

**AIR EMISSION PERMIT NO. 01500010- 001
IS ISSUED TO**

City of New Ulm

New Ulm Public Utilities-Municipal Power
310 1st North Street
New Ulm, Brown County, Minnesota 56073

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

Total Facility Operating Permit

Application Date

September 12, 1995

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

Permit Type: Federal; Part 70

Issue Date: September 16, 1999

Expiration: September 16, 2004

All Title I Conditions do not expire.

Rodney E. Massey
South District Manager

For Karen A. Studders
Commissioner
Minnesota Pollution Control Agency

MC:jfh

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NOTICE TO THE PERMITTEE:

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

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

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

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

PERMIT SHIELD:

Subject to the limitations in Minn. R. 7007.1800, compliance with the conditions of this permit shall be deemed compliance with the specific provision of the applicable requirement identified in the permit as the basis of each condition. Certain requirements which have been determined not to apply are listed in Table A of this permit.

The permit shield, however does not apply to:

- 1. Any national ambient air quality standards adopted under section 109 of the Clean Air Act or increment or visibility under Part C of Title I of the Clean Air Act;**
- 2. Any state ambient air quality standard under Minn. R. ch. 7009; and**
- 3. The state noise pollution control rules, Minn. R. ch. 7030.**

FACILITY DESCRIPTION:

New Ulm Public Utilities is a municipal steam-electric facility. Steam produced by three boilers (boilers Nos. 1, 2, and 4) is used for generating electricity and district heating. All boilers burn natural gas, and boiler No. 4 also burns coal. In addition, an oil-fired combustion turbine generator (gas turbine No. 5) at the facility and generates electricity primarily for peak shaving. Total generating capacity of the facility is 49.5 megawatts. The facility is not subject to federal acid rain requirements due to age and size of the equipment.

TABLE A: LIMITS AND OTHER REQUIREMENTS

09/16/99

Facility Name: New Ulm Public Utilities-Municipal Power

Permit Number: 01500010 - 001

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

Subject Item:**Total Facility**

What to do	Why to do it
Operation and Maintenance Plan: Retain at the stationary source an operation and maintenance plan for all air pollution control equipment.	Minn. R. 7007.0800, subp. 14 and Minn. R. 7007.0800, subp. 16(J)
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
Limits set as a result of a performance test (conducted before or after permit issuance) apply until superseded as specified by Minn. R. 7017.2025 following formal review of a subsequent performance test on the same unit.	Minn. R. 7017.2025
Monitoring Equipment: Install or make needed repairs to monitoring equipment within 60 days of issuance of the permit if monitoring equipment is not installed and operational on the date the permit is issued.	Minn. R. 7007.0800, subp. 4(D)
Monitoring Equipment Calibration: Annually calibrate all required monitoring equipment (any requirements applying to continuous emission monitors are listed separately in this permit).	Minn. R. 7007.0800, subp. 4(D)
Operation of Monitoring Equipment: Unless otherwise noted in Tables A, B, and/or C, monitoring a process or control equipment connected to that process is not necessary during periods when the process is shutdown, or during checks of the monitoring systems, such as calibration checks and zero and span adjustments. If monitoring records are required, they should reflect any such periods of process shutdown or checks of the monitoring system.	Minn. R. 7007.0800, subp. 4(D)
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
Shutdown Notifications: Notify the Commissioner at least 24 hours in advance of a planned shutdown of any control equipment or process equipment if the shutdown would cause any increase in the emissions of any regulated air pollutant. If the owner or operator does not have advance knowledge of the shutdown, notification shall be made to the Commissioner as soon as possible after the shutdown. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 3. At the time of notification, the owner or operator shall inform the Commissioner of the cause of the shutdown and the estimated duration. The owner or operator shall notify the Commissioner when the shutdown is over.	Minn. R. 7019.1000, subp. 3
Breakdown Notifications: Notify the Commissioner within 24 hours of a breakdown of more than one hour duration of any control equipment or process equipment if the breakdown causes any increase in the emissions of any regulated air pollutant. The 24-hour time period starts when the breakdown was discovered or reasonably should have been discovered by the owner or operator. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 2. At the time of notification or as soon as possible thereafter, the owner or operator shall inform the Commissioner of the cause of the breakdown and the estimated duration. The owner or operator shall notify the Commissioner when the breakdown is over.	Minn. R. 7019.1000, subp. 2
Notification of Deviations Endangering Human Health or the Environment: As soon as possible after discovery, notify the Commissioner or the state duty officer, either orally or by facsimile, of any deviation from permit conditions which could endanger human health or the environment.	Minn. R. 7019.1000, subp. 1
Notification of Deviations Endangering Human Health or the Environment Report: Within 2 working days of discovery, notify the Commissioner in writing of any deviation from permit conditions which could endanger human health or the environment. Include the following information in this written description: 1. the cause of the deviation; 2. the exact dates of the period of the deviation, if the deviation has been corrected; 3. whether or not the deviation has been corrected; 4. the anticipated time by which the deviation is expected to be corrected, if not yet corrected; and 5. steps taken or planned to reduce, eliminate, and prevent reoccurrence of the deviation.	Minn. R. 7019.1000, subp. 1

TABLE A: LIMITS AND OTHER REQUIREMENTS

09/16/99

Facility Name: New Ulm Public Utilities-Municipal Power

Permit Number: 01500010 - 001

Operation Changes: In any shutdown, breakdown, or deviation the Permittee shall immediately take all practical steps to modify operations to reduce the emission of any regulated air pollutant. The Commissioner may require feasible and practical modifications in the operation to reduce emissions of air pollutants. No emissions units that have an unreasonable shutdown or breakdown frequency of process or control equipment shall be permitted to operate.	Minn. R. 7019.1000, subp. 4
Air Pollution Control Equipment: Operate all pollution control equipment whenever the corresponding process equipment and emission units are operated, unless otherwise noted in Table A.	Minn. R. 7007.0800, subp. 2; Minn. R. 7007.0800, subp. 16(J)
Fugitive Emissions: Do not cause or permit the handling, use, transporting, or storage of any material in a manner which may allow avoidable amounts of particulate matter to become airborne. Comply with all other requirements listed in Minn. R. 7011.0150.	Minn. R. 7011.0150
Fugitive Emissions Control Plan: The Permittee shall submit a fugitive emissions control plan within 60 days of the date of permit issuance for review and approval by the Commissioner. The plan shall identify all fugitive emission sources, primary and contingent control measures, and record keeping. The Permittee shall follow the actions and record keeping specified in the control plan. The plan may be amended by the Permittee with the Commissioner's approval. If the Commissioner determines the permittee is out of compliance with Minn. R. 7011.0150 or the fugitive emission control plan, then the permittee may be required to amend the control plan and/or to install and operate particulate matter ambient monitors.	Minn. R. 7007.0800, subp. 2
Comply with Fugitive Emission Control Plan: The Permittee shall follow the actions and record keeping specified in the control plan. The plan may be amended by the Permittee with the Commissioner's approval. If the Commissioner determines the Permittee is out of compliance with Minn. R. 7011.0150 or the fugitive control plan, then the Permittee may be required to amend the control plan and/or to install and operate particulate matter ambient monitors as requested by the Commissioner.	Minn. R. 7007.0800, subp. 2
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: The Permittee may apply for an Administrative Amendment to extend a deadline in a permit by no more than 120 days, provided the proposed deadline extension meets the requirements of Minn. R. 7007.1400, subp. 1(H).	Minn. R. 7007.1400, subp. 1(H)
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)
Record keeping: Retain all records at the stationary source for a period of five (5) years from the date of monitoring, sample, measurement, or report. Records which must be retained at this location include all calibration and maintenance records, all original recordings for continuous monitoring instrumentation, and copies of all reports required by the permit. Records must conform to the requirements listed in Minn. R. 7007.0800, subp. 5(A).	Minn. R. 7007.0800, subp. 5(C)
Noise: The Permittee shall comply with the noise standards set forth in Minn. R. 7030.0010 to 7030.0080 at all times during the operation of any emission units. This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.	Minn. R. 7030.0010 - 7030.0080
The Permittee shall comply with the General Conditions listed in Minn. R. 7007.0800, subp. 16.	Minn. R. 7007.0800, subp. 16
Inspections: Upon presentation of credentials and other documents as may be required by law, allow the Agency, or its representative, to enter the Permittee's premises to have access to and copy any records required by this permit, to inspect at reasonable times (which include any time the source is operating) any facilities, equipment, practices or operations, and to sample or monitor any substances or parameters at any location.	Minn. R. 7007.0800, subp. 9(A)
Emission Fees: due 60 days after receipt of an MPCA bill.	Minn. R. 7002.0005 through Minn. R. 7002.0095

TABLE A: LIMITS AND OTHER REQUIREMENTS

09/16/99

Facility Name: New Ulm Public Utilities-Municipal Power

Permit Number: 01500010 - 001

Subject Item: GP 001 Boilers and Gas Turbine**Associated Items:** EU 001 Boiler #1

EU 002 Boiler #2

EU 003 Boiler #4

EU 004 Gas Turbine #5 (simple cycle)

What to do	Why to do it
Operating Restriction: when EU 004 is combusting fuel oil, EU 001, EU 002, and EU 003 are restricted to combusting natural gas only.	Minn. R. 7007.0800, subp. 2; Minn. R. 7009.0020
Recordkeeping - Fuel Type Usage: When EU 004 is operating (and combusting distillate fuel oil), record the start and stop times for EU 004 and the type of fuel combusted in EU 003 during each EU 004 operating period.	Minn. R. 7007.0800, subp. 5

TABLE A: LIMITS AND OTHER REQUIREMENTS

09/16/99

Facility Name: New Ulm Public Utilities-Municipal Power

Permit Number: 01500010 - 001

Subject Item: EU 001 Boiler #1**Associated Items:** GP 001 Boilers and Gas Turbine

SV 001

What to do	Why to do it
Total Particulate Matter: less than or equal to 0.6 lbs/million Btu heat input	Minn. R. 7001.0510, subp. 1
Opacity: less than or equal to 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity.	Minn. R. 7001.0510, subp. 2
Sulfur Dioxide: less than or equal to 0.05 lbs/million Btu heat input	Minn. R. 7007.0800, subp. 2; Minn. R. 7009.0020
Fuel Permitted: pipeline natural gas only.	Minn. R. 7007.0800, subp. 2
Recordkeeping: keep a record of the type of fuel combusted in EU 001. Records shall be entered no less frequently than semiannually.	Minn. R. 7007.0800, subp. 5

TABLE A: LIMITS AND OTHER REQUIREMENTS

09/16/99

Facility Name: New Ulm Public Utilities-Municipal Power

Permit Number: 01500010 - 001

Subject Item: EU 002 Boiler #2**Associated Items:** CE 001 Multiple Cyclone w/o Fly Ash Reinjection - Most Multiclones

GP 001 Boilers and Gas Turbine

SV 002

What to do	Why to do it
Total Particulate Matter: less than or equal to 0.6 lbs/million Btu heat input	Minn. R. 7001.0510, subp. 1
Opacity: less than or equal to 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity.	Minn. R. 7001.0510, subp. 2
Fuel Permitted: pipeline natural gas only.	Minn. R. 7007.0800, subp. 2
Recordkeeping: keep a record of the type of fuel combusted in EU 002. Records shall be entered no less frequently than semiannually.	Minn. R. 7007.0800, subp. 5

TABLE A: LIMITS AND OTHER REQUIREMENTS

09/16/99

Facility Name: New Ulm Public Utilities-Municipal Power

Permit Number: 01500010 - 001

Subject Item: EU 003 Boiler #4

Associated Items: CE 002 Multiple Cyclone w/o Fly Ash Reinjection - Most Multiclones

GP 001 Boilers and Gas Turbine

SV 003

What to do	Why to do it
EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.6 lbs/million Btu heat input	Minn. R. 7001.0510, subp. 1
Sulfur Dioxide: less than or equal to 4.0 lbs/million Btu heat input while burning coal.	Minn. R. 7001.0510, subp. 1
Determination of Applicable SO ₂ Limit When Cofiring Coal and Natural Gas: Use the following formula to determine the prorated SO ₂ emission limit when cofiring coal and natural gas: $w = z(4.0 \text{ lb/mmBtu})$ where: w = allowable prorated SO ₂ emission rate in lb/mmBtu z = percentage of total heat input from coal	Minn. R. 7001.0505, subp. 3
Opacity: less than or equal to 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity.	Minn. R. 7001.0510, subp. 2
OPERATIONAL REQUIREMENTS	hdr
Fuels Permitted: bituminous coal, pipeline natural gas, on-site generated petroleum-derived used oil, and on-site generated EDTA-type boiler cleaning agents.	Minn. R. 7007.0800, subp. 2
Fuel Usage: less than or equal to 154.5 million Btu's/hour using 8-hour Block Average for coal combustion in EU 003. Coal usage in EU 003 is further restricted to the coal heat input during the most recent particulate matter emissions performance testing according to Minn. R. 7017.2025, subps. 3 and 3a (June 20, 1995, test was conducted while combusting coal at 48 percent of rated heat input; therefore coal heat input is restricted to 53% of rated heat input or 109 mmBtu/hr).	Minn. R. 7007.0800, subp. 2; Minn. R. 7017.2025, subps. 3 and 3a
Combust on-site generated petroleum-derived used oil in accordance with Minn. R. ch. 7045, limit to no more than 5% of total heat input on an hourly basis, and a maximum of 6,000 gallons per calendar year. The oil shall be used oil which is defined as any oil which has been used and as a result of such use has become contaminated by physical or chemical impurities.	Minn. R. 7007.0800, subp. 2
Combust on-site generated EDTA-type boiler cleaning agents only under the following conditions: 1. EU 003 must be operating at or above 75% of rated capacity; 2. cleaning agent feed rate shall not exceed 16 gpm; 3. Flue gas oxygen shall not be less than 3% on an instantaneous basis.	Minn. R. 7007.0800, subp. 2
FUEL MONITORING AND RECORDKEEPING	hdr
Recordkeeping - Coal Heat Input: calculate and record the EU 003 hourly heat input rate in million Btus per hour when combusting coal. Calculate and record the 8-hour block average heat input according to Minn. R. 7017.2025, subp. 3a.(A).	Minn. R. 7007.0800, subp. 2
Coal Sulfur Content and SO ₂ Emissions Monitoring: obtain a fuel certification from the coal supplier for each coal delivery stating the percent sulfur by weight and heat content of the coal. Calculate and record the corresponding SO ₂ emission rate for the coal from each delivery, within 15 days after delivery.	Minn. R. 7007.0800, subp. 4 and 5
TESTING REQUIREMENTS	hdr
Initial Performance Test: due 180 days after Permit Issuance to measure total particulate matter emissions and visible emissions while combusting coal.	Minn. R. 7017.2020, subp. 1
Performance Test Pre-test Meeting: due 7 days before Initial Performance Test. See Table B for additional performance testing requirements.	Minn. R. 7017.2035, subp. 4
CONTINUOUS MONITORING	hdr
Emissions Monitoring: The owner or operator shall use a COMS to measure opacity emissions from EU 003.	Minn. R. 7017.1000, subp. 1; Minn. R. 7007.0800, subp. 2
COMS Continuous Operation: Except for system breakdowns, repairs, calibration checks, and zero and span adjustments, the COMS shall be in continuous operation. This requirement applies regardless of the fuel type combusted.	Minn. R. 7007.0800, subp. 2
COMS Monitoring Data: Owners or operators of all COMS shall reduce all data to 6 minute averages. Opacity averages shall be calculated from all equally spaced consecutive 10-second (or shorter) data points in the 6 minute averaging period.	Minn. R. 7007.0800, subp. 2

TABLE A: LIMITS AND OTHER REQUIREMENTS

09/16/99

Facility Name: New Ulm Public Utilities-Municipal Power

Permit Number: 01500010 - 001

COMS Certification Test: due 180 days after Permit Issuance.	Minn. R. 7007.0800, subp. 2
COMS Certification Test Pretest Meeting: due 7 days before COMS Certification Test	Minn. R. 7007.0800, subp. 2
COMS Daily Calibration Drift (CD) Check: The CD shall be quantified and recorded at zero (low-level) and upscale (high-level) opacity at least once daily. The COMS must be adjusted whenever the calibration drift (CD) exceeds twice the specification of PS-1 of 40 CFR 60, Appendix B.	Minn. R. 7017.1000
COMS Calibration Error Audit: due before end of each calendar half-year following COMS Certification Test. Conduct audits at least 3 months apart but no greater than 8 months apart.	Minn. R. 7007.0800, subp. 2
Recordkeeping: The owner or operator must retain records of all COMS monitoring data and support information for a period of five years from the date of the monitoring sample, measurement or report. Records shall be kept at the source.	Minn. R. 7007.0800, subp. 5

TABLE A: LIMITS AND OTHER REQUIREMENTS

09/16/99

Facility Name: New Ulm Public Utilities-Municipal Power

Permit Number: 01500010 - 001

Subject Item: EU 004 Gas Turbine #5 (simple cycle)**Associated Items:** GP 001 Boilers and Gas Turbine

SV 004

What to do	Why to do it
EMISSION AND OPERATIONAL LIMITS	hdr
Sulfur Dioxide: less than or equal to 0.5 lbs/million Btu heat input	Minn. R. 7011.2300, subp. 2
Opacity: less than or equal to 20 percent opacity once operating temperature has been attained.	Minn. R. 7011.2300, subp. 1
MONITORING	hdr
Fuel Supplier Certification: the permittee shall obtain a certification from the distillate fuel oil supplier specifying the sulfur content in percent by weight, for each fuel oil delivery. Note that an SO ₂ emission rate of 0.5 lb/mmBtu occurs when distillate fuel oil with a sulfur content of 0.496% by weight is combusted in EU 004.	Minn. R. 7007.0800, subp. 4
TESTING REQUIREMENTS	hdr
Initial Performance Test: due 180 days after Permit Issuance to measure visible emissions.	Minn. R. 7017.2020, subp. 1
Performance Test Pre-test Meeting: due 7 days before Initial Performance Test. See Table B for additional performance testing requirements.	Minn. R. 7017.2035, subp. 4

TABLE B: SUBMITTALS

09/16/99

Facility Name: New Ulm Public Utilities-Municipal Power
Permit Number: 01500010 - 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

09/16/99

Facility Name: New Ulm Public Utilities-Municipal Power

Permit Number: 01500010 - 001

What to send	When to send	Portion of Facility Affected
Computer Dispersion Modeling Protocol	due 1,096 days after Permit Issuance for PM10, SO2, and NOx emissions. This protocol will describe the proposed modeling methodology and input data, in accordance with all requirements of 40 CFR pt. 51, App. W. This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.	Total Facility
Computer Dispersion Modeling Results	due 1,462 days after Permit Issuance. The modeling results shall be submitted after the MPCA has reviewed and approved the modeling protocol. This is a state only requirement and is not enforceable by the EPA Administrator or citizens under the Clean Air Act.	Total Facility
COMS Certification Test Notification	due 30 days before COMS Certification Test	EU003
COMS Certification Test Plan	due 30 days before COMS Certification Test	EU003
COMS Certification Test Report - Microfiche Copy	due 105 days after COMS Certification Test	EU003
COMS Certification Test Report	due 45 days after COMS Certification Test	EU003
Performance Test Notification (written)	due 30 days before Initial Performance Test	EU003, EU004
Performance Test Plan	due 30 days before Initial Performance Test	EU003, EU004
Performance Test Report - Microfiche Copy	due 105 days after Performance Test	EU003, EU004
Performance Test Report	due 45 days after Initial Performance Test	EU003, EU004
Testing Frequency Plan	due 60 days after Initial Performance Test for total particulate matter and visible emissions. The plan shall specify a testing frequency using the initial performance test data and MPCA test frequency guidance. Future performance tests at year (12-month), 36-month, and 60-month intervals, or as applicable, shall be required on written approval of MPCA per Minn. R. 7017.2020, subp. 1.	EU003
Testing Frequency Plan	due 60 days after Initial Performance Test for visible emissions. The plan shall specify a testing frequency using the initial performance test data and MPCA test frequency guidance. Future performance tests at year (12-month), 36-month, and 60-month intervals, or as applicable, shall be required on written approval of MPCA per Minn. R. 7017.2020, subp. 1.	EU004

TABLE B: RECURRENT SUBMITTALS

09/16/99

Facility Name: New Ulm Public Utilities-Municipal Power

Permit Number: 01500010 - 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 monitor bypass and all periods of exceedances of the limit including exceedances allowed by an applicable standard, i.e. during startup, shutdown, and malfunctions.	EU003
COMS Calibration Error Audit Results Summary	due 30 days after end of each calendar half-year following COMS Calibration Error Audit	EU003
Semiannual Deviations Report	due 30 days after end of each calendar half-year following Permit Issuance. The first semiannual report submitted by the Permittee shall cover the calendar half-year in which the permit is issued. The first report of each calendar year covers January 1 - June 30. The second report of each calendar year covers July 1 - December 31.	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 U.S. EPA regional office in Chicago. This report covers all deviations experienced during the calendar year. The EPA copy shall be sent to: Mr. George Czerniak, Chief, Air Enforcement and Compliance Assurance Branch, Air and Radiation Division, EPA Region V, 77 West Jackson Boulevard, Chicago, Illinois 60604.	Total Facility
Emissions Inventory Report	due 91 days after end of each calendar year following Permit Issuance (April 1). To be submitted on a form approved by the Commissioner.	Total Facility

TECHNICAL SUPPORT DOCUMENT
For
DRAFT AIR EMISSION PERMIT NO. 01500010-001

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

1. General Information

1.1. Applicant and Stationary Source Location:

Owner and Operator Address and Phone Number	Facility Address (SIC Code: 4931)
City of New Ulm 100 North Broadway New Ulm, Minnesota 56073 (507)359-8238	New Ulm Public Utilities 310 First North Street New Ulm, Minnesota 56073 (507)359-8264

1.2. Description of the facility

This facility is a municipal electric utility that provides electricity and district steam heat. The facility operates three boilers (boilers No. 1 and 2 are natural gas-fired and boiler No. 4 is natural gas- and coal-fired) and one simple cycle distillate oil-fired combustion turbine generator (gas turbine No. 5). A fourth boiler (boiler No. 3) is retired and not permitted to operate.

Total generating capacity is 49.5 megawatts, with 25 megawatts produced by the gas turbine. According to 40 CFR § 72.6(b)(1) and (2), none of the electric generating equipment is subject to Title IV because all units commenced operation before November 15, 1990, none of the units serve generators with a capacity exceeding 25 megawatts, and the gas turbine is a simple cycle unit.

The facility is located in an area that is designated in attainment with ambient air standards or unclassified for all pollutants. Very little coal is used by this facility, and therefore coal storage, coal handling, and ash handling are insignificant activities as defined in Minn. R. 7007.1300, subp. 4.

1.3. Description of any changes allowed with this permit issuance

No changes are authorized by this permit action.

1.4. Description of all amendments issued since the issuance of the last total facility permit and to be included in the Part 70 Permit.

No amendments have been issued to the 1988 total facility operating permit. However, a 1994 Compliance Agreement eliminated coal as a permitted fuel for boiler No. 2 to resolve opacity noncompliance due to coal combustion. Also, a February 1997 Stipulation Agreement restricted the Permittee to purchasing coal that would not cause opacity violations when combusted in boiler No. 4, and required either the cessation of boiler No. 4 coal combustion or the installation of additional air pollution control equipment, if opacity violations occurred during the first eight calendar quarters as of the effective date of the Agreement. As of the end of the seventh quarter after the effective date of the Agreement (the end of the third quarter of 1998), no opacity violations had occurred.

1.5. Facility Emissions:

Table 1. Total Facility Potential to Emit Summary

EU #	SV #	Emission Unit Description	PM tpy	PM ₁₀ tpy	SO ₂ tpy	NO _x tpy	CO tpy	VOC tpy	Pb tpy	HCl ² tpy	HFI ² tpy	All HAPs tpy
001	001	Boiler No. 1 ⁴	5.48	5.48	0.241	56.1	14.0	1.12	.0002 ³	-	-	*
002	002	Boiler No. 2 ⁴	2.2	2.2	0.267	243.0	17.7	0.62	.00022 ³	-	-	0.8289 ³
003	003	Boiler No. 4 ¹	345.2	68.9	1730.6	524.2	138.7	1.6	.34367 ⁹	31.13	3.90	39.449 ⁷
004	004	Gas Turbine No. 5 ⁵	94.1	94.1	770.9	1076.1	74.0	26.2	.0894	-	-	4.22
FS	001	Cooling Towers	-	-	-	-	-	-	-	-	-	0.72 ⁶
FS	002	Blr Water Treatment	-	-	-	-	-	-	-	-	-	1.1 ⁸

¹ Emission calculations based on combusting coal at 75% of rated capacity and natural gas at 25% of rated capacity (coal is worst case fuel for all pollutants); multiclone efficiency 80% for PM/PM₁₀, using criteria pollutant emission factors listed in 1995 MPCA Title V application, and updated HAP emission factors

² HCl and HFI emission calculations based on emission factors in FIRE database ver 6.01 for uncontrolled/spreader stoker/bituminous coal

³ Calculated using emission factors from EC-13C (1998)

⁴ Emission calculations reported in 1995 Title V application (except HAPs/Pb)

⁵ Emission calculations using emission factors from AP-52 fifth edition 10/96 except HAPs calculations which are from 1995 Title V application and SO₂ emission factor based on limit in 7011.2300, subp. 2

⁶ Chlorine

⁷ Boiler No. 4 HAPs emissions are uncontrolled (does not include control efficiency of boiler 4 multiclone)

⁸ Muriatic Acid (HCl)

⁹ Does not include control efficiency of multiclone

* HAP emission calculations not required for natural gas boiler less than 100 mmBtu/hr (boiler No. 1 = 96 mmBtu/hr)

PTE REVISIONS MADE DURING PUBLIC NOTICE: Boilers 1, 2, and 4 PM potential emissions were reduced by replacing the emission values which were 'Limited Controlled Emissions' based on Minn. R. 7011.0510, to 'Maximum Uncontrolled Emissions' based on emission factors for boilers 1 and 2, and to 'Maximum Controlled Emissions' based on emission factors for boiler 4; Boiler 4 SO₂ potential emissions were reduced by replacing the emission value which was the 'Limited Potential Emissions' based on Minn. R. 7011.0510, to 'Maximum Uncontrolled Emissions' based on emission factors.

	PM tpy	PM ₁₀ tpy	SO ₂ tpy	NO _x tpy	CO tpy	VOC tpy	Pb tpy	HCl tpy	HFI tpy	All HAPs
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										tpy
Total Facility Limited Potential Emissions*	447.0	170.68	2502.0	1899.4	244.4	29.54	0.433	31.13	3.90	46.32
Total Facility Actual Emissions**	29.6	22.7	77.6	114.8	6.9	7.6	0.0108	0.97	0.12	3.562

*These are the limited potential emissions from column 3 in GI-07 from Delta. They differ from those in the permit application sent by the company in that they have been verified and corrected as need be by MPCA staff. These are the potential emissions that would appear in a public notice.

**1996 Emission Inventory Data except for HAPs

See attached emission calculations for additional information.

Table 2. Facility (TF) and Permit Classification

Classification	Major/Affected Source	*Synthetic Minor	*Minor
PSD	SO ₂ , PM, PM ₁₀ , NO _x , CO		VOC, Pb
NAAR (list pollutant)	NA	NA	NA
Part 70 Permit Program	SO ₂ , PM ₁₀ , NO _x , CO, HAPs		VOC, Pb

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

2. Regulatory and/or Statutory Basis

Summary of Regulatory and/or Statutory Basis of the Emission or Operational Limits

Regulatory Overview of Facility

*EU, GRP, or SV #	Applicable Regulations	Comments:
GP 001	Minn. R. 7009.0020	Ambient Air Quality Standards for Sulfur Dioxide: Requires natural gas combustion in EU 001, 002, and 003 if EU 004 is combusting fuel oil
EU 001, 002, and 003	Minn. R. 7011.0510	Standards of Performance for Existing Indirect Heating Equipment
EU 004	Minn. R. 7011.2300	Standards of Performance for Internal Combustion Engines

3. Technical Information

GP 001 (EU 001, EU 002, EU 003, and EU 004; boilers Nos. 1, 2, and 3 and gas turbine No. 5)

Fuel type is restricted to natural gas only for boilers Nos. 1, 2, and 4 when the gas turbine is operating (firing distillate oil). This restriction is necessary based on SO₂ ambient air modeling done in the later 1980's prior to issuance of the last total facility permit in 1988. This restriction may be partially or totally eliminated based on the results of additional ambient air modeling required by this draft permit.

EU 001 and EU 002 (boilers No. 1 and 2)

Fuel is restricted to natural gas only. As defined in 40 CFR pt. 72, natural gas contains a maximum H₂S content of 1 gr/100 scf, a maximum sulfur content of 20 gr/scf, and when combusted, produces a maximum SO₂ emission rate of 0.0006 lb/mmBtu heat input. Due to the high likelihood of not exceeding the applicable limits for PM and opacity, periodic monitoring is limited to maintaining records of the type of fuel combusted in each boiler.

Boiler No. 1 is not equipped with any air pollution control equipment, and although boiler No. 2 is equipped with a multiclone collector, past coal combustion caused opacity violations. These violations were resolved by a 1994 Compliance Agreement between the Permittee and the Agency that prohibited the use of coal as a fuel in boiler No. 2. Note that the permittee is no longer required to operate the boiler No. 2 opacity monitor nor the boiler No. 2 multiclone (CE 001) and therefore the PM and PM₁₀ emission calculations for boiler No. 2 in Table 1 are for uncontrolled emissions.

In the 1988 total facility permit, EU 001 SO₂ emissions were restricted to 0.05 lb/mmBtu heat input based on ambient air modeling conducted prior to issuance of the 1988 total facility permit. This SO₂ limit has been removed and replaced by a more restrictive requirement to combust only pipeline natural gas with a maximum SO₂ emission rate of 0.0006 lb/mmBtu heat input, a maximum H₂S content of 1 gr/100 scf, and a maximum sulfur content of 20 gr/100 scf.

EU 003 (boiler No. 4)

Permitted fuels are natural gas, bituminous coal, and onsite-generated used oil. Boiler No. 4 burns primarily natural gas except during gas curtailment. Also, coal is burned during boiler startup to establish an ash bed on the stoker grates to protect the grates from warping from the heat of the natural gas burner flame.

Coal combustion is restricted to 75 percent of rated heat input capacity, in order to avoid exceedances of the opacity and particulate matter emission limits. This restriction was initially placed in the 1988 total facility operating permit. However, particulate matter emissions testing has further restricted the heat input from coal as required by Minn. R. 7017.2025, subp. 3 and subp. 3a. The most recent test was conducted in June 1995 during which time heat input from coal was 48 percent of capacity (99 mmBtu/hr actual coal heat input compared to a rated capacity of 206 mmBtu/hr). Note that EU 003 potential emissions in Table 1 were calculated based on coal combustion at 75 percent of rated heat input, and natural gas combustion at 25 percent of rated heat input (coal is worst case for all pollutants). EU 003 is permitted to combust coal at

75 percent of rated heat input capacity if the Permittee conducts a performance test for PM and

opacity while combusting coal at 75 percent of rated capacity and the test results do not exceed the applicable PM and opacity limits.

A continuous opacity monitor (COM) is used to measure and record visible emissions from EU 003.

Periodic monitoring for SO₂ is comprised of obtaining a certification from the fuel supplier for each coal delivery, specifying the sulfur content in percent by weight and the heat content, of the coal. In addition, the permittee shall calculate and record the resulting SO₂ emission rate for each coal delivery.

Periodic monitoring for PM is achieved by the COM based on the fact that during the most recent opacity/PM performance test (June 1995) opacity was measured as a higher percentage of the opacity limit than particulate matter emissions were measured as a percentage of the particulate matter emission limit. Test results for Condition 1 (100 percent coal at a heat input rate of 99 mmBtu/hr which is 48 percent of rated EU 003 capacity) showed opacity at 13 percent, which is 65 percent of the applicable limit of 20 percent opacity. However, PM was measured at 0.34 lb/mmBtu which is 57 percent of the 0.6 lb/mmBtu PM limit. Test results for Condition 2

(75 percent coal and 25 percent natural gas for a total heat input of 181 mmBtu/hr which is 88 percent of EU 003 rated capacity) showed opacity between 12 percent-20 percent which is 60 percent-100 percent of the applicable limit of 20 percent opacity, and PM emissions at 0.13 lb/mmBtu which is 22 percent of the 0.6 lb/mmBtu PM limit.

Performance testing for PM and opacity is required, along with submittal of a test frequency plan. Testing will be used to determine compliance with the PM limit, and to evaluate the PM/opacity emission relationship that is the basis for using the COM for PM periodic monitoring. The COM should be used in lieu of EPA method 9, for simultaneously determining visible emissions during the PM performance tests.

This permit does not contain EU 003 requirements based on 40 CFR pt 64 Compliance Assurance Monitoring. This is because a complete permit application was submitted for this draft permit prior to the deadline specified in § 64.5(a), and therefore the submittal required under § 64.4 is due with the next permit application submitted for this emission unit.

EU 004 (Gas Turbine No. 5)

The turbine combusts distillate fuel oil. The 1988 total facility permit restricted turbine operation to 0700 to 2200 hours to avoid violations of the noise standards in Minn. R. ch. 7030. However, the permittee has indicated that this is not necessary because the turbine is equipped with noise control. Therefore this restriction has not been included in the draft permit. SO₂ potential emissions in Table 1 were corrected to reflect the current SO₂ limit of 0.5 lb/mmBtu (the application used 0.6 lb/mmBtu which was in the 1988 total facility permit and was derived from modeling prior to the effective date of the 0.5 lb/mmBtu limit in Minn. R. 7011.2300).

Periodic Monitoring for SO₂ is comprised of obtaining a certification from the fuel supplier for each fuel oil delivery, specifying the sulfur content in percent by weight, of the distillate oil. Note that for the purposes of determining compliance, combustion in the turbine of distillate oil with a sulfur content of 0.496 percent by weight will produce SO₂ emissions of 0.5 lb/mmBtu heat input, based on a heat content of 140,000 Btu/gal and a density of 7.05 lb/gal.

Performance testing for opacity is required, along with submittal of an opacity test frequency plan.

4. Conclusion

Based on the information provided by New Ulm Public Utilities, the MPCA has reasonable assurance that the proposed operation of the emission facility, as described in the Air Emission Permit No. 01500010-001 and this technical support document, will not cause or contribute to a violation of applicable federal regulations and Minnesota Rules.

Staff Members on Permit Team: Marshall Cole, Dave Vaaler

Attachment: Emission Calculations