requirements

The proposed permit includes a section identified as Table B which contains requirements that call for submittals or MPCA notifications. These requirements are set out separately to allow compliance to be tracked using the MPCA's DELTA database system.

The proposed permit contains numerous reporting requirements. The MPCA staff has attempted to consolidate reporting requirements where possible.

4. Conclusion

Based on the information provided by the permittee, the MPCA has reasonable assurance that the continued operation of the emission facility, as described in the Air Emission Permit No. 01300015-001, and this TSD, will not cause or contribute to a violation of applicable federal regulations and Minnesota Rules.