



**AMENDMENT NO. 2 TO
AIR EMISSION PERMIT NO. 1148-83-OT-1 [10900019]
IS ISSUED TO**

**FRANKLIN HEATING STATION
119 Third Street Southwest
Rochester, Minnesota 55902**

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

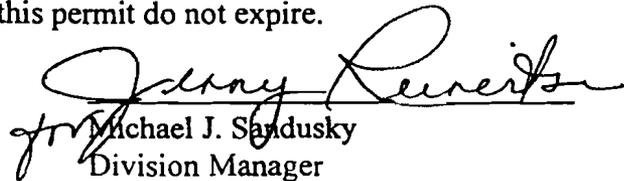
Total Facility permit application received Sept. 15, 1995.

This Major Permit amendment incorporates the Title I conditions and related requirements into the facility's operating permit. These Title I State Implementation Plan (SIP) conditions consist of emission limits necessary to attain and maintain national and state ambient air quality standards for Sulfur Dioxide (SO₂). The Permittee must comply with all the conditions of the permit and with all general conditions listed in Minn. R. 7007.0800, subp. 16 and all standard permit requirements listed in 40 CFR § 70.6(a). Any changes or modifications to the stationary source must be performed in compliance with Minn. R. 7007.1150 to 7007.1500. Terms used in the permit are as defined in the state air pollution control rules unless the term is explicitly defined in the permit.

Issue Date: June 19, 1998

Expiration: Pursuant to Minn. R. 7007.0350, subp. 2, if a stationary source is operating under an air emission permit issued by the MPCA under Minn. R. 7001.1200 to 7001.1220, and if the Permittee submits a complete application for reissuance by March 15, 1995, under Minn. R. 7007.0100 to 7007.1850, the permit shall be considered not to expire until a new permit is issued.

Conditions identified as Title I Conditions in this permit do not expire.


Michael J. Sandusky
Division Manager
Air Quality Division

for Peder J. Larson
Commissioner
Minnesota Pollution Control Agency

NOTICE TO THE PERMITTEE

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

Metro Area	(612)296-6300
Outside Metro Area	1-800-657-3864
TTY	(612)282-5332

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

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

FACILITY DESCRIPTION

The emission units at Franklin Heating Station include four boilers which discharge through a common stack 190 feet high, and two dual-fuel engine powered generators. Boiler Nos. 1, 3 and 4 are capable of burning natural gas and residual oil. Boiler No. 2 at present is capable of burning only natural gas. The total rated heat input to the four boilers included in this permit is 502 million Btu/hr. The boilers were limited to a total heat input of 436 million Btu/hr as part of a SIP condition in a 1983 permit. That limitation is removed by this permit action. Boiler Nos. 1 and 2 were installed in 1952, and 3 and 4 in 1968. The engine generators were installed in 1982 and are capable of burning natural gas and distillate fuel oil.

Deletions:

Delete from Air Emission Permit No. 1148-83-OT-1, the following sections:

Page 2, Part I.A.1.a. Delete Derated Heat Input of 103 million BTU/hr
Delete listed fuel types

Page 2, Part I.A.1.b. Delete Derated Heat Input of 103 million BTU/hr
Delete listed fuels types

Page 2, Part I.A.1.c. Delete Derated Heat Input of 115 million BTU/hr
Delete listed fuel types

Page 3, Part I.A.1.d. Delete Derated Heat Input of 115 million BTU/hr
Delete listed fuel types

Page 6, Part II.A.2.a.3.

Page 7, Part II.A.6.

Page 8, Part II.A.7.

Page 9, Part II.A.9.

Additions:

Add to Air Emission Permit No. 1148-83-OT-1, a section II. C entitled State Implementation Plan (SIP) Related Conditions which is shown below:

Part II C. State Implementation Plan (SIP) Related Conditions

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

Subject Item: Group Number SO₂ limits for Boilers No. 1, 2, 3, and 4 without
 GP001 use of CEMS

Associated Items: Emission Units Stack No. 016
 024, 025, 026, 027

What to do	Why to do it
<p>Amendments to Title I Conditions: If any permit requirement cited as "Title I Condition: State Implementation Plan for Sulfur Dioxide" is amended, the amendment must first comply with procedures of Minn. R. 7007.0850 (Permit Application Notice and Comment) and Minn. R. 7007.0950 (EPA Review and Objection) applicable to major amendments to Part 70 permits.</p>	<p>Title I Condition: State Implementation Plan for Sulfur Dioxide</p>
<p>Fuel Types Allowed: Emission Units 024, 026, and 027 (Boilers No. 1, 3, and 4) are allowed to burn natural gas, No. 6 fuel oil and No. 2 fuel oil. Emission Unit 025 (Boiler 2) is limited to natural gas and No. 2 fuel oil. No. 2 fuel oil and No. 6 fuel oil usage rates for Group 001 shall be measured by fuel flow meters. Hourly usage rates of No. 2 and No. 6 fuel oil shall be individually recorded, each hour that any fuel oil is combusted.</p> <p>The Permittee is authorized to install piping, pumps and related equipment so that No. 2 fuel oil stored in existing 4000 or 150,000 gallon tanks can be used as fuel in any of the emission units in this Group.</p>	<p>Title I Condition: State Implementation Plan for Sulfur Dioxide</p>

<p>Sulfur Dioxide: less than or equal to 325 lbs/hour and less than or equal to the amount determined by the following regression equation, as a 3-hour Average, when the diesel engines are burning diesel fuel:</p> $\text{lbs/hour SO}_2 = 272.2042 - 32.885496x + 1.839104x^2 - 0.0384732x^3 + 3.5301(10^{-4})x^4 - 1.1877(10^{-6})x^5$ <p>where x = % Load of Group 001, x > or = 30 and < 100 For x < 30 %, lbs/hour SO₂ = (lbs/hour SO₂ at x = 30)(x/30)</p>	<p>Title I Condition: State Implementation Plan for Sulfur Dioxide</p>
<p>Sulfur Dioxide: less than or equal to 400 lbs/hour and less than or equal to the amount determined by the following regression equation, as a 3-hour Average, when the diesel engines are not burning diesel fuel:</p> $\text{lbs/hour SO}_2 = 980.8598 - 82.991667x + 2.979598x^2 - 0.0471137x^3 + 3.5006(10^{-4})x^4 - 9.970125(10^{-7})x^5$ <p>where x = % Load of Group 001, x > or = 30 and < 100 For x < 30 %, lbs/hour SO₂ = (lbs/hour SO₂ at x = 30)(x/30)</p>	<p>Title I Condition: State Implementation Plan for Sulfur Dioxide</p>

<p>Sulfur Dioxide: less than or equal to 209 lbs/hour and less than or equal to the amount determined by the following regression equation, as a 24-hour Block Average, when the diesel engines are burning diesel fuel:</p> $\text{lbs/hour SO}_2 = -781.00 + 71.852078x - 2.037781x^2 + 0.0281917x^3 - 1.90495(10^{-4})x^4 + 5.04111(10^{-7})x^5$ <p>where x = % Load of Group 001, x > or = 30 and < 100 For x < 30 %, lbs/hour SO₂ = (lbs/hour SO₂ at x = 30)(x/30)</p>	<p>Title I Condition: State Implementation Plan for Sulfur Dioxide</p>
<p>Sulfur Dioxide: less than or equal to 258 lbs/hour and less than or equal to the amount determined by the following regression equation, as a 24-hour Block Average, when the diesel engines are not burning diesel fuel:</p> $\text{lbs/hour SO}_2 = -523.91 + 41.871645x - 0.833163x^2 + 7.26395(10^{-3})x^3 - 2.33717(10^{-5})x^4$ <p>where x = % Load of Group 001, x > or = 30 and < 100 For x < 30 %, lbs/hour SO₂ = (lbs/hour SO₂ at x = 30)(x/30)</p>	<p>Title I Condition: State Implementation Plan for Sulfur Dioxide</p>
<p style="text-align: center;">.....</p>	
<p>Percent Load: the Permittee shall calculate % Load from the following equation:</p> $\% \text{ Load} = \frac{\left(\frac{\text{No.6gal}}{\text{hr}}\right) \cdot \left(\frac{150000\text{Btu}}{\text{gal}}\right) + \left(\frac{\text{NGSCF}}{\text{hr}}\right) \cdot \left(\frac{1050\text{Btu}}{\text{SCF}}\right) + \left(\frac{\text{No.2gal}}{\text{hr}}\right) \cdot \left(\frac{140000\text{Btu}}{\text{gal}}\right)}{\left(\frac{333,000,000\text{Btu}}{\text{hr}}\right)} \cdot 100$ <p>If the calculated percent Load is greater than 100, the Permittee shall use 100 in the regression equations to determine the lbs/hour SO₂ limit. This ensures that the SO₂ emission limit (in lbs/hour) will not exceed the modeled emission levels that demonstrated modeled compliance with ambient standards.</p>	<p>Title I Condition: State Implementation Plan for Sulfur Dioxide</p>
<p>Where: No. 6gal = gallons of No. 6 fuel oil burned in Boilers No. 1, 3 and 4 NGSCF = Natural gas standard cubic feet burned in Boilers No. 1,2,3 and 4 No. 2gal = gallons of No. 2 fuel oil burned in Boilers No. 1, 2, 3 and 4</p>	<p>Title I Condition: State Implementation Plan for Sulfur Dioxide</p>

<p>Record keeping: the Permittee shall calculate the actual SO₂ emission rate in lbs per hour using the following equation:</p> $\frac{lbSO_2}{hr} = a \left(\frac{lbS}{lbfuel} \right) * \left(\frac{2lbSO_2}{lbS} \right) * b \left(\frac{galfuel}{hr} \right) * c \left(\frac{lb}{galfuel} \right) +$ $d \left(\frac{lbS}{lbfuel} \right) * \left(\frac{2lbSO_2}{lbS} \right) * e \left(\frac{galfuel}{hr} \right) * f \left(\frac{lb}{galfuel} \right)$ <p>where: a = lb. of sulfur per lb. of No. 6 fuel oil b = gallons of No. 6 fuel actually burned per hour c = density of the No. 6 fuel in lb/gal d = lb. of sulfur per lb. of No. 2 fuel oil e = gallons of No. 2 fuel actually burned per hour f = density of the No. 2 fuel in lb/gal</p>	<p>Title I Condition: State Implementation Plan for Sulfur Dioxide</p>
<p>Record keeping: the Permittee shall calculate and record each hour the lbs/hour SO₂ emission limit from the regression equation and the actual lbs/hour SO₂ emissions. These records shall be readily accessible at all times.</p>	<p>Title I Condition: State Implementation Plan for Sulfur Dioxide</p>
<p>Record keeping: the Permittee shall calculate and record the 24-hour average lbs/hour SO₂ emission limit from the regression equation. The Permittee shall sum the 24 1-hour actual emission calculations for the previous calendar day and divide by 24. These calculations shall be completed and recorded daily for the previous day. These records shall be readily accessible at all times.</p>	<p>Title I Condition: State Implementation Plan for Sulfur Dioxide</p>
<p>Record keeping: the Permittee must obtain and maintain an analysis of the fuel oil burned in Emission Units 024, 025, 026, and 027 (Boilers 1, 2, 3, and 4) as follows:</p> <p>The Permittee shall obtain and retain fuel supplier certifications from the fuel supplier for each shipment of No. 6 and No. 2 fuel oil delivered to the facility, stating the guaranteed maximum sulfur content of the fuel delivered. By the end of the next business day after a fuel oil delivery, the Permittee shall calculate the sulfur content of the fuel in the tank using the sulfur content of the fuel in the tank prior to the delivery and calculating the new sulfur content of the tank after delivery. The Permittee shall collect a sample of No. 6 fuel oil from each No. 6 fuel oil storage tank once each year. The sample shall be analyzed for heating value and sulfur content. The sulfur content of the sample and the last calculated value of the sulfur content of the fuel oil in the tank shall be reported to the Agency.</p>	<p>Title I Condition: State Implementation Plan for Sulfur Dioxide</p>
<p>Monitoring: The Permittee shall ensure that approved American Society of Testing and Materials (ASTM) methods are used to determine sulfur content and heating value of fuel oil samples.</p>	<p>Title I Condition: State Implementation Plan for Sulfur Dioxide</p>

Subject Item: Group Number Alternate requirements for sulfur dioxide limits
 GP001 for Boilers No. 1, 2, 3, and 4 with use of CEM
Associated Items: Emission Units Stack No. 016
 024, 025, 026, 027

What to do	Why to do it

<p>Sulfur Dioxide: less than or equal to 327 lbs/hour and less than or equal to the amount determined by the following regression equation, as a 3-hour Average, when the diesel engines are burning diesel fuel:</p> $\text{lbs/hour SO}_2 = 670.1254 - 0.0617589x + 2.444266(10^{-6})x^2 - 4.13817(10^{-11})x^3 + 3.2021(10^{-16})x^4 - 9.26922(10^{-22})x^5$ <p>where x = flowrate (ACFM) from common boiler stack x > or = 34,888 and < 110,379 For x < 34,888, lbs/hour SO₂ = (lbs/hour at x = 34888) (x/34888)</p>	<p>Title I Condition: State Implementation Plan for Sulfur Dioxide</p>
<p>Sulfur Dioxide: less than or equal to 401 lbs/hour and less than or equal to the amount determined by the following regression equation, as a 3-hour Average, when the diesel engines are not burning diesel fuel:</p> $\text{lbs/hour SO}_2 = 970.4049 - 0.0709409x + 2.20629(10^{-6})x^2 - 3.02779(10^{-11})x^3 + 1.95714(10^{-16})x^4 - 4.85393(10^{-22})x^5$ <p>Where x = flow rate (ACFM) from common boiler stack x > or = 34,888 and < 110,379 For x < 34,888, lbs/hour SO₂ = (lbs/hour at x = 34888) (x/34888)</p>	<p>Title I Condition: State Implementation Plan for Sulfur Dioxide</p>
<p>Sulfur Dioxide: less than or equal to 209 lbs/hour and less than or equal to the amount determined by the following regression equation, as a 24-hour Block Average, when the diesel engines are burning diesel fuel:</p> $\text{lbs/hour SO}_2 = -819.36 + 0.064791x - 1.59705(10^{-6})x^2 + 1.92298(10^{-11})x^3 - 1.13243(10^{-16})x^4 + 2.61498(10^{-22})x^5$ <p>where x = flowrate (ACFM) from the common boiler stack x > or = 34,888 and < 110,379 For x < 34,888, lbs/hour SO₂ = (lbs/hour at x = 34888) (x/34888)</p>	<p>Title I Condition: State Implementation Plan for Sulfur Dioxide</p>
<p>Sulfur Dioxide: less than or equal to 258 lbs/hour and less than or equal to the amount determined by the following regression equation, as a 24-hour Block Average, when the diesel engines are not burning diesel fuel:</p> $\text{lbs/hour SO}_2 = -554.982 + 0.038064x - 6.643551(10^{-7})x^2 + 5.097686(10^{-12})x^3 - 1.44771(10^{-17})x^4$ <p>Where x = flow rate (ACFM) from common boilers stack x > or = 34,888 and < 110,379 For x < 34,888, lbs/hour SO₂ = (lbs/hour at x = 34888) (x/34888)</p>	<p>Title I Condition: State Implementation Plan for Sulfur Dioxide</p>
<p>Each hour, the Permittee shall calculate and record the 1-hour SO₂ emission limit using the regression equation, and record the 1-hour SO₂ emission rate determined by the CEM.</p>	<p>Title I Condition: State Implementation Plan for Sulfur Dioxide</p>

<p>Each 24-hour block period, the Permittee shall calculate and record the 24-hour SO₂ emission limit using the regression equation, and record the 24-hour block average emission rate determined by the CEM.</p>	<p>Title I Condition: State Implementation Plan for Sulfur Dioxide</p>
<p>Recordkeeping Requirements: The Permittee shall retain the following records for 5 years:</p> <ol style="list-style-type: none">1) Calculations of the percent load on an hourly basis;2) Calculations of the allowable hourly SO₂ emission rate and the actual emission rate;3) Calculations of the allowable 24-hour (calendar day) SO₂ emission rate and the actual emission rate;4) Fuel supplier certifications and/or fuel sampling records; and5) If CEMs are installed, the calculations and CEMs readings.	<p>Title I Condition: State Implementation Plan for Sulfur Dioxide;</p> <p>Minn. R. 7007.0800, subp. 5</p>

Subject Item: Emission Unit Boiler no. 2 using natural gas only
 EU025

Associated Items: SV 016

What to do	Why to do it

Subject Item: Emission Unit **Alternative** requirements for Boiler No. 2
 EU025 modified to use No. 2 fuel oil and natural gas
 and derated to qualify for 40 CFR pt. 60,
 subp. Dc

Associated Items: SV 016

What to do	Why to do it
Sulfur Dioxide: less than or equal to 39 tons/year as a 12-Month Rolling Sum	Title I Condition: limit to avoid classification as a major modification under 40 CFR pt. 51

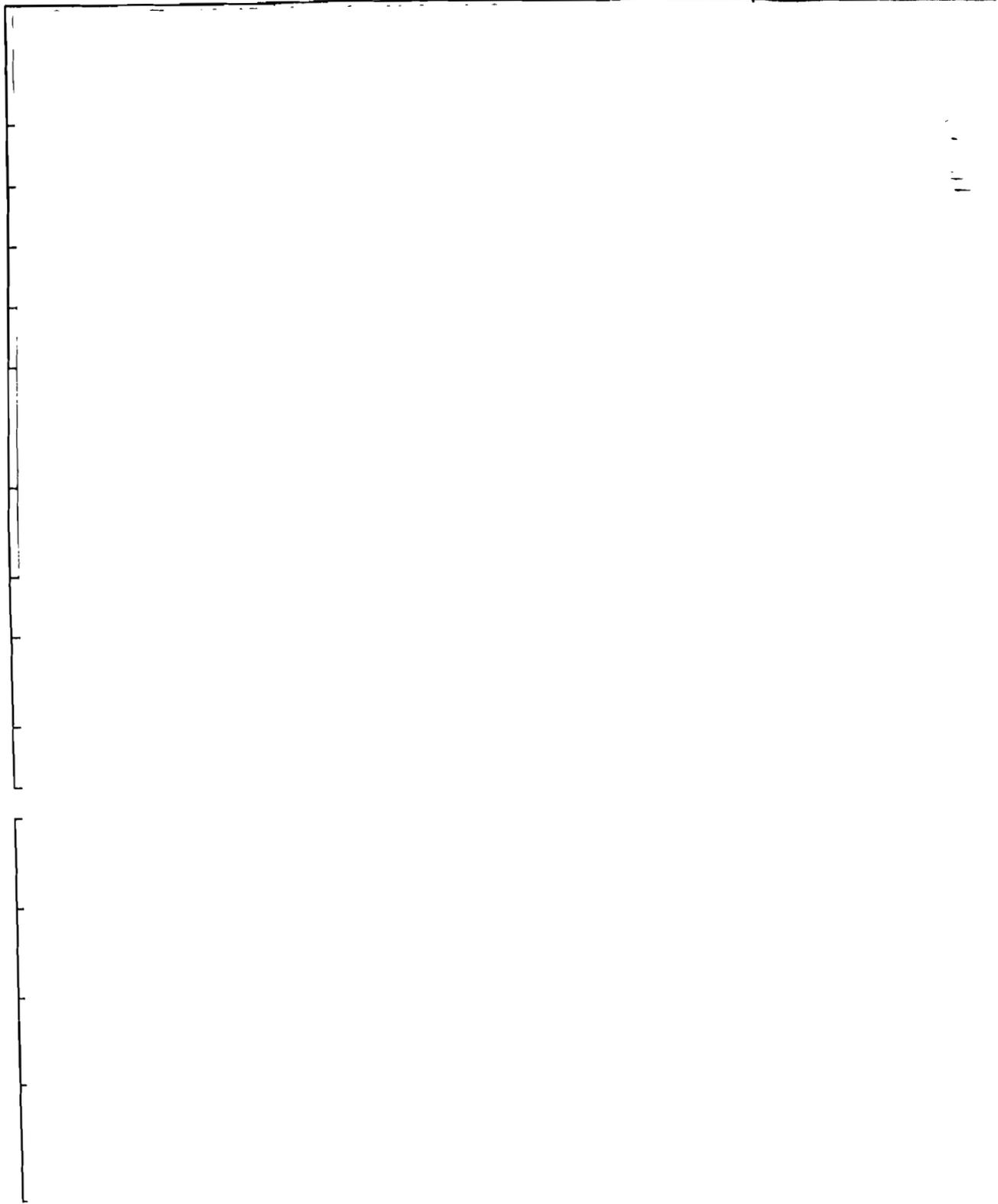
Record keeping: The Permittee shall calculate and record the 12-month Rolling Sum of sulfur dioxide emitted from combustion of No. 2 fuel oil combusted in EU025. The calculation and recording shall be completed no later than the 15th day of each month, for the previous 12-month period.

Title I Condition:
limit to avoid
classification as a
major modification
under 40 CFR pt. 51

Subject Item: EU025 **Alternative requirements for Boiler No. 2 modified to use No. 2 fuel oil and natural gas and subject to 40 CFR pt. 60, subp. Db**

Associated Items: SV016

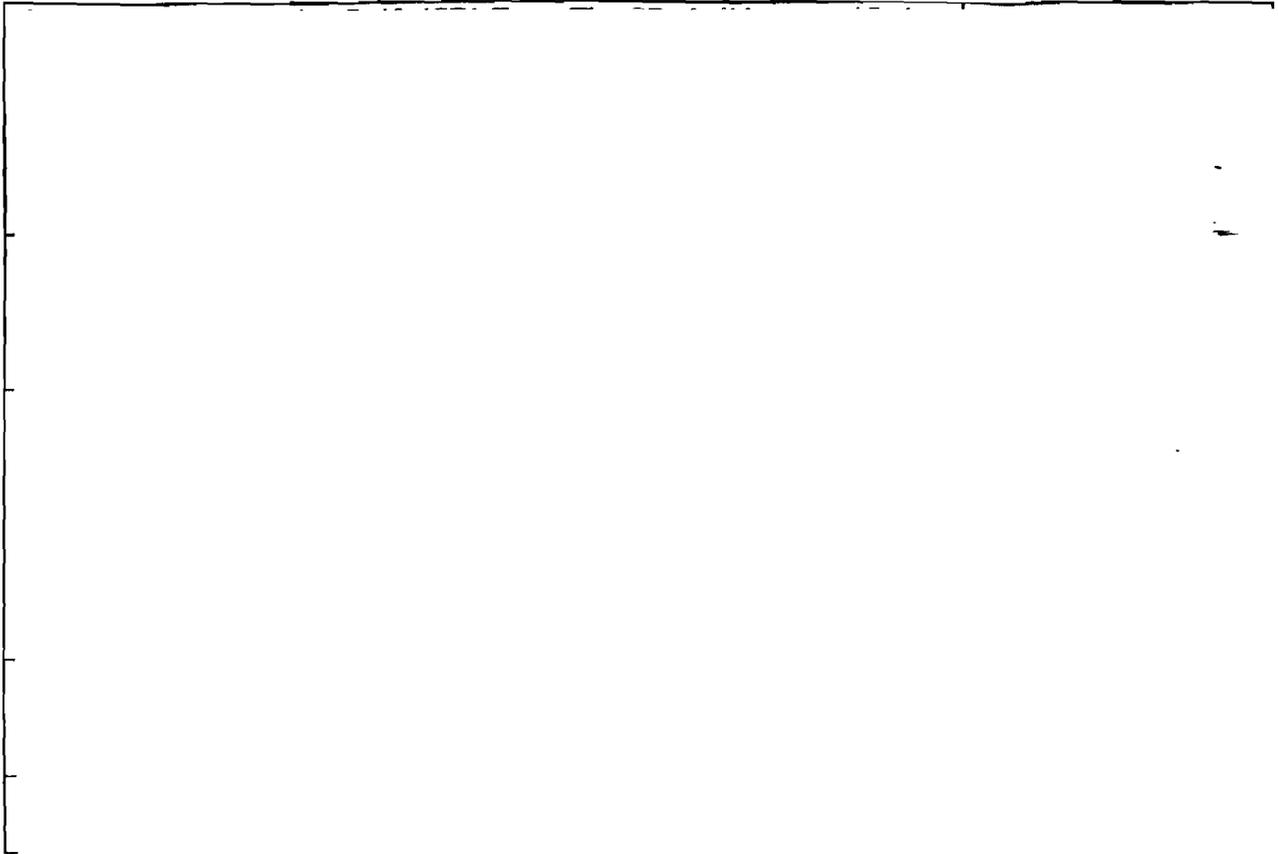
What to do	Why to do it
Sulfur Dioxide: less than or equal to 39 tons/year as a 12-Month Rolling Sum	Title I Condition: limit to avoid classification as a major modification under 40 CFR pt. 51
Record keeping: The Permittee shall calculate and record the 12-month Rolling Sum of SO ₂ emitted from combustion of No. 2 fuel oil combusted in EU025. The calculation and recording shall be completed no later than the 15th day of each month, for the previous 12-month period.	Title I Condition: limit to avoid classification as a major modification under 40 CFR pt. 51



Subject Item: Continuous SO₂ Continuous Emission Monitoring
 Monitors Systems (CEMS) required by SIP

Associated Items: Common
 Boiler Stack

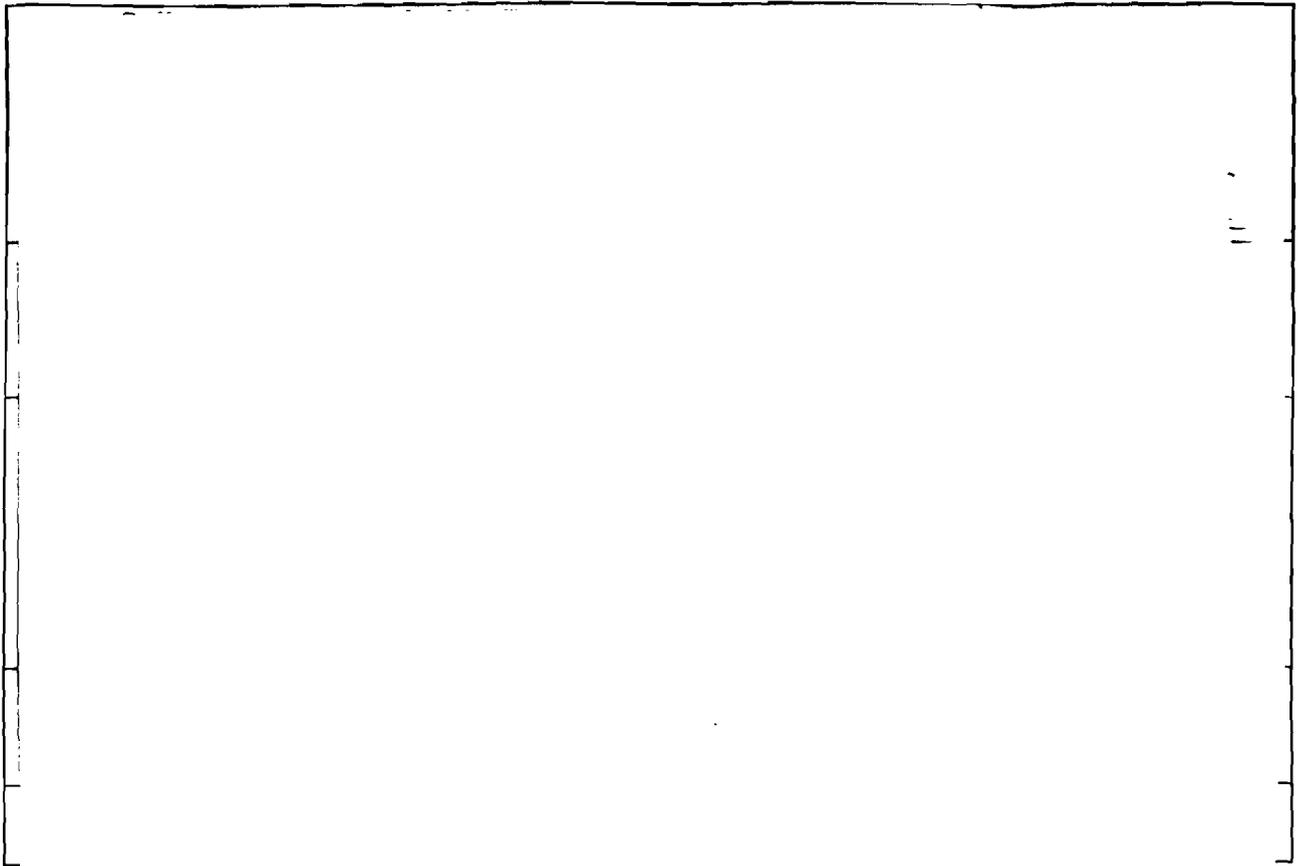
What to do	Why to do it



Subject Item: Continuous Continuous Emission Monitoring Systems
 Monitors (CEMS) required by 40 CFR pt. 60

Associated Items:

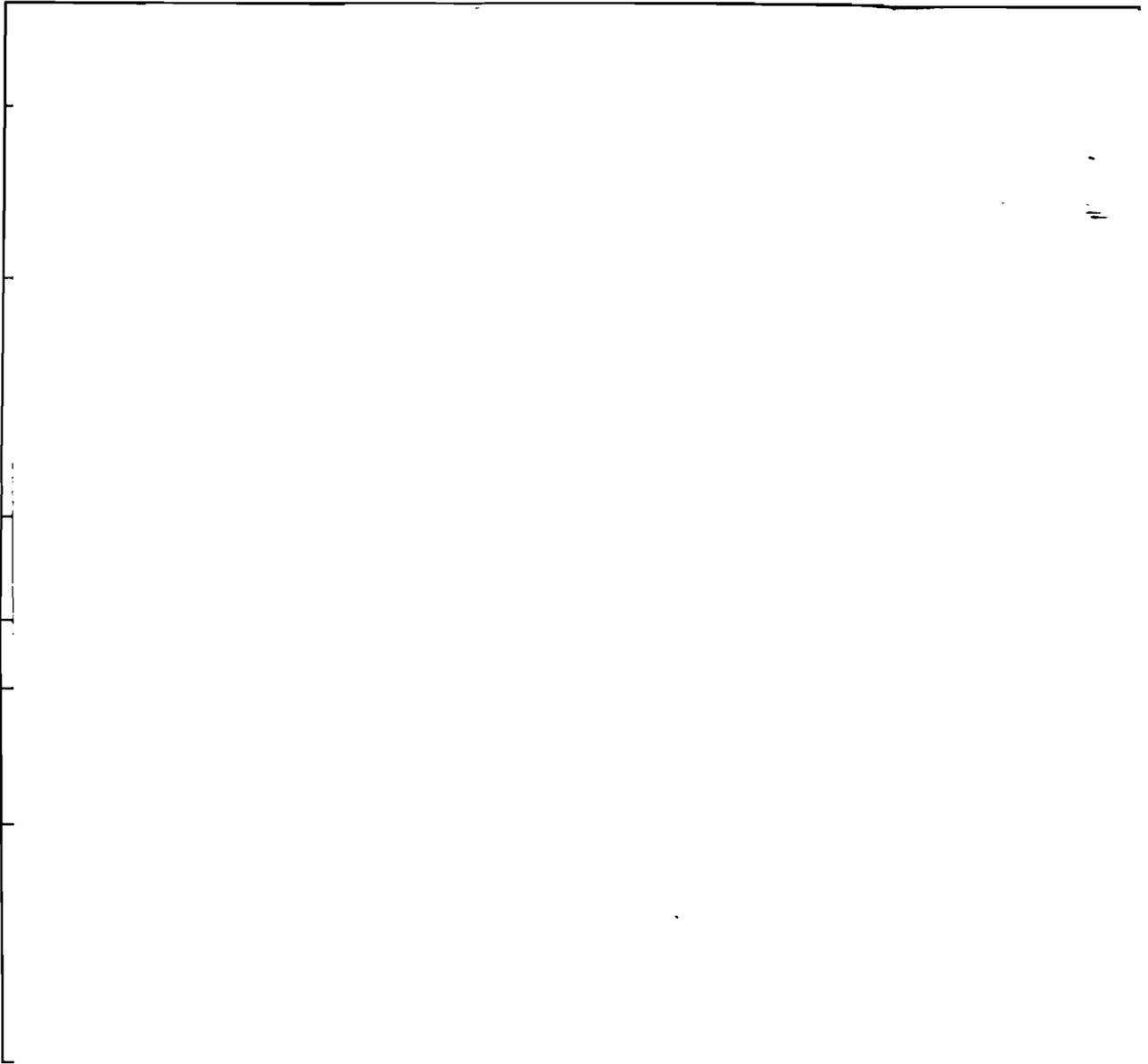
What to do	Why to do it



Subject Item: Continuous Continuous Opacity Monitoring Systems
 Opacity (COMS) required by 40 CFR pt. 60
 Monitors

Associated Items:

What to do	Why to do it



Subject Item: EU028, Diesel generators
EU029
Associated Items: SV017, SV018

What to do	Why to do it
Sulfur Content of Fuel: less than or equal to 0.50% by weight.	Title I Condition: State Implementation Plan for Sulfur Dioxide
<p>The Permittee must have an analysis of the fuel oil burned in Emission Units 028 and 029 (diesel generators) using either method 1 or 2 following.</p> <p>Method 1: the Permittee shall obtain and retain fuel supplier certifications from the fuel supplier for each shipment of No. 2 fuel oil delivered to the facility certifying the sulfur content of the fuel is less than 0.50% by weight.</p> <p>OR</p> <p>Method 2: The Permittee shall collect a sample of fuel oil after each fuel delivery, but no more than once per calendar day, from the fuel oil storage tank, fuel oil supply line, or other approved sampling locations on those days when fuel oil is burned in any of the boilers.</p>	Title I Condition: State Implementation Plan for Sulfur Dioxide
Monitoring: The Permittee shall ensure that approved American Society of Testing and Materials (ASTM) methods are used to determine sulfur content and heating value of fuel oil samples.	Title I Condition: State Implementation Plan for Sulfur Dioxide
Recordkeeping Requirements: the Permittee shall retain the fuel supplier certifications and/or fuel sampling and analysis records for 5 years:	Title I Condition: State Implementation Plan for Sulfur Dioxide; Minn. R. 7007.0800, subp. 5

Subject Item: Total Facility

What to do	Why to do it
<p>State Implementation Plan Semiannual Deviations Report: Deviations from requirements cited as "Title I Condition: State Implementation Plan for SO₂" shall be reported semiannually with the Semiannual Deviations Report required by this permit. Reporting for these conditions shall occur even if there were no deviations for the reporting period.</p>	<p>Title I Condition: State Implementation Plan for SO₂</p>
<p>State Implementation Plan Recordkeeping: Retain all records at the stationary source for a period of 5 years from the date of the required monitoring, sample, measurement or report that corresponds with a "Title I Condition: State Implementation Plan for SO₂" requirement.</p>	<p>Title I Condition: State Implementation Plan for SO₂</p>