

STATE OF MINNESOTA
MINNESOTA POLLUTION CONTROL AGENCY

In the Matter of Minneapolis Energy Center, Inc.

Proceedings to Develop
and Implement a State Implementation
Plan for the Twin Cities Sulfur Dioxide
Nonattainment Area to Demonstrate,
Attain and Maintain Compliance with the
National Ambient Air Quality Standards
for sulfur dioxide as required by the
Clean Air Act Section 110, 172 and 191 of
the Clean Air Act, 42 U.S.C. § 7410, 7502
and 7514.

FINDINGS AND
ORDER

The Minnesota Pollution Control Agency (MPCA), being fully advised in the premises, hereby adopts the following Findings and Order.

FINDINGS

1. The U.S. Environmental Protection Agency (EPA) is required by section 109 of the Clean Air Act, 42 U.S.C. § 7409, to promulgate national ambient air quality standards (NAAQS). The EPA has promulgated NAAQS to protect the public health (primary standards) and the public welfare (secondary standards). 40 CFR pt. 50 (1990).

2. Among other pollutants, EPA has promulgated primary NAAQS for sulfur dioxide. The primary NAAQS for sulfur dioxide is 0.03 parts per million (ppm) annual arithmetic mean and 0.14 ppm maximum 24-hour concentration, not to be exceeded more than once per year. 40 CFR pt. 50.4 (1990). The secondary

NAAQS for sulfur dioxide is 0.5 ppm maximum three-hour concentration, not to be exceeded more than once per year. 40 CFR § 50.5 (1990).

3. Each state is obligated by section 110(a) of the Clean Air Act, 42 U.S.C. § 7410, to develop a plan which provides for "implementation, maintenance, and enforcement" of the NAAQS promulgated by the EPA.

4. The EPA has promulgated requirements for implementation plans titled "Requirements for Preparation, Adoption and Submittal of Implementation Plans." 40 CFR pt. 51 (1990).

5. The MPCA is a statutory agency of the State of Minnesota, charged with the responsibility to administer and enforce laws and promulgate rules to prevent water, air and land pollution throughout the State of Minnesota. Minn. Stat. chs. 115, 115B and 116 (1990).

6. The MPCA is empowered to promulgate standards and rules for the prevention, abatement or control of air pollution related, without limitation, to "sources or emissions of air contamination or air pollution, to the quality or composition of such emissions, or to the quality of or composition of the ambient air or outdoor atmosphere or to any other matter relevant to the prevention, abatement or control of air pollution." Minn. Stat. § 116.07, subd. 4 (1990). See Minn. Stat. § 116.07, subd. 2 (1990).

7. The MPCA has the authority to enforce any statute or rule related to air pollution by, among other things, adopting, issuing, entering into or enforcing "reasonable orders, schedules of compliance and stipulation agreements." Minn. Stat. § 116.07, subd. 9 (1990).

8. Minn. Stat. § 115.071 (1990) provides that the provisions of chapters 115 and 116 and "all rules, standards, orders, stipulation agreements, schedules of compliances, and permits adopted or issued" by the MPCA may be enforced by criminal prosecution, action to recover civil penalties,

injunction, action to compel performance, or other appropriate action. Specifically, in an action to compel performance of an order of the MPCA, the regulated party may be required "to do and perform any and all acts and things within the defendant's power which are reasonably necessary to accomplish the purposes of the order." Minn. Stat. § 115.071, subd. 5 (1990).

9. The MPCA has promulgated primary ambient air quality standards for sulfur dioxide of 0.03 ppm annual arithmetic mean and 0.14 ppm maximum 24-hour concentration, not to be exceeded more than once per year. Minn. Rules pt. 7005.0080 (1991). The MPCA has also promulgated secondary ambient air quality standards for sulfur dioxide of 0.5 ppm maximum three-hour concentration, not to be exceeded more than once per year in Air Quality Control Region 131. Minn. Rules pt. 7005.0080 (1991). AQCR 131 encompasses the seven county Twin Cities metropolitan area defined at 40 CFR pt. 81.27 (1990). Minn. Rules pt. 7005.0080 (1991).

10. AQCR 131 is classified as a nonattainment area for the primary NAAQS for sulfur dioxide. 40 CFR § 81.324 (1990).

11. The MPCA staff performed or reviewed and approved a computer modeling analysis of AQCR 131 to determine which sources are major contributors to the sulfur dioxide nonattainment status of AQCR 131. This modeling was initiated prior to the publication of the revised modeling guidelines in the September 9, 1986 Federal Register (51 Fed. Reg. 32176) and conforms to the EPA Guideline Air Quality Dispersion Model RAM version 5.0 and CDM version 2.0. Where, as here, a modeling analysis was initiated before the revised guidelines were published, EPA continues to allow states to use Model RAM 5.0 and CDM version 2.0 in analyzing a nonattainment area. More recently, and where appropriate, the modeling for AQCR 131 was supplemented using ISCST version 90346.

12. The computer modeling analysis for AQCR 131 shows that, among others, the Minneapolis Energy Center Main Plant, the Baker Boiler Plant and the Soo Line Boiler Plant are major contributors of sulfur dioxide emissions in AQCR 131. The Minneapolis Energy Center Main Plant is owned by Energy Center Partners, is operated by Minneapolis Energy Center, Inc. and is located at 816 Fourth Avenue South in the city of Minneapolis, in the county of Hennepin and the state of Minnesota. The Baker Boiler Plant is owned by Energy Center Partners and St. Paul Properties, is operated by Minneapolis Energy Center, Inc., is located at 706 Second Avenue South, in the city of Minneapolis, the county of Hennepin, and the state of Minnesota. The Soo Line Boiler Plant is owned by Energy Center Partners, is operated by Minneapolis Energy Center, Inc., is located at 101 Fifth Street South, city of Minneapolis, the county of Hennepin, and in the state of Minnesota. The Minneapolis Energy Center Main Plant, the Baker Boiler Plant and the Soo Line Boiler Plant are culpable sulfur dioxide emission sources for the nonattainment status of AQCR 131. Sulfur dioxide emissions from the Minneapolis Energy Center Main Plant, the Baker Boiler Plant and the Soo Line Boiler Plant contribute to a violation of the primary and secondary NAAQS for sulfur dioxide.

13. Computer modeling shows that AQCR 131 will attain and maintain compliance with the sulfur dioxide NAAQS if: (a) the Minneapolis Energy Center Main Plant, the Baker Boiler Plant, and the Soo Line Boiler Plant are operated in compliance with the requirements of this Order; (b) other facilities receiving orders are operated in compliance with the conditions of their orders; and (c) all other facilities in the area are operated in compliance with the limits that apply under state rules.

14. The Minneapolis Energy Center Main Plant, Baker Boiler Plant and Soo Line Boiler Plant emit pollutants into the ambient air in sufficient quantities

to require an air emission permit pursuant to Minn. Stat. § 116.081 (1990) and Minn. Rules pts. 7001.0030 and 7001.1210 (1991). On January 28, 1992, the MPCA issued air emission permit No. 138A-92-OT-2 to Minneapolis Energy Center, Inc. authorizing the operation of the Minneapolis Energy Center Main Plant, Baker Boiler Plant and Soo Line Boiler Plant under specified terms and conditions. That permit remains in effect today, and is not suspended, revoked or superseded by the issuance of this Order. This Order imposes additional requirements on Minneapolis Energy Center, Inc. as specified in Parts I through VI, below, to assure that AQCR 131 will achieve and maintain compliance with the NAAQS for sulfur dioxide. To the extent there is a conflict between operating limitations authorized by the permit and this Order, Minneapolis Energy Center, Inc. shall comply with the more stringent requirements.

ORDER

NOW, THEREFORE, IT IS ORDERED, for the purposes of demonstrating reasonable progress and attaining, demonstrating and maintaining compliance with the NAAQS for sulfur dioxide as set forth in 40 CFR pts. 50.4 and 50.5 (1990), Minneapolis Energy Center, Inc. (Company) shall operate the Minneapolis Energy Center Main Plant, the Baker Boiler Plant and the Soo Line Boiler Plant (Facilities) in compliance with the following requirements and limitations:

I. SULFUR DIOXIDE EMISSIONS CONTROL PLAN FOR THE FACILITIES

A. General Operating and Maintenance Requirements. Exhibit 1, the Facilities Description, which is appended to and incorporated as part of this Order, identifies the parameters used in the computer modeling performed to demonstrate that AQCR 131 will attain compliance with the sulfur dioxide NAAQS. Except as specifically allowed or required elsewhere in this Order, the Company shall operate and maintain the process and control equipment described in Exhibit 1 within the parameters set forth in Exhibit 1.

B. Emission Limitations.

1. The emission units at the Facilities that discharge sulfur dioxide emissions to the atmosphere are:

a. at the Minneapolis Energy Center Main Plant, four boilers, and one emergency diesel generator. Each of these emission units is more fully described in Exhibit 1, pts. 1.2.1 - 1.2.15.

b. at the Baker Boiler Plant, three boilers. Each of these emission units is more fully described in Exhibit 1, pts. 2.2.1 - 2.2.3.

c. at the Soo Line Boiler Plant, three boilers. Each of these emission units is more fully described in Exhibit 1, pts. 3.2.1 - 3.2.3.

2. Notwithstanding any other applicable provision, the Company shall limit the sulfur dioxide emissions from the Minneapolis Energy Center Main Plant to the total facility emission limits set forth in the chart below. These emission limits are expressed in pounds of sulfur dioxide per hour. Determination of compliance with the annual limit is based on a daily 365 day rolling average.

	MAIN PLANT BOILERS				BAKER PLANT BOILERS			SOO LINE BOILERS			
	1	2	3	4	1	5	6	1-3	3-hour	24-hour	annual
a	X	X	X	X					510	404	N/A
b	X	X	X	X		X		X	466	393	N/A
c	X	X	X	X	X	X		X	460	359	N/A
d	X	X	X	X	X	X	X		447	298	N/A
e	X	X	X	X	X	X	X	X	447	278	¹ 142

a = applies when any one or more of the four boilers at the Main Plant are operating on oil and none of the six boilers at the Baker Boiler Plant and Soo Line Boiler Plant is operating on oil.

b = applies when the following are operating on oil: (1) any one or more of the four boilers at the Main Plant; (2) Boiler No. 6 at the Baker Boiler Plant; and (3) one or more of the three boilers at the Soo Line Boiler Plant.

c = applies when the following are operating on oil: (1) any one or more of the four boilers at the Main Plant; (2) Boiler Nos. 1 and 6 at the Baker Boiler Plant; and (3) any one or more of the three boilers at the Soo Line Boiler Plant.

1. Determination of compliance with annual limit is base on a daily 365-day rolling average.

d = applies when the following are operating on oil: (1) any one or more of the four boilers at the Main Plant; (2) Boiler Nos. 1, 5, and 6 at the Baker Boiler Plant; and none of the three boilers at the Soo Line Boiler Plant.

e = applies when the following are operating on oil: (1) any one or more of the four boilers at the Main Plant; (2) Boiler Nos. 1, 5, and 6 at the Baker Boiler Plant; and (3) any one or more of the three boilers at the Soo Line Boiler Plant.

3. Notwithstanding any other applicable provision, the Company shall limit the sulfur dioxide emissions from the ten boilers and the emergency generator at the three Facilities as follows:

a. Minneapolis Energy Center Main Plant

<u>Emission Point Nos.</u>	<u>Emission Limit</u>	<u>Limitation Basis</u>
1 & 3 (Boiler Nos. 1, 2, and 3)	1.6 lbs. SO ₂ /MMBtu when burning residual oil and 0.6 lbs. SO ₂ /MMBtu when burning distillate oil (one hour average)	Minn. Rules pts. 7005.0200-0080 and State Implementation Plan requirements for achieving ambient SO ₂ standards (40 CFR Pt. 50 (1990))
2 (Boiler No. 4)	0.16 lbs. SO ₂ /MMBtu when burning residual oil and 0.6 lbs. SO ₂ /MMBtu when burning distillate oil (one hour average)	Minn. Rules pts. 7005.0200-0080 and State Implementation Plan requirements for achieving ambient SO ₂ standards (40 CFR Pt. 50 (1990))
4 (Emergency Generator Only)	0.5 lbs. SO ₂ /MMBtu	Minn. Rules pts. 7005.0020-0080 and State Implementation Plan requirements for achieving ambient SO ₂ standards (40 CFR Pt. 50 (1990))

b. Baker Boiler Plant:

<u>Emission Point Nos.</u>	<u>Emission Limit</u>	<u>Limitation Basis</u>
1 and 2 (Boilers 1, 5 and 6)	0.6 lb. SO ₂ /MMBtu	Minn. Rules pt. 7005.0020-.0080 and State Implementation Plan requirements for achieving ambient SO ₂ Standards (40 CFR Pt. 50 (1990))

c. Soo Line Boiler Plant:

<u>Emission Point Nos.</u>	<u>Emission Limit</u>	<u>Limitation</u>
1 (Boilers 1, 2 and 3)	0.6 lb. SO ₂ /MMBtu	Minn. Rules pts. 7005.0020-.0080 and State Implementation Plan requirements for achieving ambient SO ₂ Standards (40 CFR Pt. 50 (1990)).

C. Additional Operating Requirements.

1. Capacity Limitation. The Company may operate the boilers at the Baker Boiler Plant and the Soo Line Boiler Plant, and the emergency generator at the Main Plant described in Exhibit 1 at the rated heat input listed in Exhibit 1, but may not operate them at greater than rated heat input.

2. Fuel Restrictions. The Company is authorized to burn natural gas, distillate (0.5% sulfur maximum) and residual (1.5% sulfur maximum) fuel oil in Minneapolis Energy Center Main Plant Boilers 1-4 (Emission Point No. 1-3), and may burn only distillate fuel oil (0.5% sulfur maximum) in the emergency generator (Emission Point No. 4). The Company is authorized to burn only natural gas in the Minneapolis Energy Center Main Plant Chilled Water Pump Nos. 2-6, and Condenser Pump Nos. 1-3 (Emission Point No. 4) and Cooling Tower Fan Nos. 1 and 2 (Emission Point No. 5). The Company is authorized to burn

natural gas and distillate fuel oil (0.5% sulfur maximum) in Baker Boiler Plant, Boilers 1, 5, and 6, (Emission Point Nos. 1 and 2) and Soo Line Boiler Plant Boilers 1-3 (Emission Point No. 1).

3. Operating Restrictions. The Company is authorized to operate only one of the boilers 1-3 (Emission Point Nos. 1 and 3) on residual fuel oil at any time in the Minneapolis Energy Center Main Plant. If one of the Minneapolis Energy Center Main Plant boilers 1-3, is burning residual fuel oil, then the other two of Minneapolis Energy Center Main Plant boilers 1-3 may not burn any fuel oil.

4. Fuel During Scrubber Breakdown. If the Company experiences a control equipment breakdown of a wet scrubber, the Company shall switch to burning natural gas in the affected boiler if natural gas service has not been interrupted to the Company, or switch to burning distillate oil if natural gas has been interrupted to the Company. If the Company determines that a potential exists to violate the 24-hour emission limit, the Company shall begin the process of shifting load to the standby plant(s) (Baker Boiler Plant and Soo Line Boiler Plant). The standby plant(s) may require up to 20 hours before it (they) is available for commercial service. The Company is allowed this time to complete the load shift without being considered in violation of this Order provided that the Company uses the lowest sulfur bearing distillate fuel oil available from its supplier until the standby plant(s) is available for commercial service.

D. Demonstration of Compliance with Emission and Operating Limitations.

1. Performance Test Procedures. The Company shall demonstrate compliance with sulfur dioxide emission limitation requirements of Part I.B. of this Order by conducting performance stack tests according to the procedures described in Exhibit 2 and Exhibit 4, and continuous emissions monitoring as

described in Exhibit 5, which are attached to and incorporated as part of this Order. These Exhibits are based on requirements described in 40 CFR pt. 60. Specific compliance measures and compliance determination frequencies for each emission unit shall be conducted as follows:

Minneapolis Energy Center Main Plant:

<u>Emission Point</u>	<u>Pollutant</u>	<u>Compliance Determination Method</u>	<u>Frequency</u>	<u>Testing Procedures</u>
2 (Boiler No. 4)	S02	CEM	Continuous	Exhibit 5
2 (Boiler No. 4)	S02	Initial Compliance Test 40 CFR 60.45b Method 19 or 20	Within 180 days of unit startup	Exhibit 5
1 & 3 (Boiler Nos. 1, 2 and 3)	S02	Stack Test 40 CFR pt. 60 Appendix A Reference Method 1-4 & either 6, 6a, or 6b	By July 26, 1992	Exhibit 2 and Exhibit 4
1 & 3 (Boiler Nos. 1, 2 and 3)	S02	Fuel Analysis for residual oil and vendor certification for distillate oil	Daily sampling and analysis of residual oil and vendor certification of each delivery of distilled oil and a continuous fuel monitoring system capable of providing lbs. of S02 per hour output. Exceedences of S02 limit reported quarterly.	Exhibit 7 and Part D.E.
4 (Emergency Generator)	S02	Distillate Fuel Oil Analysis	Request of the Division Manager	

Baker Boiler Plant:

<u>Emission Point Nos.</u>	<u>Pollutant</u>	<u>Compliance Determination Method</u>	<u>Frequency</u>	<u>Testing Procedures and/or Exhibit</u>
1 and 2 (Boiler Nos. 1, 5, and 6)	S02	Stack Test 40 CFR pt. 60 Appendix A Reference Method 1-4 & either 6, 6a, or 6b	By January 31, 1993	Exhibit 2 and Exhi- bit 4
1 and 2 (Boiler Nos. 1, 5, and 6)	S02	Vendor certification, and fuel use records	Each delivery and quarterly exceedance reports	

Soo Line Boiler Plant:

<u>Emission Point Nos.</u>	<u>Pollutant</u>	<u>Compliance Determination Method</u>	<u>Frequency</u>	<u>Testing Procedures and/or Exhibit</u>
1 (Boilers No. 1-3)	S02	Stack Test 40 CFR pt. 60 Appendix A Reference Method 1-4 & either 6, 6a, or 6b	By January 31, 1993	Exhibit 2 and Exhi- bit 4
1 (Boilers No. 1-3)	S02	Vendor certification, and fuel use records	Each delivery and quarterly exce- edance reports	

2. Continuous Monitoring Equipment.

- a. Requirements of the Minneapolis Energy Center
Main Plant, Boiler No. 4 (identified in
Exhibit 1 as Emission Point No. 2)

(1) The Company has completed and submitted to the AQD Manager the CEM Survey attached to this Order as Exhibit 6.

(2) Prior to commencing operation of Boiler No. 4, the Company shall install, certify, and calibrate a Continuous Emission Monitor

(CEM) for measuring sulfur dioxide emissions from Boiler No. 4 as provided by 40 CFR pt. 60, subp. Db. The CEM shall be certified, maintained and operated in accordance with 40 CFR pt. 60, Appendix F, Minn. Rules pt. 7005.1850; and Exhibit 5 which is appended to and incorporated into this Order.

b. Requirements for the Minneapolis Energy Center Main Plant, Boiler Nos. 1, 2, 3 and 4 (identified in Exhibit 1 as Emission Point Nos. 1, 2 and 3)

Prior to the commencing operation of Boiler No. 4 at the Minneapolis Energy Center Main Plant (identified in Exhibit 1 as Emission Point No. 2), the Company shall install and implement a system capable of calculating pounds of sulfur dioxide per hour emitted from Boiler Nos. 1, 2, 3 and 4, and expressed as 3-hour rolling averages, 24-hour rolling averages and a daily 365-day rolling average. To determine sulfur dioxide emissions for Boiler Nos. 1, 2 and 3, the Company shall either (a) install, calibrate, operate and maintain CEMs for those boilers or (b) use a continuous fuel use monitor in combination with vendor certification of fuel sampling. To determine sulfur dioxide emissions for Boiler No. 4, the Company shall install, calibrate operate and maintain a CEM as described in a. above.

c. Requirements for Baker Boiler Plant, Boiler Nos. 1, 5 and 6 (identified in Exhibit 1 as Emission Point Nos. 1 and 2)

The Company shall monitor fuel use by logging in to the CEM installed at the main plant. A continuous monitoring plan attached to this Order as Exhibit 7 describes the procedures for logging in to the CEM when the Baker Boiler Plant boilers are on-line and off-line.

d. Requirements for Soo Line Boiler Plant, Boiler Nos. 1, 2 and 3 (identified in Exhibit 1 as Emission Point No. 1)

The Company shall monitor fuel use by logging in to the CEM installed at the main plant. A continuous monitoring plan attached to this Order as Exhibit 7 describes the procedures for logging in to the CEM when the Soo Line Boiler Plant boilers are on-line and off-line.

e. General Requirements

(1) Each CEM operated under parts a - d above must be capable of measuring sulfur dioxide emissions on a lb./hour and lb./MMBtu basis.

(2) Each CEM operated under parts a - d above must be operated so as to maintain 90 percent uptime based on quarterly reporting periods.

(3) The Company shall maintain and calibrate each CEM and all other systems necessary to provide continuous emission monitoring under parts a - d in accordance with equipment manufacturer's recommendations and instruction, Exhibit 5, and (if applicable), 40 CFR pt. 60, Appendix F.

(4) The data generated by the CEM and all other systems necessary to provide continuous monitoring under parts a - d may be used to determine compliance with the emission limits established in I.B. of this Order and with the monitor uptime requirement set forth above.

(5) The Company shall comply with the notification system set forth in Exhibit 7 to this Order, which is appended to and made an integral part of this Order. Exhibit 7 describes how the Company shall assure that its emissions comply with the total facility limitations set forth in I.B.

E. Demonstration of Compliance with Additional Operating Requirements.

For the applicable emission units described in Part I.C., the Company shall demonstrate compliance with the operating requirements of this Order by conducting the sampling and analysis as described below and compiling and maintaining records as required by Part IV of this Order.

1. This part applies to each of the fuel tanks that supply residual fuel oil to the emission units identified in Exhibit 1 of this Order.

a. Each day the Company shall collect a sample of residual fuel oil in the tank. The sample method shall be in accordance to ASTM D-270 .

b. The Company shall analyze the residual fuel oil sample to determine the sulfur content of the oil and the heating value. The analysis shall conform to ASTM D-1552 for sulfur and ASTM D-240 for heating value.

2. This part applies to the distillate fuel oil to be burned in the emission units identified in Exhibit 1 of this Order.

a. The Company shall obtain and maintain a fuel supplier certification from the fuel supplier for each shipment of distillate fuel oil delivered to the Facility. Each fuel supplier certification shall include the following information:

1) The name of the fuel oil supplier;

2) The location of the fuel oil when the sample was drawn for analysis to determine the sulfur content of the fuel oil, specifically including whether the fuel oil was sampled as delivered to the Facility, or whether the sample was drawn from fuel oil inn storage at the fuel oil supplier's or oil refiner's facility, or other location;

3) The sulfur content of the fuel oil from which the shipment came;

4) The method used to determine the sulfur content of the fuel oil; and

5) The heating value (in million British Thermal Units per gallons) of the fuel oil determined in accordance with ASTM Method D-240.

The Company shall use the results of the fuel oil supplier certification and fuel oil analysis, the continuous monitoring data for Boiler

No. 4 at the Main Plant, and the continuous fuel use data for all boilers to determine compliance with the sulfur dioxide emission limits, for all averaging times.

II. CHANGES NOT REQUIRING A MODIFICATION OF THIS ORDER

The Company is authorized to make changes to the Facilities without obtaining a modification to this Order as long as the change does not do or result in any of the following:

- A. an exceedance of the limitations in the Order at which sulfur dioxide is emitted from any emissions unit at the Facilities;
- B. an increase in the overall sulfur dioxide emissions from the Facilities; or
- C. a physical change of the equipment that affects the stack parameters described in Exhibit 1.

III. CHANGES REQUIRING A MODIFICATION OF THIS ORDER

A. Activities that do require a modification to this Order prior to commencing the modification include, but are not limited to:

- 1. any decrease in the design stack gas volumetric flow rate below that contained in Exhibit 1;
- 2. any decrease in the design stack gas exit temperature below that contained in Exhibit 1;
- 3. any reduction in stack height below that contained in Exhibit 1;
- 4. any increase in the stack exit diameter above that contained in Exhibit 1; or
- 5. any construction or modification of structures that increase the effective structural dimensions as they are used in the building wake effects algorithm in the ISC Air Dispersion Model.

B. Regardless of whether a modification of this Order is required, the Company shall obtain a permit amendment if required by state or federal law.

IV. RECORDKEEPING REQUIREMENTS

A. Record Maintenance

The Company shall maintain all required documents, records, reports and plans in a form suitable to allow the EPA or MPCA staff to determine the Facilities' compliance with this Order. The Company shall maintain the information at its Facilities in files which are easily accessible for inspection by EPA or MPCA staff.

B. Recordkeeping Requirements

1. Permanent Records. The Company shall permanently maintain all of the following information, as well as all amendments, revisions or modifications made to this information.

a. Design, Construction and Operation Information. The Company shall maintain a file or files of information on the design, construction and operation of each emission facility, emission source, fuel system, stack, structures pertinent to modeling for downwash, and any other information required to conduct sulfur dioxide ambient air quality modeling of emissions from the Facility. The file or files shall also include all information required to demonstrate that the equipment identified in Exhibit 1 is installed as described in that Exhibit. Where an activity has been undertaken pursuant to Part II of this Order, the file or files shall include a description of each activity and all information required to demonstrate that the activity complies with each applicable Part II requirement.

b. Copy of this Order. The Company shall maintain files at the Facilities that include this Order and the Exhibits attached and incorporated by reference in this Order.

2. Non-Permanent Records. Notwithstanding any document retention policy to the contrary, the Company shall retain the information identified below for each facility for a minimum of six years following the date on which the information was received by the Company. This retention period shall be automatically extended upon the written request of the AQD Manager.

a. Sulfur Dioxide Emissions and Operating Records. The Company shall generate and maintain records containing information to demonstrate compliance with the emission limitations and operating requirements specified in Part I of this Order.

In order to demonstrate compliance with the emission limitations, fuel oil sulfur content restrictions, and the residual oil use limitations, the Company shall retain the following records at the Main Plant for the applicable emission units described in Part I.D. of this Order:

1. all emission units operating at any one time and the applicable total facility emission limits described in Part I.B.2.

2. all performance and compliance stack testing measurements and operating conditions during performance and compliance stack tests as required in Exhibits 2, 4 and 5.

3. all CEM emissions data, including data from the diluent and fuel oil flow monitors.

4. all monitoring device calibration checks.

5. all adjustments and maintenance performed on the monitoring systems.

6. certification information as required in Exhibit 5 and a copy of the CEM survey (Exhibit 6).

7. percent uptime of the CEMs on a daily basis.

8. the date of delivery of the fuel oil, the date the fuel oil was sampled, the methods used to sample and analyze the fuel oil, the results of the fuel oil analysis or vendor certification that provides the percent by weight of sulfur in the fuel oil and heating value of the fuel oil.

In order to demonstrate compliance with the capacity limitation requirements of Part I.C. of this Order the Company shall retain records of the calculations of the hourly heat input in MMBtu/hr for all boilers at the Baker Boiler Plant, the Soo Line Boiler Plant and the emergency generator at the Main Plant.

b. Startup, Shutdown, Bypass, and Breakdown Records. The Company shall maintain files containing records for each startup, shutdown, bypass and breakdown for each piece of process equipment, control equipment, fuel supply system, emission stack, monitoring system and any other piece of equipment to which this Order applies.

c. Excess Emissions and Noncompliance with Operating Requirements Records. The Company shall maintain files that record each exceedance of an emission limitation, or other noncompliance with an operational requirement specified in this Order. For each period of exceedance or noncompliance, the record shall include a description of the exceedance or noncompliance, its cause, the magnitude of the exceedance, the date and time of commencement and cessation of the exceedance or noncompliance and the corrective action taken.

d. Reports Required by this Order. The Company shall maintain files containing the reports required by Part V of this Order.

V. REPORTING REQUIREMENTS

A. Notifications of Shutdowns and Breakdowns and Duty to Minimize Adverse Impact on Air Quality.

1. Notification of Process Monitoring or Control Equipment Shutdown.

In accordance with Minn. Rules pt. 7005.1880 (1991), the Company shall notify the MPCA Commissioner at least 24 hours in advance of: (1) each shutdown of any control equipment governed by this Order and (2) each shutdown of any process equipment governed by this Order if the process equipment shutdown will cause an increase in sulfur dioxide emissions. Notification can be made by calling (612) 296-7300. If the call is made outside of normal working hours (8-4:30), the Company shall leave a recorded message. At the time of the notification, the Company shall provide the following information:

- a. Date and time of call.
- b. Company and facility name and location.
- c. Caller's name, title and telephone number.
- d. Date and time of shutdown.
- e. Equipment failure that caused the shutdown and reason for the equipment failure.
- f. Potential environmental impacts and what steps are or will be taken to address them.
- g. Estimated duration of shutdown.

The Company shall also notify the Commissioner when the shutdown is over.

2. Notification of Process or Control Equipment Breakdown. In

accordance with Minn. Rules pt. 7005.1880 (1991), the Company shall notify the Commissioner immediately of (1) each breakdown of more than one hour duration of control equipment governed by this Order and (2) each breakdown of process equipment governed by this Order if the equipment breakdown causes an increase in the emissions of sulfur dioxide. Immediately shall mean as soon as is reasonably possible after giving consideration to plant and personnel safety. Notification can be made by calling (612) 296-7300. If the call is made

outside of normal working hours (8-4:30) the Company shall leave a recorded message. At the time of the notification the Company shall provide the following information:

- a. Date and time of call.
- b. Company and facility name and location.
- c. Caller's name, title and telephone number.
- d. Date and time of breakdown.
- e. Equipment failure that caused the breakdown and reason for the equipment failure.
- f. Potential environmental impacts and what steps are or will be taken to address them.
- g. Estimated duration of breakdown.

The Company shall notify the MPCA Commissioner when the breakdown is over.

3. Notification of Monitoring Equipment Breakdown. In accordance with Minn. Rules pt. 7005.1880, subp. 4, the Company shall notify the MPCA Commissioner of any breakdown or malfunction of any continuous monitoring systems or monitoring device. Notification can be made by calling the telephone numbers identified in Section V.A.1 and V.A.2 of this Order. Notification shall be made within 72 hours of the breakdown or malfunction and shall include estimate of the duration of the downtime. While the primary monitoring method is down, if an alternate monitoring method is available, the notification shall identify this method, and the date and time that the use of the alternate monitoring method commenced. The Company shall notify the MPCA Commissioner when the breakdown is over.

4. Duty to Minimize Adverse Impact on Air Quality. In the event of a shutdown or breakdown to which this part applies, the Company shall comply with Minn. Rules pt. 7005.1880, subp. 3, (1991) including the requirement to

immediately take all practical steps to prevent or reduce any adverse impact on air quality that may result from the shutdown or breakdown. Immediately shall mean as soon as is reasonably possible after giving consideration to plant and personnel safety. In addition, the Commissioner of the MPCA may require feasible and practical modifications of the operation of the facilities to reduce emissions of sulfur dioxide during the period of the shutdown or breakdown. No facility shall be permitted to operate if it experiences an unreasonable breakdown frequency of control equipment. Nothing in this Order shall permit a Facility to operate under conditions which may cause an immediate public health hazard.

5. Notification of Performance Tests. The Company shall notify the AOD Manger of its intent to conduct performance stack tests required pursuant to this Order not less than 30 days prior to conducting each performance stack test as required by Minn. Rules pt. 7005.1860, subp. 6 (1991). The Company shall schedule and hold a pretest meeting with the MCPA staff at least seven working days prior to conducting a performance stack test and shall submit to the MPCA performance stack test plans, protocols and schedules at least 15 days prior to the test meeting. The test date and protocol are subject to the AOD Manager's approval and shall have been approved by the AOD Manager at least 15 days before the planned test date.

6. Notification of Changes to be Made Pursuant to Part II of this Order. Pursuant to Part II of this Order, the Company may undertake certain changes to the Facility without obtaining a modification of this Order. If the Company does make such a change, and if the change in any way affects maximum allowable sulfur dioxide emissions or their dispersion the Company shall notify the AOD Manager in writing at least 30 days prior to undertaking the change. The notification shall describe the change and why it does not require a

modification of the Order. The Company must also obtain a permit amendment if required by state or federal law.

B. Annual Reports

The Company shall submit to the AQD Manger each calendar year, a report that contains the following information: a record of data used in calculating, and calculations of the annual sulfur dioxide emissions from each emission unit described in Part I of this Order; a record of each startup, shutdown, bypass and breakdown of process and sulfur dioxide control equipment; and a summary record of excess sulfur dioxide emissions, and any noncompliance with fuel type restrictions. If no exceedances occurred during the calendar year, the Company shall state that no exceedances occurred. Annual reports shall be postmarked within 30 days following the end of each calendar year.

C. Performance Stack Test Reports

The Company shall submit to the AQD Manager reports of each performance stack test conducted pursuant to this Order. Performance Stack test reports shall be postmarked no later than 45 days following completion of the performance stack test.

D. Continuous Monitor Reports.

The Company shall submit to the AQD Manager, each calendar quarter a report of all time periods for which each sulfur dioxide emission limit contained in section I.B. of the Order is exceeded on a lbs/MMBtu basis. The report shall also include a calculation of downtime for the continuous monitoring systems while the boilers are operating. The attached forms in Exhibit 3 shall be used to report limit exceedances and monitor downtime. If no exceedances of sulfur dioxide emission limits are recorded, the report should state that no exceedances were recorded. The Company may be requested to submit raw data used to prepare this report at any time. The Company shall

retain monitor data, in the form of lbs/MMBtu, which shall be available upon request. The Company shall submit this report by the 30th day of the month following the monitored quarter.

VI. GENERAL CONDITIONS

A. Notwithstanding any other provision of this Order, the Company must obtain a modification of this Order before it commences construction, modification or operation of equipment at any Facility that: (1) is different than allowed by Part I of this Order and (2) could result in additional sulfur dioxide emissions or changes to sulfur dioxide emission patterns assumed in the modeling conducted to attain, maintain and verify AQCR 131's compliance with the NAAQS for sulfur dioxide.

B. The Company shall not apply for a modification of this Order, nor shall this Order be modified to allow the Company to construct any new major sulfur dioxide source or to make a "major modification" to any "major stationary source" at any Facility, as those terms are defined in 40 CFR pt. 52.24 (1990), until after EPA has approved Minnesota's Offset Rule or its equivalent, or until the area has been redesignated as attainment.

C. This Order does not relieve the Company of the obligation, in undertaking all actions required by this Order, to comply with all applicable local, state and federal laws and regulations, including, but not limited to, federal new source performance standards, and laws and regulations related to occupational safety and health. In the event there is a conflict in applicable federal or state or local laws or regulations, the more stringent of the conflicting provisions apply.

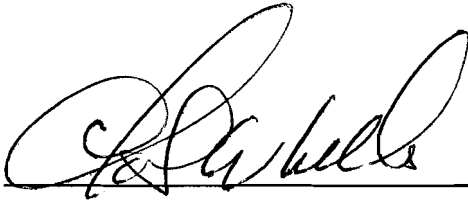
D. This Order shall be binding upon the Company and its respective officers, employees, successors and assigns. The Company shall provide a copy of this Order to any successor in interest prior to transfer of that interest,

and shall simultaneously inform the MPCA that this notice has been given. Should the Company sell or otherwise convey or assign any of its right, title or interest in the Facility, such conveyance shall not release the Company from any obligation imposed by this Order, unless the party to whom the right, title or interest has been transferred or assigned agrees in writing to fulfill the obligations of this Order and the MPCA approves such transfer or assignment. The MPCA shall not disapprove a transfer or assignment unless information demonstrates that the new owner lacks the ability to fulfill the obligations of this Order.

E. This Order mandates actions and establishes limits necessary for the Company to meet to attain, maintain and verify AQCR 131's compliance with the sulfur dioxide NAAQS. To the extent that any federal or state statute, rule, permit, order, stipulation agreement, consent decree or schedule of compliance now in force or subsequently issued imposes limits and requires actions additional to or more stringent than those required in this Order, the Company shall comply with the more stringent requirements of the federal or state statute, rule, permit, order, stipulation agreement, consent decree or schedule of compliance.

F. This Order is effective upon the date that it is signed by the MPCA Board Chair and by the Commissioner of the MPCA.

IT IS SO ORDERED BY THE MINNESOTA POLLUTION CONTROL AGENCY:

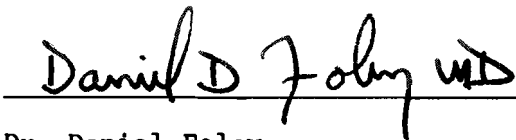


Charles W. Williams

Commissioner

Minnesota Pollution Control Agency

Date: 5/27/92



Dr. Daniel Foley

Chair

Minnesota Pollution Control Agency Board

Date: 5/27/92

EXHIBITS:

1. Facility Description
2. Performance Test Procedures
3. Excess Emission and CEM Report Form
4. Test Plan
5. CEM Procedures
6. CEM Survey
7. Continuous Monitoring Plan

EXHIBIT 1

Emission Units and Pollution Control Equipment at the Minneapolis Energy Center Main Plant

The emission units, air pollution control equipment and monitoring equipment at Minneapolis Energy Center Main Plant include the following:

1.2.1 Emission Point No. 1 Facility I.D. Boiler No. 1

Emission Unit - Type: Boiler
Mfr.: Combustion Engineering
Date of Installation: 1972
Rated Heat Input
(10⁶ Btu per hour): 233
Fuel types: Natural gas, Distillate, and Residual Fuel Oil

Control Equipment - Type: Multiple-cyclones
Mfr.: Zurn
Rated Capacity (acfm): 77,000 @ 340°F
Pressure Drop (in of H₂O): 3
Collection Efficiency
(Design %): 75

Monitoring Equipment - None

Stack Parameters - Number: 1
Height: 160 feet above grade
Inside Exit Diameter: 4.9 feet
Flow Rate, acfm
(for primary fuel): 77,000 @ 340°F

1.2.2 Emission Point No. 2 Facility I.D. Boiler No. 4

Emission Unit - Type: Boiler
Mfr.: <To be determined>
Date of Installation: 1992
Rated Heat Input
(10⁶ Btu per hour): 231 (oil)
240 (gas)
Fuel types: Natural gas, Distillate and Residual Fuel Oil

Control Equipment - Type: Multiple-cyclones
Mfr.: <To be determined>
Rated Capacity (acfm): 70,000 @ 315°F
Pressure Drop (in of H₂O): 3
Collection Efficiency
(Design %): 75%

Type: SO₂ wet scrubber
Mfr.: <To be determined>
Rated Capacity (acfm): 65,000 @ 325°F
Pressure Drop (in of H₂O): 3
SO₂ Removal Efficiency (Design %): 90

Monitoring Equipment - Type: Opacity
 Mfr.: <To be determined>
 Model: <To be determined>

 Type: Sulfur Dioxide
 Mfr.: <To be determined>
 Model: <To be determined>

 Type: Nitrogen Oxides
 Mfr.: <To be determined>
 Model: <To be determined>

 Type: O₂ or CO₂
 Mfr.: <To be determined>
 Model: <To be determined>

Stack Parameters - Number: 2
 Height: 160 feet above grade
 Inside Exit Diameter: 4.9 feet
 Flow Rate, acfm
 (for primary fuel): 70,350 @ 300°F

1.2.3 Emission Point No. 3 Facility I.D. Boiler No. 2

Emission Unit - Type: Boiler
 Mfr.: Combustion Engineering
 Date of Installation: 1972
 Rated Heat Input
 (10⁶ Btu per hour): 233
 Fuel types: Natural Gas, Distillate and Residual
 Fuel Oil

Control Equipment - Type: Multiple-cyclones
 Mfr.: Zurn
 Rated Capacity (acfm): 77,000 @ 300°F
 Pressure Drop (in of H₂O): 3
 Collection Efficiency
 (Design %): 75%

Monitoring Equipment - None

1.2.4 Emission Point No. 3 Facility I.D. Boiler No. 3

Emission Unit - Type: Boiler
 Mfr.: Zurn
 Date of Installation: 1982
 Rated Heat Input
 (10⁶ Btu per hour): 233
 Fuel types: Natural Gas, Distillate and Residual
 Fuel Oil

Control Equipment - None

Monitoring Equipment - None

1.2.8 Emission Point No. 4 Facility I.D. Chilled Water Pump No. 5

Emission Unit - Type: Engine
 Mfr.: Caterpillar
 Date of Installation: 1972
 Rated Heat Input
 (10⁰ Btu per hour): 5
 Fuel types: Natural Gas

Control Equipment - None

Monitoring Equipment - None

1.2.9 Emission Point No. 4 Facility I.D. Chilled Water Pump No. 6

Emission Unit - Type: Engine
 Mfr.: Caterpillar
 Date of Installation: 1972
 Rated Heat Input
 (10⁰ Btu per hour): 5
 Fuel types: Natural Gas

Control Equipment - None

Monitoring Equipment - None

1.2.10 Emission Point No. 4 Facility I.D. Condenser Pump No. 1

Emission Unit - Type: Engine
 Mfr.: Caterpillar
 Date of Installation: 1972
 Rated Heat Input
 (10⁰ Btu per hour): 5
 Fuel types: Natural Gas

Control Equipment - None

Monitoring Equipment - None

Emission Units and Pollution Control Equipment at the Baker Boiler Plant

The emission units, air pollution control equipment and monitoring equipment at the Baker Boiler Plant include the following:

2.2.1 Emission Point No. 1 Facility I.D. Boiler No. 1

Emission Unit - Type: Boiler
 Mfr.: Combustion Engineering
 Date of Installation: 1957
 Rated Heat Input
 (10⁶ Btu per hour): 80 (gas)
 77 (oil)
 Fuel Types: Natural gas, distillate oil

Control Equipment - none

2.2.2 Emission Point No. 1 Facility I.D. Boiler No. 5

Emission Unit - Type: Boiler
 Mfr.: Kroeschel
 Date of Installation: 1930's
 Rated Heat Input
 (10⁶ Btu per hour): 54 (gas)
 52 (oil)
 Fuel Types: Natural gas, distillate oil

Control Equipment - none

Monitoring Equipment - none

Stack Parameters - Stack No.: 1
 Height: 180 feet above grade
 Inside Exit Diameter: 8.0 feet
 Flow Rate, acfm
 (for primary fuel): 38,500 @ 600°F

2.2.3 Emission Point No. 2 Facility I.D. Boiler No. 6

Emission Unit - Type: Boiler
 Mfr.: Wickes
 Date of Installation: 1962
 Rated Heat Input
 (10⁶ Btu per hour): 125 (gas)
 121 (oil)
 Fuel Types: Natural gas, distillate oil

Control Equipment - none

Monitoring Equipment - none

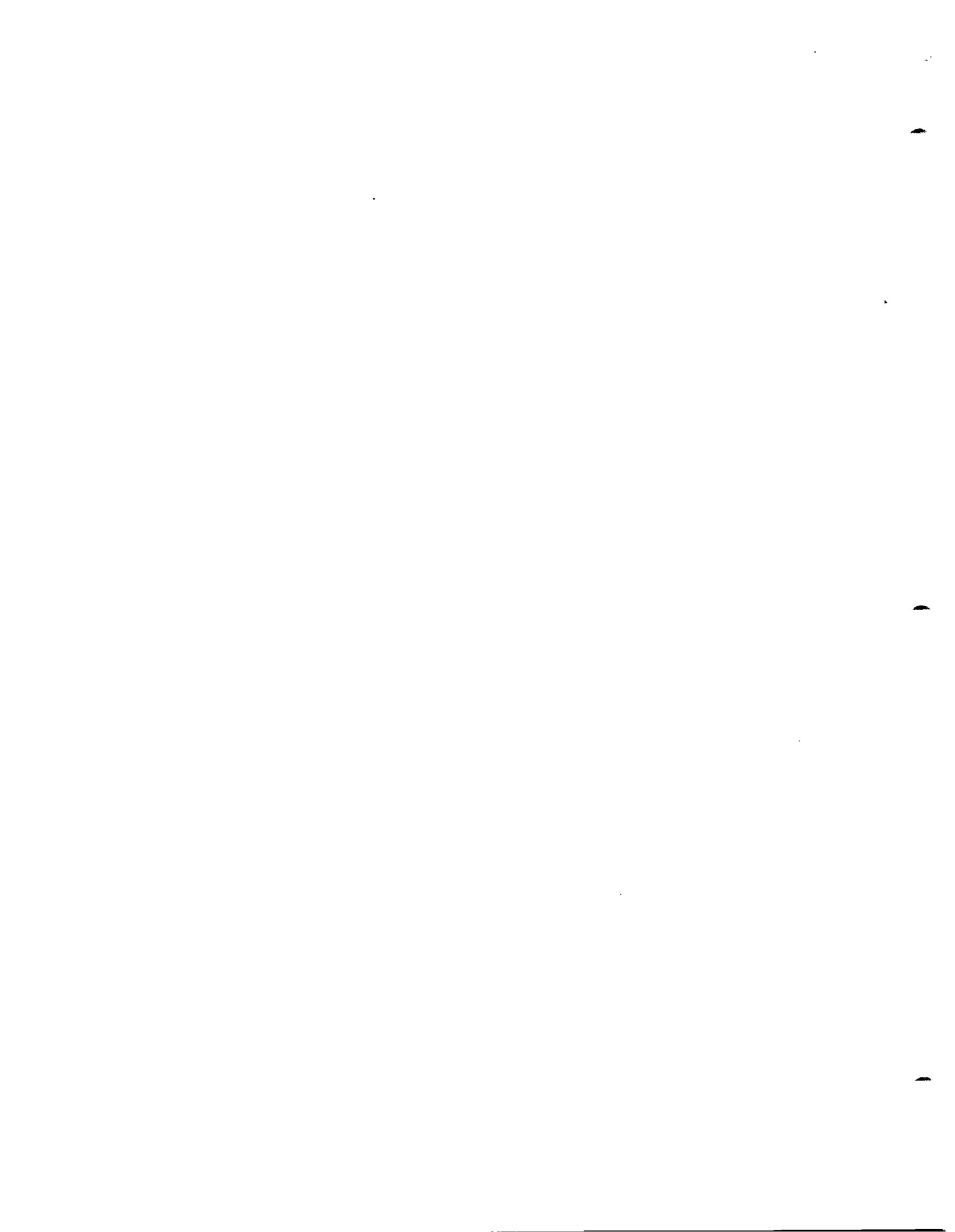


EXHIBIT 2

Sulfur Dioxide

PERFORMANCE TEST PROCEDURES

A. Independent Testing Company

The Minneapolis Energy Center Main Plant, Baker Boiler Plant, and S00 Line Boiler Plant (Facilities) shall engage an independent testing company to conduct performance tests. However, performance tests that are not required by the permit or requested by the agency pursuant to Minnesota Rules part 7005.1860, subpart 1, may be conducted by the Facility with written permission of the Minnesota Pollution Control Agency (MPCA) Air Quality (AQD) Manager. The Facility may furnish electrical service, laboratory facilities and other such facilities to an independent testing company in any case.

B. Test Location Approval

The location, number of test ports, and the need for straightening vanes shall be approved by the AQD Manager before any test. Information regarding ports (location from top of stack to bottom, diameter, visual schematic) shall be provided seven (7) days before the pretest meeting.

C. Pretest Meeting

For the purpose of establishing conditions and requirements of a performance test, a pretest meeting with the Agency staff, Facility, and testing company personnel must be held at least seven (7) working days prior to the performance test. The test date must be approved by the Air Quality Division (AQD) Compliance Determination Unit (CD Unit) at least 30 days before the planned testing date.

D. Test Methods

1. General

Performance tests shall be conducted in accordance with the following requirements:

- a. U.S. Environmental Protection Agency (U.S. EPA) Reference Methods (40 C.F.R. 60.344, Appendix A);
- b. Minnesota Rules;
- c. Procedures specified below;
- d. Special conditions of the Order or requirements specified by the AQD Manager.
- e. Deviations from the U.S. EPA Reference Methods, even if authorized under Minnesota Rules, procedures specified below, or special conditions of the Order or requirements specified by the AQD Manager, shall be permissible only with the written approval of EPA.
- f. Where a Method is referenced, the most current edition should be used.

2. Sulfur Dioxide (SO₂) - SO₂ emissions shall be determined by U.S. EPA Methods 6, 6A, or 6B. For determination of SO₂ removal efficiency, U.S. EPA Method

19 or 20 shall be used. The testing company shall analyze audit samples supplied by the U.S. EPA or the MPCA.

E. Test Conditions

1. Combustion Sources

a. Existing Sources and Sources Subject only to State Rules.

- 1) Combustion emission sources such as furnaces, kilns, boilers, etc. shall be operated during the test at 50%-100% of the manufacturer's rated capacity as specified by the MPCA.
- 2) Existing boilers that had been derated shall be operated during the test at a minimum of 50%-100% of the derated capacity allowed by the permit as specified by the MPCA.
- 3) For unit sizes below 50 million British thermal units per hour (MMBtu/hr) some of the test conditions and requirements listed in Part E.1.c. of this Exhibit, may be waived by the AQD Manager to meet simplified equipment and operating modes of smaller installations.

b. Sources subject to New Source Performance Standards (NSPS).

- 1) The source must meet all the conditions found at 40 CFR Part 60 subp. A - General Provisions; as well as the specific NSPS requirements according to source type.

c. The following requirements apply to all combustion sources:

- 1) Unless the Facility is engaged in a compliance schedule that involves rehabilitation before testing, the Facility shall not conduct any major rehabilitation or cleaning before the test other than normal maintenance operations done on a routine basis. The Facility shall describe in the test report any maintenance work done before the test and indicate how often this is done.
- 2) The Facility shall burn "the worst quality fuel" (i.e. fuel with the highest sulfur content) allowed by Order conditions. Fuel sampling and analysis shall be performed according to ASTM Reference Methods, or as approved by U.S. EPA and the MPCA.
- 3) Each unit shall be operated under parameters as specified by the MPCA which shall be defined as maintenance of operational parameters at levels consistent with levels maintained during daily usage of the boiler(s) at specified loads. Operating parameters include:
 - a) MW (mega watts) gross loading
 - b) heat input
 - c) steam flow
 - d) steam temperature
 - e) steam pressure
 - f) combustion air flow (lb/hr)
 - g) soot blowing cycle

- h) coal feed rate to boiler (T/hr)
 - i) oxygen levels at economizer inlet
- 5) Operation of sulfur dioxide control devices (i.e. sulfur dioxide scrubber) shall comply with "normal operating conditions". "Normal operating conditions" include:
- a) pressure drop across control device
 - b) inlet flue gas temperature
 - c) cleaning cycle
 - d) ash removal
 - e) liquid to gas ratio
- 6) All the operating loads and operating parameters must be documented in the test report showing chart recordings and calculations.
- 7) All the continuous monitor strip charts for the day(s) of testing shall be submitted. These shall be dated, signed, and all the chart factors must be sufficiently explained to avoid any kind of ambiguity in reading the charts.

2. Runs

The sampling point in the ducts shall be at the center of the cross section or a point no closer to the walls than 1 meter (3.28 feet). The sample shall be extracted at a rate proportional to the gas velocity at the sampling point.

The minimum sampling time shall be 20 minutes and the minimum sampling volume 0.02 dry standard cubic meters (dscm) or, 0.71 dry standard cubic feet (dscf) for each sample. The arithmetic mean of two samples shall constitute one run. Samples shall be taken at approximately 30-minute intervals.

3. Pitot Tube Calibration

Pitot tube inspections and necessary calibrations shall be done at least once per year or after any incident which may affect calibration. Gas meter calibrations shall be done at a frequency such that no more than 1000 cubic feet per minute shall be measured between calibrations. These calibration sheets must be included in the test report.

4. Orsat Analysis

Two gas samples for Orsat analysis must be taken at 1/2 hour intervals, or one continuous sample may be collected for each run.

5. Gas Velocities

The gas velocities used in calculating stack gas flow rates and pollutant mass emission rate shall be those obtained while collecting the sample.

b. Schematic Drawing

The report shall include a schematic drawing of the entire flue gas exhaust system from the initial starting process (feed) to the top of the stack. Show location of the sampling points and include all pertinent dimensions. Include all flow disturbances, i.e., elbows, dampers, fans, constrictions, collection equipment, etc.

c. Identification of Sources

The report shall clearly state what is being tested; for example, "Babcock & Wilcox Boiler, Model 169, Designated Unit #3 by XYZ Municipal Power Plant, firing pulverized Eastern Kentucky coal at an average rate of 10,000 pounds per hour, and producing an average of 110,000 pounds of steam per hour. This unit exhausts through a Western Multiclone. Flyash reinjection is permanently disconnected."

d. Completion of Forms

The use of Required Data for Combustion Sources form and Required Data for Process Emissions form located in Exhibit 2 shall be completed at the time of the test run. Separate forms shall be completed for each source.

e. The Stack Test Report Format Guidelines developed by the AQD are recommended for incorporation into testing firm report formats.

3. Report Submittal

The performance test report shall be submitted to:

Supervisor, Compliance Determination Unit
Compliance and Enforcement Section
Air Quality Division
Minnesota Pollution Control Agency
520 Lafayette Road
St. Paul, Minnesota 55155

4. Submittal Schedule

Performance test reports shall be submitted no later than 45 days following completion of the performance test or as required in a compliance document (permit, stipulation agreement, etc.).

The Facility is responsible for submitting one copy of the test report to the Supervisor, Compliance Determination Unit within 45 days of testing. The Facility is also responsible for providing a microfiche copy of the Performance test report within 105 days of testing. To microfiche a copy of a performance test report, contact State Department of Administration-Micrographics Services Unit at (612)296-9708. The complete permit file number, complete facility name, and the exact date of testing must be provided.

REQUIRED DATA
for
COMBUSTION SOURCES

Company Name _____

C. Fuel Input

1. Itemize all fuels and materials that are added to the combustion process during the test period. Attach ultimate analysis of the fuel.

FUEL DESCRIPTION	INPUT	&	As Rec'd	HEAT INPUT
Coal: State, City, Mine	(LBS/HR)	MOISTURE	(BTU/LB)	(BTU/HR)
Oil: Specify Grade	(GAL/HR)	As Rec'd	(BTU/GAL)	

No. 1

No. 2

No. 3

TOTAL

2. Are the above fuels substantially the same as those normally burned ?
 _____ . If not, explain _____

3. Are the above fuels normally burned in the proportions shown above ?
 _____ . If not, explain _____

4. Describe any changes anticipated for procurement of fuels within the next twelve (12) months. _____

D. Equipment & Operating Data

1. Furnace No. _____

2. Furnace Mfg. _____

3. Type of Firing _____

4. Furnace operating under normal operating conditions No _____ ;
 Yes _____

5. Specify normal soot blowing frequency:
 - a) source operating time blowing soot: _____ minutes/shift
 - b) number of shifts per day _____
6. Specify soot blowing time during the test: start _____ end _____ .
When was the last time before the test that you blew soot: (date & time) _____ .
7. Specify normal ash pulling frequency:
 - a) source operating time pulling ashes: _____ minutes/shift
 - b) number of shifts per day _____
8. Specify ash pulling time during the test: start _____ end _____ .
When was the last time before the test that you pulled ashes: (date & time) _____ .
9. Date and procedures of last maintenance/cleaning of the boiler (please attach) _____ .

E. Instrument Data

1. Include a copy of chart records during test for the combustion efficiency indices (CO, O2, CO2, combustibles, steam flow, air flow, etc.)

F. Air Pollution Control Equipment

1. Type/model control equipment _____ .
2. Air pressure drop across the control equipment _____ .
3. Air flow through the control equipment _____ .
4. Was the control equipment operating normally? _____ .
5. Date and procedures of last maintenance/cleaning of control equipment.

_____ .

Plant Operator's Certification

I certify that the information submitted herein is accurate and correct and that no information requested was withheld from the Division Manager.

By _____ , Position _____

REQUIRED DATA
for
PROCESS EMISSIONS

Company Name _____

C. Equipment & Operating Data

1. Process Equipment No./Ident. _____ .

2. Process Equipment Description _____
_____ .

3. Process equipment operating under normal operating conditions?

No _____ . Yes _____ . Process rate during the test _____ .
(raw materials or finished product)

D. Instrument Data on Process Equipment

1. Include copy of production records or instrumentation which indicates rate of production or operation of the equipment, i.e. units per hour, lbs. per hour, pressure, air flow, etc.

E. Air Pollution Control Equipment

1. Type/model of control equipment _____ .

2. Air pressure drop across the control equipment _____ .

3. Air flow through the control equipment _____ .

4. Was the control equipment operating normally? _____ .

5. Data of last major maintenance/cleaning of control equipment _____
_____ .

F. Plant Manager's Certification

I certify that the information submitted herein is accurate and correct and that no information requested was withheld from the Division Manager.

By _____ , Position _____ .



EXHIBIT 3

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT - SO₂, NO_x, CO, CO₂, O₂, TRS, H₂S, HCl, Opacity (Circle One)

OTHER _____

REPORTING QUARTER _____

FACILITY: _____

Monitor
Model: _____
Mfr.: _____
Emission
Limit and
Avg. Time: _____

EMISSION
UNIT(S) _____

TOTAL OPERATING HOURS
OF EMISSION UNIT _____

EMISSION DATA SUMMARY	CEM PERFORMANCE SUMMARY
1. DURATION OF EXCESS EMISSIONS A. STARTUP/SHUTDOWN _____ B. CONTROL EQUIPMENT _____ C. PROCESS PROBLEMS _____ D. OTHER KNOWN CAUSES _____ E. UNKNOWN CAUSES _____ F. SOOT BLOWING _____ G. FUEL PROBLEMS _____ 2. TOTAL DURATION _____ 3. PERCENT OF TOTAL EXCESS EMISSIONS _____	1. DURATION OF CEM DOWNTIME DURING SOURCE OPERATION A. MONITOR MALFUNCTION _____ B. NON-MONITOR MALFUNCTION _____ C. QA CALIBRATION _____ D. OTHER KNOWN CAUSES _____ E. UNKNOWN CAUSES _____ 2. TOTAL DURATION _____ 3. PERCENT OF TOTAL CEM DOWNTIME _____

FOR OPACITY RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

$$\% \text{ Total Excess Emissions} = \frac{\text{Total Duration of Excess Emissions}}{\text{Total Operating Time} - \text{CEM Downtime}}$$

$$\% \text{ CEM Downtime} = \frac{\text{CEM Downtime}}{\text{Total Operating Time}}$$

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period.

I certify that I am familiar with the information contained in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: _____

DATE: _____ AQD EER1

EXCESS EMISSION REPORT
QUARTER

EMISSION UNIT(S) _____

<u>Date</u>	<u>Start/Stop Time</u>	<u>(Pollutant) Monitor</u>	<u>Actual Level of Exceedance</u>	<u>Reason/ Corrective Action</u>
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EMISSION UNIT(S) _____

<u>Date</u>	<u>Start/Stop Time</u>	<u>(Pollutant) Monitor</u>	<u>Actual Level of Exceedance</u>	<u>Reason/ Corrective Action</u>
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EMISSION UNIT(S) _____

<u>Date</u>	<u>Start/Stop Time</u>	<u>(Pollutant) Monitor</u>	<u>Actual Level of Exceedance</u>	<u>Reason/ Corrective Action</u>
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CONTINUOUS MONITOR DOWNTIME REPORT
QUARTER _____

EMISSION UNIT(S) _____

<u>Date</u>	<u>Start/Stop Time</u>	<u>(Pollutant) Monitor</u>	<u>Reason/ Corrective Action</u>
-------------	----------------------------	--------------------------------	--------------------------------------

EMISSION UNIT(S) _____

<u>Date</u>	<u>Start/Stop Time</u>	<u>(Pollutant) Monitor</u>	<u>Reason/ Corrective Action</u>
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EMISSION UNIT(S) _____

<u>Date</u>	<u>Start/Stop Time</u>	<u>(Pollutant) Monitor</u>	<u>Reason/ Corrective Action</u>
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Exhibit 4

TEST PLAN FOR BOILERS

I. GENERAL INFORMATION

A. Facility: Minneapolis Energy Center

B. DAQ File No. 138A

II. BOILER INFORMATION

For each boiler to be tested specify:

A. Pollutants (concentrations, mass rates, emission factors)

Main Plant Boiler Nos. 1-3

S02 limit: 1.6 lb./MMBtu and 1.5% sulfur by weight when burning residual oil

S02 0.6 lb./MMBtu and 0.5% sulfur by weight when burning distillate oil

Main Plant Boiler No. 4

S02 limit: 0.16 lb./MMBtu and 1.5% sulfur by weight when burning residual fuel oil

S02 limit: 0.6 lb./MMBtu and 0.5% sulfur by weight when burning distillate oil

Baker Boiler Nos. 1, 5, and 6

S02 limit: 0.6 lb./MMBtu and 0.5% sulfur by weight when burning distillate fuel oil

Soo Line Boiler Nos. 1-3

S02 limit: 0.6 lb./MMBtu and 0.5% sulfur by weight when burning distillate fuel oil

B. S02 Pollution Control Equipment:

Sulfur dioxide scrubber on Boiler No. 4 at the Main Plant with at least a 90% control efficiency

C. Reason for testing:

Testing is for compliance with emission limits.

III. EMISSION POINT INFORMATION

A. Stack No. 1, Boiler No. 1 (Main Plant)

B. Stack No. 3, Boiler Nos. 2 and 3 (Main Plant)

C. Stack No. 2, Boiler No. 4 (Main Plant)

D. Stack No. 1, Boiler Nos. 1 and 5 (Baker Boiler Plant)

E. Stack No. 2, Boiler No. 6 (Baker Boiler Plant)

F. Stack No. 1, Boiler Nos. 1-3 (Soo Line Boiler Plant)

IV. TEST PLAN

A. Fuel sampling and analysis

This is part of the compliance demonstration requirements. Please note that the test report will not be accepted without complete submittal of fuel analysis results of samples taken at the time of the test.

1. Sampling.

Take one sample every fifteen minutes from each feeder of each fuel burned during the test. The sample must be taken as close as possible to the burner (somewhere in feeding line), to be representative of the fuel burned at the time of the test. The sample may be taken according to the procedures in ASTM Method D 270. Mix the four samples taken for each test run of particulates into a composite.

2. Analysis.

Each composite sample must be analyzed for:

Gross heating value, BTU/gal
Sulfur, % by weight
Ash, % by weight
Specific gravity
Moisture content, % by weight

B. Operating conditions

1. Operating conditions at the time of the test for each boiler being tested:

- a. Each boiler must be operated at a minimum of 50% capacity for sulfur dioxide testing.
- b. During each test, the boiler must burn the following percentages of fuel on a heat input basis:

Main Plant Boiler Nos. 1-5: 100% residual oil
Baker Boiler Plant Boiler Nos. 1,5 and 6: 100% distillate oil
Soo Line Plant Boiler Nos. 1-3: 100% distillate oil

- c. For each compliance test (each test consists of three runs of a given pollutant):
 - i. During the test, the boiler must burn the same type of fuel(s) that the permit will allow.
 - ii. Each boiler must be operated under normal procedures, appropriate for the steam loads produced during the test. The boilers must be operated by the regular boiler operators.
 - iii. The test must be conducted just prior to any scheduled cleaning and maintenance work to assure compliance under all normal conditions.

2. Operating conditions of the pollution control equipment associated with every source being tested.

a. The pollution control equipment must be operated under normal conditions.

i. Scrubbers

- . pressure drop
- . liquid flow rate
- . liquid chemical and physical parameters
- . recirculation rates
- . liquid pressure

C. Operating data to be recorded during the test

1. Operating conditions of each source tested and its associated pollution control equipment must be documented in the test report. This data must be included in the test report, and certified by a responsible party. No test report will be accepted without complete documentation of process conditions during the test. Documentation of operating conditions must include the following.

a. Recordkeeping of operational parameters as measured during the test in its entirety. For continuous recorders, please provide properly labeled copies of strip charts. For records of discrete data, please provide data taken at 15 minute intervals.

b. Calculations

c. Certification of the data by a responsible party.

d. Brief explanation of how the parameters are measured. Indicate if it is a routine measurement, or a special procedure followed for purposes of the test only.

2. The following operating parameters during the test must be documented.

a. Boiler rates averaged for each test run, heat input during the test to be calculated from:

i. Fuel usage

ii. Steam production. Include chart and calculations from steam integrator, water flow rates, water temperature, calculated thermal efficiency, etc.

iii. Electric output

b. Steam charts

c. Combustion efficiency charts (CO₂, CO, O₂ and temperatures)

d. Stripcharts from continuous emission monitors

e. Operation of the pollution control equipment.

- i. Scrubbers
 - . pressure drop
 - . liquid flow rate
 - . liquid chemical and physical parameters
 - . recirculation rates
 - . liquid pressure

- f. Include description of the most recent maintenance and/or cleaning of the boiler and pollution control system, and how frequently it is done. This frequency of cleaning will be included as a permit condition.

Enclosed is a copy of "Exhibit 2", which describes the general requirements for performance testing. Please review it, to make sure that all the requirements are documented in your test report. Some of these general requirements have already been specifically addressed in this Exhibit as they apply to your particular case.

EXHIBIT 5

CONTINUOUS EMISSION MONITORING SYSTEMS (CEMS)

Part 5A General

This Exhibit applies as described unless otherwise stated by Sections I and V of the Order.

5A.1.0 CEMS Installations

The measurement location and measurement path of the monitors shall be in accordance with 40 CFR Part 60, Appendix B, Performance Specifications for gaseous monitors. The Facility shall obtain written approval from the MPCA for proposed monitor locations prior to installation. The CEMS installation shall provide for a permanent hard copy record such as a digital printer, analog chart recorder or equivalent memory.

5A.1.1 Certification Test Notification

The Facility shall notify the AQD Manager in writing at least 30 days prior to conducting any CEM certification test. The Facility shall submit to the MPCA any CEM certification test within 45 days following the test date.

5A.1.2 Quality Assurance Audit Test Notifications

The Facility shall notify the AQD Manager in writing at least 10 days prior to conducting annual quality assurance audit test procedures. The Facility shall maintain 6 year records on all quality assurance test results. However, the Facility shall submit to the AQD Manager with the next quarterly monitoring report submittal any quality assurance test results which do not meet the requirements of Part 5B.3.0 of this Exhibit.

5A.1.3 Pretest Meeting

The Facility shall request a pretest meeting with MPCA staff at least 10 days prior to conducting any CEM certification test.

5A.1.4 Certification Test Conditions

The process or combustion facility shall be operated in a manner representative of normal operation in all respects during the CEM certification test period and at a load of 50% or greater of rated capacity.

The monitors shall be installed, calibrated and operated in accordance with manufacturer's recommended procedures and specifications.

In cases where the monitor is installed not in conformance with 40 CFR Part 60, Appendix B specifications; or where significant stratification is considered likely, an approved test for stratifications shall be conducted. If significant stratification is indicated, the MPCA may request that the certification test be terminated.

5A.2.0 Sulfur Dioxide (SO₂) Monitors

5A.2.1 Operation

The Facility shall install, maintain, calibrate, and operate SO₂ CEMs in accordance with 40 CFR Part 60, Appendix B and Minn. Rules pts. 7005.1850 to 7005.1880.

5A.2.2 Certification

The Facility shall conduct certification tests in accordance with U.S. EPA Performance Specification (PS) 2, 40 CFR Part 60, Appendix B. The monitor is certified when an approvable certification test report is submitted to the AQD Manager.

5A.2.3 Data Reduction and Record Keeping

The Facility shall record analog or log digital emission measurements in accordance with the following requirements:

- 1) Part 5B of this Exhibit for all sources plus the requirements of CFR Part 60 Appendix F for sources additionally subject to federal New Source Performance Standards (NSPS) and used for compliance determination.
- 2) Applicable emission standards and units based on the averaging period specified in the Order or applicable rule if not specified in the Order.

The Facility shall submit periodic monitoring data reports in accordance with the Order and amendments thereto.

The Facility shall retain all monitoring data for at least six years. The record retention period may be extended as advised in writing by the AQD Manager.

5A.3.0 Diluent (O₂ or CO₂) Monitors

5A.3.1 Operation

The Facility shall install, maintain, calibrate and operate diluent O₂ or CO₂ CEMs in accordance with 40 CFR Part 60, Appendix B and Minn. Rules pts. 7005.1850 to 7005.1880.

5A.3.2 Certification

The Facility shall conduct certification tests in accordance with U.S. EPA Performance Specification (PS) 3, 40 CFR Part 60, Appendix B. The monitor is certified when an approvable certification test report is submitted to the AQD Manager.

5A.3.3 Data Reduction and Record Keeping

The Facility shall record analog or log digital emission measurements in accordance with the following requirements:

- 1) Minnesota Exhibit 5B for all sources plus the requirements of CFR Part 60 Appendix F for sources additionally subject to federal New Source Performance Standards (NSPS) and used for compliance determination.
- 2) Applicable emission standards and units based on the averaging period specified in the Order or applicable rule if not specified in the Order.

The Facility shall submit periodic monitoring data reports in accordance with the Order and amendments thereto.

The Facility shall retain all monitoring data for at least six years. The record retention period may be extended as advised in writing by the AQD Manager.

5A.4.0 Quality Assurance Procedures

The Facility shall maintain and calibrate the CEMs in accordance with Order requirements, and shall implement a quality assurance program in accordance with the following standard procedures and guidelines:

- A) Minnesota Exhibit 5B, Quality Assurance Guidelines, shall apply to all sources having Order required CEMs plus the requirements of CFR Part 60, Appendix F, shall apply for sources additionally subject to federal New Source Performance Standards (NSPS).
- B) A Facility who operates a noncertifiable or nonaffected CEMs shall be required to maintain and calibrate the CEMs in accordance with equipment manufacturer's recommended procedures and instructions, or modified recommended procedures as approved by the AQD Manager. The Facility shall verify calibration as necessary to maintain specified accuracy, or at the request of the AQD Manager should any data evaluation or inspection indicate the need for further quality assurance.

5A.5.0 Continuous Operation

The Facility shall operate all CEMs and associated equipment so as to maintain a 90 percent minimum up-time (operating time) based on quarterly reporting periods.

Demonstration of the percent up-time (operating time) must be made with a report to the AQD Manager on the percent down-time for each CEM required in the applicable Special Condition of this Order. This report must include a tabulation of the daily down-times for each CEM on a quarterly basis. Up-time calculations need not include CEM outage due to the following causes:

- A. Lightning strikes, earthquakes, tornadoes and similar natural disasters.
- B. Special order time for needed parts not included in equipment manufacturer's list of recommended spare parts.
- C. Reasonable time periods for scheduled maintenance based on equipment manufacturer's recommended maintenance schedule.

- D. Reasonable time periods for return of the CEM to manufacturer if component failure invalidates factory certification.

The Facility shall submit the down-time report to the AOD Manager on a monthly basis by the 30th day of the month following the end of the monitored calendar quarter.

5A.6.0 Zero and Span Drift Checks

The Facility shall conduct zero drift and span drift checks on a daily basis in accordance with 40 CFR Part 60.13. The Facility shall also log the resulting readings using Attachment 1. Records must be retained for a period of six years.

The zero and span must, as a minimum, be adjusted whenever the 24-hour zero drift or 24-hour span calibration drift exceeds two times the drift limits of the applicable performance specification in 40 CFR Part 60, Appendix B.

5A.7.0 Reporting

The Facility shall submit to the AOD Manager on a quarterly basis on the 30th day following the end of the calendar quarter, or as specified otherwise under Special Conditions of the Order, the following reports as applicable:

- A. All excess emissions of SO₂ emissions in pounds per million Btu heat input based upon the permit specified averaging period. Report data on EER 1, EER 2 and EER 3.
- B. A tabulation of daily CEMS downtime periods on a unit or each boiler basis and calculations of the overall quarterly CEM downtime and uptime on a unit or each boiler basis.

TABLE I
COMBUSTION SOURCES

Fuel Input

1. Itemize all fuels and materials that are added to the combustion process during the test period. Attach analysis of the fuel.

FUEL DESCRIPTION Coal: State, City, Mine Oil: Specify Grade	INPUT (LBS/HR) (GAL/HR)	% MOISTURE As Rec'd (coal)	HT. VALUE As Rec'd (BTU/LB) (BTU/GAL)	HEAT INPUT (BTU/HR)
No. 1				
No. 2				
No. 3				
TOTAL				

2. Are the above fuels substantially the same as those normally burned _____.
If not, explain _____
3. Are the above fuels normally burned in the proportions shown above _____.
If not, explain _____

Equipment & Operating Data

1. Furnace No. _____.
2. Furnace Mfg. _____.
3. Type of Firing _____.
4. Furnace operating under normal operating conditions No _____;
Yes _____.

Air Pollution Control Equipment

1. Type/model control equipment _____.
 2. Air pressure drop across the control equipment _____.
 3. Air flow through the control equipment _____.
 4. Was the control equipment operating normally? _____.
 5. Data of last major maintenance/cleaning of control equipment. _____.
- _____.

Plant Operator's Certification

I certify that the information submitted herein is accurate and correct and that no information requested was withheld from the AQD Manager.

By _____, Position _____

TABLE II
PROCESS EMISSIONS

Equipment & Operating Data

1. Process Equipment No./Ident. _____.
2. Process Equipment Description _____
_____.
3. Process equipment operating under normal operating conditions:
No _____. Yes _____.

Instrument Data on Process Equipment

1. Include copy of production records or instrumentation which indicates rate of production or operation of the equipment, i.e. units per hour, lbs. per hour, pressure, air flow, etc.

Air Pollution Control Equipment

1. Type/model control equipment _____.
2. Air pressure drop across the control equipment _____.
3. Air flow through the control equipment _____.
4. Was the control equipment operating normally? _____.
5. Data of last major maintenance/cleaning of control equipment _____
_____.

Plant Manager's Certification

I certify that the information submitted herein is accurate and correct and that no information requested was withheld from the AQD Manager.

By _____, Position _____

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Part 5B Quality Assurance

5B.1.0 Purpose

The primary objective of the quality assurance plan is to insure that continuous emission monitors continually produce accurate data. Secondly, the quality assurance plan shall include procedures for timely corrective action whenever audits indicate the monitors are not within established limits of accuracy.

5B.1.1 Applicability

An owner or operator of an emission unit required to employ certifiable continuous emission monitors (CEMs) is required to develop and implement a quality assurance plan for CEMs. This includes, but is not limited to all sources required by Minn. Rules pt. 7005.1850 and to all sources subject to those New Source Performance Standards found in 40 CFR Part 60 that require continuous emission monitoring and reporting. The MPCA will review other monitored sources on a case-by-case basis.

Subpart Da, Db and Dc facilities as defined in 40 CFR Part 60 must also comply with 40 CFR Part 60 Appendix F for Gaseous CEMs in developing and implementing their Quality Assurance programs. For these facilities where Appendix F and Exhibit G conflict, the most stringent of these will apply.

5B.1.2 Elements of Quality Assurance Plan

This Quality Assurance program is designed so that the source owner or operator has the flexibility to develop and implement a quality assurance plan best suited to the specific monitors installed and to the particular operating conditions of the facility.

In addition to the Testing Requirements, Evaluation of Test Reports and Reporting Requirements shown in Sections 5B.2.0, 5B.3.0 and 5B.4.0 of this document, the following elements are considered to be minimum requirements to be included in the quality assurance plan:

1. General description of monitors and monitor location.
2. Special written audit procedures.
3. Spare parts inventory and management procedures.
4. Repair and preventative maintenance procedures and records.
5. Monitor downtime procedures and records.
6. Daily record of zero and calibration drift checks.
7. Data recording reduction and reporting.
8. F-factors used in determining emission rates and how determined for mixed fuels.

9. Cylinder gas inventory - usage and procedure.

10. Gas cylinder certification procedures.

5B.1.3 Submittal of Plan

The Facility operators shall submit Quality Assurance plans and schedules in accordance with requirements specified in their Order and/or amendments to Supervisor, Compliance Determination Unit, Compliance and Enforcement Section, Air Quality Division, Minnesota Pollution Control Agency.

5B.1.4 Classification of Monitors

CLASS I - SO₂, CO₂, O₂ Monitors

Characteristics:

- 1) Capable of internal zero and span check
- 2) Capable of auditing with cylinder gas

CLASS II - SO₂, CO₂, O₂ Monitors

Characteristics:

- 1) Not capable of auditing with cylinder gas
- 2) External cells available to check zero and upscale
- 3) Audit with reference method

5B.2.0 Testing Reports

5B.2.1 Class I SO₂, CO₂, O₂ Monitors

The Facility shall conduct the following audits on a daily basis for Class I monitors:

5B.2.1.1 A daily calibration drift and zero drift test in accordance with the manufacturers' recommendations and methods. Data shall be recorded on Attachment 1 on an equivalent computer generated format. The monitor shall be adjusted whenever the zero or span drift measurements exceed two times the limits of the applicable performance specifications in 40 CFR Part 60, Appendix B.

The Facility shall conduct the following audits on an annual basis for Class I monitors:

5B.2.1.2 Cylinder gas audit (CGA) to assess the accuracy of the monitor using a known concentration of cylinder gas. Six sets of measurements are required. Cylinder gas shall be traceable to National Bureau of Standards in all respects and shall be introduced into the monitor for a sufficient time to assure stabilization. Traceability protocol shall be submitted. Determination of compliance shall be by calculating the accuracy in accordance with 40 CFR Part 60, Appendix F as shown below.

$$A = \frac{C_m - C_a}{C_a} \times 100$$

A = Accuracy of CEMs, percent
C_m = Average CEMs response during audit in units of applicable standard or appropriate concentration
C_a = Average audit value (CGA certified value) in units of applicable standard or appropriate concentration

5B.2.1.3 A 168 hour calibration drift and zero drift test using internal gas cells, neutral density filters, attenuators or equivalent to determine the amount of deviation from the reference value in accordance with Performance Specification 2, 3 and 4 of 40 CFR Part 60, Appendix B. The method of calculation for accuracy of this test shall be by following equations in Section 8 of Appendix B of 40 CFR Part 60.

5B.2.1.4 Test reports shall be submitted to the Agency in accordance with the Order and/or amendments thereto.

5B.2.2.0 Class II SO₂, CO₂, O₂ Monitors

The Facility shall conduct the following audits on a daily basis for Class II monitors:

5B.2.2.1 A daily calibration drift and zero drift test in accordance with the manufacturers' recommendations and methods. Data shall be recorded on Attachment 1 or on an equivalent computer generated format. The monitor shall be adjusted whenever the zero or span drift measurements exceed two times the limits of the applicable performance specifications in 40 CFR Part 60, Appendix B.

The Facility shall conduct the following audits on an annual basis for Class II monitors:

5B.2.2.2 Relative accuracy audits (RAA) using applicable Reference Methods. Six sets of measurements taken for 21 minutes or until complete stabilization is achieved are required. Determination of compliance shall be by calculating the accuracy in accordance with 40 CFR Part 60, Appendix F as shown below.

$$A = \frac{C_m - C_a}{C_a} \times 100$$

A = Accuracy of CEMs, percent
C_m = Average CEMs response during audit in units of applicable standard or appropriate concentration
C_a = Average audit value (CGA certified value) in units of applicable standard or appropriate concentration

5B.2.2.3 A 168 hour calibration drift and zero drift test using internal gas cells, neutral density filters, attenuators or equivalent to determine the amount of deviation from the reference value in accordance with Performance Specification 2, 3 and 4 of 40 CFR Part 60, Appendix B. The method of calculation for accuracy of this test shall be by following equations in Section 8 of Appendix B of 40 CFR Part 60.

5B.2.2.4 Test reports shall be submitted to the MPCA in accordance with the Order and/or amendments thereto.

5B.3.0 Evaluation of Test Reports

5B.3.1 Class I, II Monitors

5B.3.1.1 Daily and 168 hour calibration drift and zero drift Monitors shall be recalibrated whenever the zero or calibration drift exceeds two times the limits of the applicable performance specification in Appendix B.

5B.3.1.2 Cylinder gas audit The system shall be recalibrated whenever the cylinder gas audit exceeds $\pm 15\%$.

5B.3.1.3 Relative Accuracy Audits (RAA) The system shall be recalibrated whenever the relative accuracy audit exceeds $\pm 15\%$ or 7.5% of the applicable standard, whichever is greater.

5B.3.1.4 Re-testing Requirement The Facility shall conduct a second test whenever the first test results demonstrate exceedance of the acceptable limits and after the monitor has been recalibrated. The second test shall be conducted within 60 days after an exceedance is determined.

5B.3.1.5 Alternate Emission Monitoring Whenever a monitor exceeds acceptable accuracy limitations, the Facility shall use another approved method of obtaining emission data.

5B.4.0 Reporting Requirements

In addition to the test reports required in 5B.2.0, the Facility shall submit to the Agency the test results of the re-test. The re-test results shall be submitted within 30 days after the re-test date.

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Attachment 1

MONITOR MODEL NUMBER: _____

MONITOR SERIAL NUMBER: _____

DAILY ZERO AND UPSCALE CALIBRATION LOG

		ZERO				UPSACLE		
DATE	YEAR	ZERO SETTING	MONITOR RDG.	Z ERROR	UPSACLE CALIBRATION	MONITOR RDG.	& ERROR	

CONTINUOUS EMISSION MONITORING SURVEY
--

SECTION I. GENERAL PROCESS AND MONITOR INFORMATION

Instructions: Provide the information required in this Section one time, only.

Source Name: No. 4 Boiler. (Stack No. 2)

Location Minneapolis, MN
(city, state)

List all units / processes at the facility that have continuous emission monitoring systems, and the type(s) of monitor(s) on each unit or process:

Boiler No. 4 (Stack No. 2)

Give the location(s) of all of the continuous monitor(s), illustrating with sketches:

See attached Drawing No. CEM-1

If any of the monitored units or processes are combustion sources, give the type(s) of fuel(s) burned in each unit:

Boiler No. 4: Natural Gas, Distillate oil, Residual Oil

Give the design rated heat input capacity of each monitored combustion unit, in million Btu/hr:

Boiler No. 4: 240 MMBTU/hr (Gas)
231 MMBTU/hr (Oil)

Estimate the annual operating time of each monitored process or unit (hrs/yr), and, if a combustion unit, estimate the percentage of design rated capacity at which the unit normally operates:

7000 Hours/year
Normally operating at 40-70% of rated capacity

Comments and Further Explanations:

Give the name of the principal continuous emission monitoring (CEM) contact at the facility:

Name: Michale Carroll

Title: Director Operations

Telephone Number: 349-6087

SECTION II. SPECIFIC MONITOR AND FUEL SAMPLING INFORMATION

Instructions: Complete one set of Section II forms for each continuous monitoring system at the facility, making photocopies if necessary, to describe all of the CEM's at the plant. If there are multiple monitors of the same type on different units (e.g., if Units 1,2, and 3 all have opacity monitors), it may not be necessary to fill out multiple sets of forms, provided when the information applies to more than one unit this is made clear, and if there are any differences among otherwise identical monitors or units (e.g., if certification dates, permissible emission limits, stack dimensions, etc. are not the same), this is clearly indicated. The space provided below for, "Further Comments and Explanations" may be used for this purpose.

Unit(s) or Process(es) Monitored: No. 4 Boiler

Type of Continuous Monitoring System:

Opacity Monitor Gas Monitoring System (Pollutant + Diluent Monitor) Gas Monitor (Alone)
 Fuel Sampling System Other (Specify)

Pollutant Monitored: Opacity SO₂ NO_x CO TRS
 H₂S NH₃ VOC Vinyl Chloride

Diluent Gas Monitored (if applicable): O₂ CO₂ either

Permissible Emission Limit(s) for Pollutant Monitored (Include Units):

Opacity: 20%
SO₂: Residual Oil: 0.16 lbs/MMBTU; Distillate Oil: 0.6 lbs/MMBTU
NO_x: Gas 0.10 lbs/MMBTU; Light Oil = 0.20 lbs/MMBTU
 Residual Oil 0.30 lbs/MMBTU

Monitoring System Required by (specify more than one, if applicable):

State Regulations NSPS Operating Permit PSD Permit
 NESHAP Federal Consent Decree Federal Administrative Order
 State Consent Decree State Administrative Order Other
(Specify)

Pollutant Monitor Information:

Manufacturer: Not yet known: see attached specifications

Model No.: _____

Serial No.: _____ Date Installed: _____

Design: Extractive Point In-Situ Path In-Situ

Measurement Basis: Wet Dry

Has a performance specification test (PST) of the monitor been done
(ref. 40 CFR 60, Appendix B)? yes no

PST Date: _____ PST Status: Pass Fail

For an opacity monitor, specify the following dimensions:

Stack exit inside diameter (give units) _____

Stack or duct inside diameter at the
CEM location (give units) _____

Give the value of the stack exit opacity correlation factor (e.g.,
the OPLR, STR, M factor, etc.) _____

Diluent Monitor Information (if applicable):

Manufacturer: Not yet known

Model No.: _____

Serial No.: _____ Date Installed: _____

Design: Extractive Point In-Situ Path In-Situ

Measurement Basis: Wet Dry

PST Date: _____ PST Status: Pass Fail

Fuel Sampling and Analysis Information:

For combustion sources, are samples of the fuel(s) regularly taken and analyzed? yes no

At what frequency? Daily, when burning oil.

What collection method is used? Grab sample from fuel oil supply piping.

What method of analysis is used? ASTM Methods D-1552, D-240 & D-482

Primary Data Acquisition System (DAS) Information:

Type of System: Chart Recorder Digital Recorder
 Computer Microprocessor Telemetry
 Other (Specify)

Manufacturer(s): Not yet known: see specifications

DAS Full-Scale value(s) during normal operation (include units): Pollutant monitor Diluent Monitor

DAS Resolution (i.e., Readability) or smallest scale division (give units): Pollutant Monitor Diluent Monitor

Is there a secondary (back-up) DAS? If so, describe it.

Further Comments and Explanations:

SECTION III. QUALITY ASSURANCE INFORMATION

Instructions: Follow the same general instructions as for Section II, above.

Unit(s) or Process(es) Monitored: No. 4 Boiler

Type of Monitoring System: CEM System for SO₂, NO_x Opacity

A. Drift Checks

How often is the CEMS zero and span drift checked?

Pollutant Monitor Daily

Diluent Monitor Daily

Briefly describe the calibration procedures. Indicate whether the calibrations are manual or automatic:

Does the CEMS have automatic calibration drift compensation? _____ (Y/N)

Are routine adjustments of the CEMS made when the zero or span drift exceeds certain "control limits"? _____ (Y/N)

If so, state the control limits (include units): _____ Pollutant Monitor
_____ Diluent Monitor

B. Calibration Materials

1. Opacity Upscale Internal Calibration Filter Value: _____ % Opacity
_____ Optical Density

2. Calibration Gas Concentrations:
(Include Units)

Pollutant: zero gas span gas

Diluent: zero gas span gas

Are EPA Protocol 1 gases used? _____ (Y/N)

Are cylinder gas concentrations certified by the vendor? _____ (Y/N)

If so, state the % accuracy: _____

Are the cylinder gases periodically analyzed? _____ (Y/N)

If so, at what frequency and by what method(s)?

3. Are other calibration materials (e.g., span cells) used? _____ (Y/N)

If so, describe them and indicate their concentrations.

C. Audits

Are regular performance audits of the monitoring system done? _____ (Y/N)

What type of audits are done? _____ neutral density filter _____ cylinder gas
_____ relative accuracy test audit (RATA) _____ relative accuracy audit (RAA)

At what frequency is each type of audit done?

For RATA's and RAA's, are EPA audit samples analyzed? _____ (Y/N)

By whom are the audits done? _____ source personnel _____ contractor
_____ state agency _____ EPA _____ Other (specify)

D. Quality Assurance Program

Is there a written QA plan or manual for the CEMS? _____ (Y/N)

If so, what information does it include?

Is a "spare parts" inventory kept for the CEMS? _____ (Y?N)

Who is responsible for maintaining and servicing the CEMS?

What general procedures are followed to correct malfunctioning monitors?

Further Comments and Explanations:

The vendor for the CEM system has not yet been chosen, see attached CEM Specifications.

SECTION IV. CEMS DATA REDUCTION PROCEDURES

Instructions: Follow the same general instructions as for Section II, above.

Unit(s) or Process(es) Monitored: No. 4 Boiler

Type of Monitoring System: CEM System for SO₂, NO_x, Opacity

A. Data Reduction and Validation

For opacity monitors, what averaging period is used? 1 minute
 6-minute Other (specify)

For gas monitors, are the data reduced to hourly averages? (Y/N)

By what criteria (if any) are CEM data averages judged to be valid or invalid?

B. Calculation Methods

For opacity monitors, is a "combiner" system used? (Y/N)

If so, explain how the stack exit opacity is calculated from the monitor signals (include all relevant equations and assumptions):

For gas monitors, explain how the CEMS data are converted to units of the emission standard (e.g., lb/MBtu, equivalent %S-in-fuel, etc.). Include all relevant equations, F-factors, and any assumptions made.

Further Comments and Explanations:

SECTION V. RECORDKEEPING AND DATA REPORTING

Instructions: Follow the same general instructions as for Section I, above (i.e., fill in this Section only once).

A. Recordkeeping

Is an active data file of CEMS measurements kept? (Y/N)

For how long is the file active? 1 year 2 years Other (specify)

What other CEM information is kept in the file?

zero and span drift check results (Y/N)

records of CEM adjustments and maintenance (Y/N)

fuel sampling and analysis results (Y/N)

results of PST and audits (Y/N)

other (specify)

B. Reporting

Are CEM "self-monitoring" reports regularly prepared? (Y/N)

If so, at what frequency? quarterly semiannually other (specify)

To whom are the reports submitted? state agency EPA

How are excess emission periods defined and determined?

What information is contained in the self-monitoring reports?

incidents of excess emissions (Y/N)

incidents of monitor downtime (Y/N)

source operating time _____ (Y/N)

reasons for excess emissions _____ (Y/N)

reasons for monitor downtimes _____ (Y/N)

corrective actions taken for process malfunctions _____ (Y/N)

corrective actions taken for CEM outages _____ (Y/N)

other (specify)

SECTION VI. CERTIFICATION

I hereby certify that the information given in Sections I-V, above is, to the best of my knowledge, true and accurate.

Name Gary W. Gustafson

Title Director, Engineering

Signature 

Date April 28, 1992

DRAWING NO. CEM-1
MINNEAPOLIS ENERGY CENTER

NO. 4 BOILER (EMISSION POINT NO. 2)
CONTINUOUS EMISSIONS MONITOR

SCALE: 1/4"=1'-0"

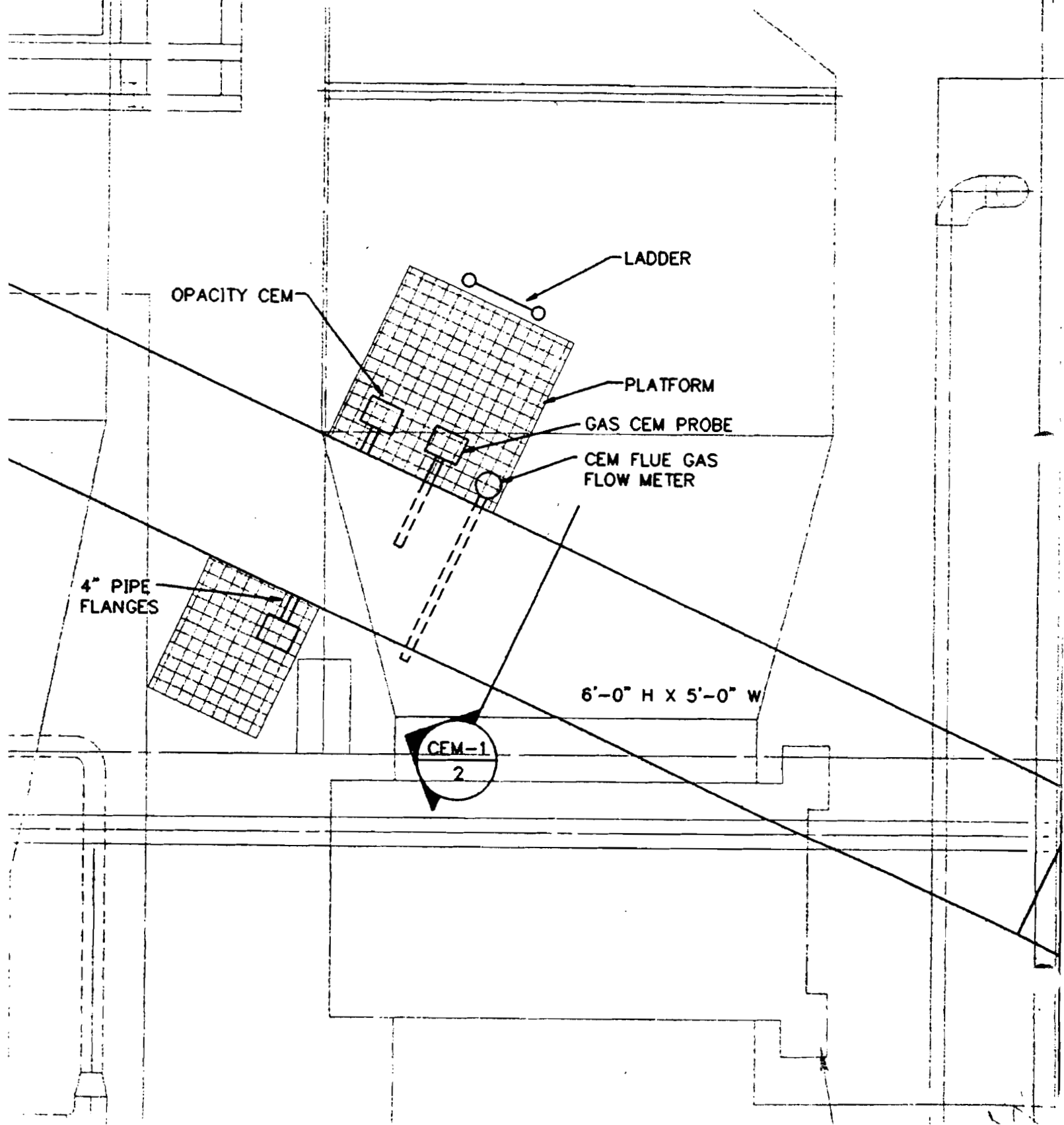


EXHIBIT 7

Continuous Monitoring System
Minneapolis Energy Center

The Company shall provide a complete continuous emissions monitoring and data acquisition system for a new natural gas/distillate oil/residual oil fired package boiler (Boiler No. 4) rated 200,000 lbs/hour steam output at 250 psig saturated; the boiler is equipped with a wet scrubber for use when burning residual oil only. The flue gas leaving the scrubber is reheated to 300 degrees Fahrenheit. This system shall meet the requirements and be certified under USEPA 40 CFR Part 60 and Minnesota Rules pts. 7005.1850 to 7005.1880.

I. The Company shall install Continuous Emission Monitors (CEMs) for the following emissions on Boiler No. 4 (Emission Point No. 2)

A. SO₂ Monitor(s) - The Company shall provide a complete sulfur dioxide continuous emissions monitoring system. This system shall include the induct sample equipment (probe), the actual gas analyzer (in-situ or remote for extractive systems), interconnecting tubing (no field splices allowed) and cables (and heaters if needed), pumps, electronics processor, and output signal (4-20mA and/or digital) to the data acquisition system and recorder. The analyzer shall be either the Pulsed Fluorescence or Ultraviolet Photometric type. The analyzer/monitor shall have a digital read-out of the instantaneous emissions in engineering units. All components that come in contact with the gas stream shall be Alloy 20 or Teflon.

The CEM shall automatically switch between ranges when the type of oil is changed based on a signal from the combustion control system (by owner) if needed to comply with 40 CFR Part 60 Appendix B, Performance Specification 2, paragraphs 4.1 and 4.2.

The monitor/analyzer shall have the following performance characteristics:

Flue Gas Temperature:	750° F Maximum
Relative Accuracy (RA):	< 10.0% (per EPA guideline)
Calibration Drift (zero and high-level):	< 2.5% of span
Response Time:	no greater than 15 minutes

The monitor/analyzer shall have daily automatic zero and span calibration with calibration gas introduced directly into the stack probe. All necessary valves, controls, tubing, fittings, etc. shall be supplied for the automatic gas calibration system. A one-month supply of calibration gas will be provided.

The monitor/analyzer shall be capable of a Cylinder Gas Audit (CGA) per the USEPA 40 CFR Part 60 Appendices B and F. A supply of test gas will be provided for one CGA.

B. Diluent Gas Monitor - The Company shall provide a carbon dioxide (CO₂) or oxygen (O₂) diluent gas monitor/analyzer as required and integrated into the SO₂ and NO_x monitors/analyzers system per Performance Specifications 2 and 3 of USEPA 40 CFR Part 60, Appendix B.

II. The Company shall install a Data Acquisition System (DAS) to accept the following inputs:

A. Main Plant

1. On-line input data from CEM's.
2. On-line input of fuel flows from Boiler Nos. 1 through 4.
3. Manual input of daily fuel oil sampling analyses (when burning oil).

B. Baker Boiler Plant

1. Manual logging by operators of when boilers are on-line and off-line, and type of fuel burned.
2. Manual input of fuel usage on a daily basis.
3. Manual input of daily fuel oil sampling analysis (when burning oil).

C. Soo Line Boiler Plant

1. Manual logging by operators of when boilers are on-line and off-line, and type of fuel burned.
2. Manual input of fuel usage on a daily basis.
3. Manual input of daily fuel oil sampling analyses (when burning oil).

III. The DAS shall perform the following calculations:

A. Main Plant Boiler Nos. 1,2,3 and 4

1. SO2 Emissions in Total Pounds and Pounds/MMbtu
 - a. 3-hour and rolling average
 - b. 24-hour and rolling average
 - c. 30-day average
 - d. Annual and 365-day rolling average
2. Total Facility Emission Level (TFEL)
 - a. Real time 3-hour
 - b. Real time 24-hour
 - c. Annual pounds/hour
3. Both distillate and residual fuel oil usage will be totalized to track monthly total fuel oil use.

B. Baker Boiler Plant Boiler Nos. 1,5 and 6

1. Operating status of the boilers shall be used to determine compliance with the appropriate TFEL listed on page 7 of the Order.
2. Daily distillate fuel oil usage shall be logged to track monthly total usage.

C. Soo Line Boiler Plant Boiler Nos. 1,2 and 3

1. Operating status of the boilers shall be used to determine compliance with the appropriate TFEL listed on page 7 of the Order.
2. Daily distillate fuel oil usage will be logged to track monthly total usage.