

AIR POLLUTION CONTROL OPERATION PERMIT

EI FACILITY NO. 816009590

PERMIT NO. 95-SDD-120-OP

STACK NO.(S). S12, S15, S17, S19, S20, S21, S22
S24, S25, S27, S28, S36

SOURCE NO.(S). I10, P31, B7, B8, B9, B10, P19, P20
P21, P22, P23, P24, P25, P27, P28, P36

THIS OPERATION PERMIT EXPIRES ON FEBRUARY 4, 2004.

In compliance with the provisions of Chapter 285, Wis. Stats., and Chapters NR 400 to NR 499, Wis. Adm. Code,

Name of Source: Murphy Oil, USA

Street Address: 2400 Stinson Avenue
Superior, Wisconsin

Responsible Official & Title: Greg Neve, Refinery Manager

is authorized to operate process heaters and other sulfur dioxide emitting processes under the conditions herein

This authorization requires compliance by the permit holder with the emission limitations, monitoring requirements and other terms and conditions set forth in Parts I and II hereof.

Dated at Madison, Wisconsin this 17th day of February, 1999

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES
For the Secretary

By Lloyd Eagan
Lloyd Eagan, Director
Bureau of Air Management

PART I

APPLICABLE LIMITATIONS

I. I10, S12 - Blowdown (refinery) flare

Pollutant	Applicable Wis. Adm. Code or Wis. Statute	Limitation/Requirement
Particulate Matter Emissions	s. NR 415.06(1)(a), Wis. Adm. Code	0.60 pounds/MMBTU heat input
Sulfur Dioxide	s. NR 417.07(5), Wis. Adm. Code	39.3 pounds/hour
Visible Emissions	s. NR 431.05, Wis. Adm. Code	40 percent opacity

SPECIFIC PERMIT CONDITIONS APPLICABLE TO I10, S12

1. Stack Parameters

- a. The stack height shall be at least 200 feet above ground level. (s. 285.65(3), Wis. Stats.)
- b. The stack inside diameter at the outlet may not exceed 2 feet. (s. 285.65(3), Wis. Stats.)
- c. The stack may not be equipped with a rainhat or other device which impedes the upward flow of the exhaust gases. (s. 285.65(3), Wis. Stats.)
- d. The permittee shall keep and maintain on site technical drawings, blueprints or equivalent records of the physical stack parameters. (s. NR 439.04(1)(d), Wis. Adm. Code)

These requirements are included because the source was reviewed with these stack parameters and it was determined that no increments or ambient air quality standards will be violated when constructed as proposed.

2. The permittee shall comply with the most recent department approved hydrogen sulfide monitoring plan. Approval shall be in writing only (s. NR 417.05, Wis. Adm. Code).

3. The permittee may at any time submit written amendments to the approved hydrogen sulfide monitoring plan. The permittee may not change the existing plan without written Department approval. All such requests for changes shall be submitted to the Superior Area Office (s. NR 417.05, Wis. Adm. Code)

III. P31, S15 - FCCU

Pollutant	Applicable Wis. Adm. Code or Wis. Statute	Limitation/Requirement
Particulate Matter Emissions	s. 285.65(2), Stats. and s. NR 415.02(2), Wis. Adm. Code	1.0 pounds/1000 pounds coke burn and 0.4 pounds/1000 pounds gas. See Note 1.
Sulfur Dioxide	s. 285.65(7), Stats. and s. NR 417.07(8), Wis. Adm. Code	300 pounds/hour. See Note 2.
Carbon Monoxide	s. 285.65(2), Stats. and s. NR 445.04(3)(b), Wis. Adm. Code	500 ppmv (dry basis) corrected to 2% oxygen. See Note 3.
Nitrogen Oxides	s. 405.05(8), Wis. Adm. Code	68.9 pounds/hour and Best Available Control Technology. See Note 4.
Nickel	s. NR 445.04(3)(b), Wis. Adm. Code	Best Available Control Technology. See Note 5.
Polycyclic Organic Matter	s. NR 445.04(3)(b), Wis. Adm. Code	Best Available Control Technology. See Note 5.
Formaldehyde	s. NR 445.04(3)(b), Wis. Adm. Code	Best Available Control Technology. See Note 5.
Visible Emissions	s. NR 431.05, Wis. Adm. Code	20 percent opacity

Note 1: The 1.0 pound of particulate per 1000 pounds coke emission burn rate is specified in court stipulation #92CV54 agreed to by the Department and Murphy and signed on August 19, 1994. The pounds of coke burn-off shall be calculated as specified in s. NR 440.26(7), Wis. Adm. Code. Compliance with the 1.0 pound of particulate per 1000 pounds coke burn emission limit shall be determined by USEPA Method 5B or 5F. Compliance with the particulate emission limit in s. NR 415.02(2), Wis. Adm. Code, shall be determined using USEPA Method 5, including backhalf.

Note 2: The maximum one hour emission rate is 300 pounds/hour. Murphy also requested limitations on annual sulfur dioxide emission rates to make the modification of the FCCU completed under Permit#95SDD120 a synthetic minor under the Federal PSD Program. See the preliminary determination for Permit#95SDD120 for details.

Note 3: This emission rate is specified in court stipulation #92CV54 agreed to by the Department and Murphy and signed on August 19, 1994.

Note 4: Best Available Control Technology for nitrogen oxides is the emission limitation. This represents the maximum potential emissions from the process.

Note 5: Best Available Control Technology for nickel is meeting the particulate emission rate. Best Available Control technology for formaldehyde and polycyclic organic matter is meeting the carbon

monoxide emission rate.

SPECIFIC PERMIT CONDITIONS APPLICABLE TO P31, S15

1. Compliance Demonstration

Compliance emission tests shall be conducted biennially within 90 days of the anniversary date (the initial compliance test was completed on December 18, 1996) of the initial compliance test to demonstrate compliance with the particulate emission limitations while operating at 100% capacity. If operation at 100% capacity is not feasible, the source shall operate at a capacity level which is approved by the Department in writing. If the compliance emission tests cannot be conducted within 90 days of the anniversary date, the permit holder may request and the Department may approve, in writing, an extension of time to conduct the test(s). The Department shall be informed at least 20 working days prior to the tests so a Department representative can witness the testing. At the time of notification a compliance emission test plan following the provisions set forth in section NR 439.07, Wis. Adm. Code, shall also be submitted to the Department for approval. When approved in writing an equivalent test method may be substituted for a test method required above.

Two copies of the report on the tests shall be submitted to the Department for evaluation within 60 days after the tests. An operation permit may be issued only upon proof of compliance. (s. 285.65(2), Stats. and s. NR 439.03, Wis. Adm. Code)

2. Stack Parameters

- a. The stack height shall be at least 210 feet above ground level. (s. 285.65(3), Stats.)
- b. The stack inside diameter at the outlet may not exceed 4 feet. (s. 285.65(3), Stats.)
- c. The stack may not be equipped with a rainhat or other device which impedes the upward flow of the exhaust gases. (s. 285.65(3), Stats.)
- d. The permittee shall keep and maintain on site technical drawings, blueprints or equivalent records of the physical stack parameters. (s. NR 439.04(1)(d), Wis. Adm. Code)

These requirements are included because the source was reviewed with these stack parameters and it was determined that no increments or ambient air quality standards will be violated when constructed as proposed.

3. The total input to the FCCU may not exceed 11,323 barrels per day of fresh feed nor more than 543 barrels of recycle feed. The permittee shall maintain a daily record of the fresh feed and recycle input, in barrels, to the FCCU (s. 285.65(7), Stats.)
4. The permittee shall operate and maintain an electrostatic precipitator (ESP) on the outlet of P31 (s. NR 285.65(2), Stats).
5. The ESP shall be operational at all times when P31 is operating (s. 285.65(2), Stats. and s. NR 415.02(2), Wis. Adm. Code).

6. The permittee shall measure and record the primary and secondary voltage in volts, the primary and secondary current in amps and the sparking rate in sparks per minute at least once for every 8 hours of source operation, or once per day, whichever is more frequent for each bay. The permittee shall maintain these variables within ranges determined during the stack test required in this permit (ss. NR 439.055(1)(c)&(2)(b), Wis. Adm. Code).
7. The permittee shall operate and maintain a continuous emission monitor (CEM) for sulfur dioxide (SO₂) concentration and a CEM for stack flowrate which complies with all the provisions and requirements of Specification 2 in 40CFR Part 60, Appendix B (ss. NR 439.06(2)(b)&.09(2), Wis. Adm. Code and s. 285.65(7), Stats.).
8. The permittee shall operate and maintain a continuous emission monitor (CEM) for oxygen which complies with all the provisions and requirements in Performance Specification 3 in 40CFR Part 60, Appendix B (s. NR 439.09(3), Wis. Adm. Code and s. 285.65(2), Stats.)
9. The permittee shall operate and maintain a continuous emission monitor (CEM) for carbon monoxide which complies with all the provisions and requirements in Performance Specification 4 in 40CFR Part 60, Appendix B. (s. NR 439.09(4), Wis. Adm. Code and s. 285.65(2), Stats.)
10. The permittee shall comply with the quality control and quality assurance plans submitted to and approved, in writing, by the Department. (s. NR 439.09(8), Wis. Adm. Code).
11. The sulfur dioxide, flowrate, oxygen and carbon monoxide CEM's shall complete one cycle of sampling, analyzing and data recording for each successive 15-minute period. The values recorded shall be averaged hourly. Hourly averages shall be computed from 4 data points equally spaced over each one hour period, except during periods when calibration, quality assurance or maintenance activities are being performed. During these periods, a valid hour shall consist of at least 2 data points separated by a minimum of 15 minutes (s. NR 439.09(9)(b) and s. 285.65(7), Stats.).
12. An excess emission is defined as any hour in which the carbon monoxide or sulfur dioxide emission rate is above that established in this permit (s. NR 439.09(10)(b), Wis. Adm. Code and ss. 285.65(2)&(7), Stats.).
13. The owner or operator of a continuous emissions monitoring system shall submit quarterly excess emission reports to the Department within 30 days following the end of each calendar quarter in accordance with the requirements of s. NR 439.09(10) (s. NR 439.09(10), Wis. Adm Code).
14. The permittee shall submit a full excess emission report, as defined below, unless the Department approves, in writing, the submittal of a summary of excess emission report on a Department approved form. Full excess emission reports shall consist, at a minimum, of the following elements (ss. NR 439.09(10)(a)&(d), Wis. Adm. Code)
 - a. The date and starting and ending times or duration of each period of excess emissions and the magnitude of the emissions
 - b. The periods of excess emissions that occur during startups, shutdowns, control equipment malfunction, process malfunction, fuel problems, other known causes or for unknown causes. The report shall identify the cause of any malfunction and the measures taken to reduce excess

emissions.

c. The date and starting and ending time of any period during which the monitoring system was inoperative for any reason or causes, including monitor malfunction or calibration, except for zero and span checks. The report shall identify the repairs and adjustments made to the system.

d. The date and starting and ending time of any period during which the process being monitored was inoperative.

e. When no period of excess emissions occurred during the quarter and the monitoring system had no period of downtime, an excess emissions report shall be filed stating such information.

15. Sulfur dioxide emissions may not exceed 72.83 tons in any month averaged over any 12 month period (s. 285.65(7), Stats.). This condition was included to make the project a synthetic minor for PSD purposes. See the preliminary determination for Permit#95SDD120.

16. The permittee shall use the following methods for estimating daily SO₂ emissions. Sulfur dioxide emissions shall be calculated by totaling the hourly SO₂ emissions measured by the SO₂ CEM on a daily basis. If valid CEM data (either flowrate of sulfur dioxide concentration) is not available during any hour, the following procedure shall be used to fill-in the missing data (s. 285.65(7), Stats and s. NR 405.08(3), Wis. Adm. Code):

a. Sulfur dioxide CEM

i) The estimated SO₂ emissions based on the Department approved emission correlations. All such correlations shall be approved by the Department, in writing, prior to being used to estimate SO₂ emissions.

ii) If the CEM availability for the past 90 days of operation is greater than 90%, and if the missing data period is equal to or less than 24 hours, the average of the sulfur dioxide concentration measured in the hour immediately preceding and the hour immediately following the period of data non-availability shall be used as the sulfur dioxide concentration to estimate total sulfur dioxide emissions during the period of data non-availability.

iii) If the CEM availability is greater than 90% and the period of data non-availability is greater than 24 hours, then the average of the sulfur dioxide concentration measured in the 24 hours immediately preceding data non-availability and the 24 hours immediately following the period of data non-availability shall be used as the sulfur dioxide concentration during the period of data non-availability for estimating total sulfur dioxide emissions during the period of data non-availability

iii) If the 90 day CEM availability is less than 90% then the highest sulfur dioxide concentration measured in the previous 720 hours of quality-assured data shall be used to estimate total sulfur dioxide emissions during the period of data non-availability.

b. Flowrate CEM

i) The estimated SO₂ emissions based on the Department approved emission correlations. All such correlations shall be approved by the Department, in writing, prior to being used to estimate SO₂ emissions.

ii) If the CEM availability for the past 90 days of operation is greater than 90%, and if the missing data period is equal to or less than 24 hours, the average of the flowrate measured in the hour immediately preceding and the hour immediately following the period of data non-availability shall be used as the flowrate to estimate total sulfur dioxide emissions during the period of data non-availability.

iii) If the 90 day CEM availability is greater than 90% and the period of data non-availability is greater than 24 hours, then the average of the flowrate measured in the 24 hours immediately preceding data non-availability and the 24 hours immediately following the period of data non-availability shall be used as the flowrate during the period of data non-availability for estimating total sulfur dioxide emissions during the period of data non-availability

iii) If the 90 day CEM availability is less than 90% then the highest flowrate measured in the previous 720 hours of quality-assured data shall be used to estimate total sulfur dioxide emissions during the period of data non-availability.

If the procedures outlined in this condition yield a sulfur dioxide emission rate above 300 pounds per hour, then 300 pounds per hour shall be used as the sulfur dioxide emission rate during the hours of data non-availability.

17. The records required under conditions 3, 6, and 16 of this permit shall be maintained for a period of 5 years and made available to any Department representative upon request during normal working hours (ss. NR 439.04(1)&(2), Wis. Adm. Code).

IV. **B7, 8, 9 & 10, S17 - Boilers**

Pollutant	Applicable Wis. Adm. Code or Wis. Statute	Limitation/Requirement
Particulate Matter Emissions	s. NR 415.06(1)(a), Wis. Adm. Code	0.60 pounds/MMBTU heat input

Sulfur Dioxide	s. NR 417.07(5), Wis. Adm. Code	463 pounds/hour in any 24 hour period and 517 pounds/hour in any hour. See Note 1
Visible Emissions	s. NR 431.05, Wis. Adm. Code	40 percent opacity

Note 1: Compliance with the 517 pound/hour limit is demonstrated by keeping copies of the design specifications for the boilers. This emission limit represents the maximum BTU input for the boilers.

SPECIFIC PERMIT CONDITIONS APPLICABLE TO B7, B8, B9 & B10, S17

1. Stack Parameters

- a. The stack height shall be at least 210 feet above ground level. (s. 285.65(3), Wis. Stats.)
- b. The stack inside diameter at the outlet may not exceed 6 feet. (s. 285.65(3), Wis. Stats.)
- c. The stack may not be equipped with a rainhat or other device which impedes the upward flow of the exhaust gases. (s. 285.65(3), Wis. Stats.)
- d. The permittee shall keep and maintain on site technical drawings, blueprints or equivalent records of the physical stack parameters. (s. NR 439.04(1)(d), Wis. Adm. Code)

These requirements are included because the source was reviewed with these stack parameters and it was determined that no increments or ambient air quality standards will be violated when constructed as proposed.

2. The permittee shall only combust refinery gas or #6 oil in boilers B7, B8, B9 and B10 (s. NR 417.07(5), Wis. Adm. Code)
3. The permittee shall keep daily records of the quantity of #6 oil combusted in boilers B7, B8, B9 and B10 (s. NR 439.04(1)(d), Wis. Adm. Code).
4. The permittee shall keep and maintain on site technical drawings, blueprints or equivalent records which demonstrate that the burners in boilers B7, B8, B9 and B10 are physically incapable of accepting more than 172.3 MMBTU of heat input from #6 oil or more than 182.3 MMBTU of combined heat input from #6 oil and refinery gas in any hour (s. NR 417.07(5), Wis. Adm. Code).
5. The permittee shall keep and maintain on site technical drawings, blueprints or equivalent records which demonstrate that B7, B8, B9 and B10 can only accept refinery gas or #6 oil as feed (s. NR 439.04(1)(d), Wis. Adm. Code).

V. **P19, S19 - Crude heater and Vacuum Hot well**

Pollutant	Applicable Wis. Adm. Code or Wis. Statute	Limitation/Requirement
Particulate Matter Emissions	s. NR 415.06(1)(a), Wis. Adm. Code	0.60 pounds/MMBTU heat input
Sulfur Dioxide	s. NR 417.07(5), Wis. Adm. Code	309.9 pounds/hour
Visible Emissions	s. NR 431.05, Wis. Adm. Code	40 percent opacity

SPECIFIC PERMIT CONDITIONS APPLICABLE TO P19, S19

1. Stack Parameters

- a. The stack height shall be at least 97 feet above ground level. (s. 285.65(3), Wis. Stats.)
- b. The stack inside diameter at the outlet may not exceed 8 feet. (s. 285.65(3), Wis. Stats.)
- c. The stack may not be equipped with a rainhat or other device which impedes the upward flow of the exhaust gases. (s. 285.65(3), Wis. Stats.)
- d. The permittee shall keep and maintain on site technical drawings, blueprints or equivalent records of the physical stack parameters. (s. NR 439.04(1)(d), Wis. Adm. Code)

These requirements are included because the source was reviewed with these stack parameters and it was determined that no increments or ambient air quality standards will be violated when constructed as proposed.

2. The permittee shall only combust refinery gas or #6 oil in process heater P19 (s. NR 417.07(5), Wis. Adm. Code).
3. The permittee shall keep and maintain on site technical drawings, blueprints or equivalent records which demonstrate that the burners in process heater P19 are physically incapable of accepting more than 59.5 MMBTU of heat input from #6 oil or more than 110.5 MMBTU of combined heat input from #6 oil and refinery gas in any hour (s. NR 417.07(5), Wis. Adm. Code).
4. The permittee shall keep and maintain on site technical drawings, blueprints or equivalent records which demonstrate that P19 can only accept refinery gas or #6 oil as feed (s. NR 439.04(1)(d), Wis. Adm. Code).

VI. **P20, S20 - Preflash Unit Process Heater**

Pollutant	Applicable Wis. Adm. Code or Wis. Statute	Limitation/Requirement
Particulate Matter Emissions	s. NR 415.06(1)(a), Wis. Adm. Code	0.60 pounds/MMBTU heat input
Sulfur Dioxide	s. NR 417.07(5), Wis. Adm. Code	1.1 pounds/hour
Visible Emissions	s. NR 431.05, Wis. Adm. Code	40 percent opacity

SPECIFIC PERMIT CONDITIONS APPLICABLE TO P20, S20

1. Stack Parameters

- a. The stack height shall be at least 53 feet above ground level. (s. 285.65(3), Wis. Stats.)
- b. The stack inside diameter at the outlet may not exceed 3 feet. (s. 285.65(3), Wis. Stats.)
- c. The stack may not be equipped with a rainhat or other device which impedes the upward flow of the exhaust gases. (s. 285.65(3), Wis. Stats.)
- d. The permittee shall keep and maintain on site technical drawings, blueprints or equivalent records of the physical stack parameters. (s. NR 439.04(1)(d), Wis. Adm. Code)

These requirements are included because the source was reviewed with these stack parameters and it was determined that no increments or ambient air quality standards will be violated when constructed as proposed.

2. The permittee shall burn only refinery gas in process heater P20 (s. NR 417.07(5), Wis. Adm. Code).
3. The permittee shall keep and maintain on site technical drawings, blueprints or equivalent records which demonstrate that the burner heat input capacity for P20 is 43.7 MMBTU hour and that only refinery gas can be introduced into P20 (s. NR 439.04(1)(d), Wis. Adm. Code).

VII. **P21, S21 - Vacuum Distillation heater**

Pollutant	Applicable Wis. Adm. Code or Wis. Statute	Limitation/Requirement
Particulate Matter Emissions	s. NR 415.06(1)(a), Wis. Adm. Code	0.60 pounds/MMBTU heat input
Sulfur Dioxide	s. NR 417.07(5), Wis. Adm. Code	0.82 pounds/hour
Visible Emissions	s. NR 431.05, Wis. Adm. Code	40 percent opacity

SPECIFIC PERMIT CONDITIONS APPLICABLE TO P21, S21

1. Stack Parameters

- a. The stack height shall be at least 115 feet above ground level. (s. 285.65(3), Wis. Stats.)
- b. The stack inside diameter at the outlet may not exceed 3 feet. (s. 285.65(3), Wis. Stats.)
- c. The stack may not be equipped with a rainhat or other device which impedes the upward flow of the exhaust gases. (s. 285.65(3), Wis. Stats.)
- d. The permittee shall keep and maintain on site technical drawings, blueprints or equivalent records of the physical stack parameters. (s. NR 439.04(1)(d), Wis. Adm. Code)

These requirements are included because the source was reviewed with these stack parameters and it was determined that no increments or ambient air quality standards will be violated when constructed as proposed.

- 2. The permittee shall burn only refinery gas in process heater P21 (s. NR 417.07(5), Wis. Adm. Code).
- 3. The permittee shall keep and maintain on site technical drawings, blueprints or equivalent records which demonstrate that the burner heat input capacity for P21 is 32.4 MMBTU hour and that only refinery gas can be introduced into P21 (s. NR 439.04(1)(d), Wis. Adm. Code).

VIII. **P22, P23; S22 - NUF Heaters**

Pollutant	Applicable Wis. Adm. Code or Wis. Statute	Limitation/Requirement
Particulate Matter Emissions	s. NR 415.06(1)(a), Wis. Adm. Code	0.15 pounds/MMBTU heat input
Sulfur Dioxide	ss. NR 417.07(5) & NR 440.26(5)(a)1., Wis. Adm. Code	24.9 pounds/hour
Visible Emissions	s. NR 431.05, Wis. Adm. Code	20 percent opacity

SPECIFIC PERMIT CONDITIONS APPLICABLE TO P22 & P23, S22

1. Stack Parameters

- a. The stack height shall be at least 72 feet above ground level. (s. 285.65(3), Wis. Stats.)
- b. The stack inside diameter at the outlet may not exceed 3 feet. (s. 285.65(3), Wis. Stats.)
- c. The stack may not be equipped with a rainhat or other device which impedes the upward flow

of the exhaust gases. (s. 285.65(3), Wis. Stats.)

- d. The permittee shall keep and maintain on site technical drawings, blueprints or equivalent records of the physical stack parameters. (s. NR 439.04(1)(d), Wis. Adm. Code)

These requirements are included because the source was reviewed with these stack parameters and it was determined that no increments or ambient air quality standards will be violated when constructed as proposed.

2. The permittee shall burn only refinery gas in the #2 hydrobon charge heater and #2 hydrobon reboiler. The permittee may only combust #6 oil in the 8.0 MMBTU #1 NUF Reactor Heater OR in the 8.0 MMBTU hour #1 NUF reboiler heater (s. NR 417.07(5), Wis. Adm. Code).
3. The permittee shall keep and maintain on site technical drawings, blueprints or equivalent records which demonstrate that the burners in the #1 NUF reactor heater and the #1 NUF reboiler heater are physically incapable of accepting more than 8.0 MMBTU of heat input from #6 oil in any hour. The permittee shall also maintain on site technical drawings, blueprints or equivalent records which demonstrate that the #1 NUF reactor heater and the #1 NUF reboiler heater are incapable of simultaneously combusting #6 oil (s. NR 417.07(5), Wis. Adm. Code).
4. The permittee shall keep and maintain on site technical drawings, blueprints or equivalent records which demonstrate that the burners in P22 and P23 (combined) are physically incapable of accepting more than 43.2 MMBTU of heat input from refinery gas in any hour (s. NR 439.04(1)(d), Wis. Adm. Code).
5. The permittee shall keep and maintain on site technical drawings, blueprints or equivalent records which demonstrate that P22 and P23 can only accept refinery gas or #6 oil as feed (s. NR 439.04(1)(d), Wis. Adm. Code).

IX. P24, S24 - Platformer Heater

Pollutant	Applicable Wis. Adm. Code or Wis. Statute	Limitation/Requirement
Particulate Matter Emissions	s. NR 415.06(1)(a), Wis. Adm. Code	0.60 pounds/MMBTU heat input
Sulfur Dioxide	s. NR 417.07(5), Wis. Adm. Code	146.7 pounds/hour
Visible Emissions	s. NR 431.05, Wis. Adm. Code	40 percent opacity

SPECIFIC PERMIT CONDITIONS APPLICABLE TO P24, S24

1. Stack Parameters

- a. The stack height shall be at least 125 feet above ground level. (s. 285.65(3), Wis. Stats.)
- b. The stack inside diameter at the outlet may not exceed 8 feet. (s. 285.65(3), Wis. Stats.)
- c. The stack may not be equipped with a rainhat or other device which impedes the upward flow of the exhaust gases. (s. 285.65(3), Wis. Stats.)
- d. The permittee shall keep and maintain on site technical drawings, blueprints or equivalent records of the physical stack parameters. (s. NR 439.04(1)(d), Wis. Adm. Code)

These requirements are included because the source was reviewed with these stack parameters and it was determined that no increments or ambient air quality standards will be violated when constructed as proposed.

- 2. The permittee shall only combust refinery gas or #6 oil in process heater P24 (s. NR 417.07(5), Wis. Adm. Code).
- 3. The permittee shall keep and maintain on site technical drawings, blueprints or equivalent records which demonstrate that the burners in process heater P24 are physically incapable of accepting more than 48 MMBTU of heat input from #6 oil or more than 148 MMBTU of combined heat input from #6 oil and refinery gas in any hour (s. NR 417.07(5), Wis. Adm. Code).
- 4. The permittee shall keep and maintain on site technical drawings, blueprints or equivalent records which demonstrate that P24 can only accept refinery gas or #6 oil as feed (s. NR 439.04(1)(d), Wis. Adm. Code).

X. P25, S25 - Platformer reboiler

Pollutant	Applicable Wis. Adm. Code or Wis. Statute	Limitation/Requirement
Particulate Matter Emissions	s. NR 415.06(1)(a), Wis. Adm. Code	0.60 pounds/MMBTU heat input
Sulfur Dioxide	s. NR 417.07(5), Wis. Adm. Code	0.48 pounds/hour
Visible Emissions	s. NR 431.05, Wis. Adm. Code	40 percent opacity

SPECIFIC PERMIT CONDITIONS APPLICABLE TO P25, S25

- 1. Stack Parameters

- a. The stack height for S25 shall be at least 125 feet above ground level (s. 285.65(3), Wis. Stats.)
- b. The stack inside diameter for S25 may not exceed 4 feet(s. 285.65(3), Wis. Stats.).
- c. The stack may not be equipped with a rainhat or other device which impedes the upward flow of the exhaust gases. (s. 285.65(3), Wis. Stats.)
- d. The permittee shall keep and maintain on site technical drawings, blueprints or equivalent records of the physical stack parameters. (s. NR 439.04(1)(d), Wis. Adm. Code)

These requirements are included because the source was reviewed with these stack parameters and it was determined that no increments or ambient air quality standards will be violated when constructed as proposed.

2. The permittee shall burn only refinery gas in process heater P25 (s. NR 417.07(5), Wis. Adm. Code).
3. The permittee shall keep and maintain on site technical drawings, blueprints or equivalent records which demonstrate that the burner heat input capacity for P25 is 19.5 MMBTU hour and that only refinery gas can be introduced into P25 (s. NR 439.04(1)(d), Wis. Adm. Code).

XI. P27, S27 - DUF heaters

Pollutant	Applicable Wis. Adm. Code or Wis. Statute	Limitation/Requirement
Particulate Matter Emissions	s. NR 415.06(1)(a), Wis. Adm. Code	0.60 pounds/MMBTU heat input
Sulfur Dioxide	s. NR 417.07(5), Wis. Adm. Code	0.8 pounds/hour
Visible Emissions	s. NR 431.05, Wis. Adm. Code	40 percent opacity

SPECIFIC PERMIT CONDITIONS APPLICABLE TO P27, S27

1. Stack Parameters

- a. The stack height for S27 shall be at least 44 feet above ground level (s. 285.65(3), Wis. Stats.).
- b. The stack inside diameter for S27 at the outlet may not exceed 4 feet. (s. 285.65(3), Wis. Stats.)
- c. The stacks may not be equipped with a rainhat or other device which impedes the upward flow of the exhaust gases. (s. 285.65(3), Wis. Stats.)
- d. The permittee shall keep and maintain on site technical drawings, blueprints or equivalent

records of the physical stack parameters. (s. NR 439.04(1)(d), Wis. Adm. Code)

These requirements are included because the source was reviewed with these stack parameters and it was determined that no increments or ambient air quality standards will be violated when constructed as proposed.

2. The permittee shall burn only refinery gas in process heater P27 (s. NR 417.07(5), Wis. Adm. Code).
3. The permittee shall keep and maintain on site technical drawings, blueprints or equivalent records which demonstrate that the burner heat input capacity for P27 is 28.6 MMBTU hour and that only refinery gas can be introduced into P27 (s. NR 439.04(1)(d), Wis. Adm. Code).

XII. P28, S28 - Alkylation unit heater

Pollutant	Applicable Wis. Adm. Code or Wis. Statute	Limitation/Requirement
Particulate Matter Emissions	s. NR 415.06(1)(a), Wis. Adm. Code	0.60 pounds/MMBTU heat input
Sulfur Dioxide	s. NR 417.07(5), Wis. Adm. Code	0.5 pounds/hour
Visible Emissions	s. NR 431.05, Wis. Adm. Code	40 percent opacity

SPECIFIC PERMIT CONDITIONS APPLICABLE TO P28, S28

1. Stack Parameters

- a. The stack height for S28 shall be at least 44 feet above ground level (s. 285.65(3), Wis. Stats.)
- b. The stack inside diameter for S28 at the outlet may not exceed 4 feet. (s. 285.65(3), Wis. Stats.)
- c. The stacks may not be equipped with a rainhat or other device which impedes the upward flow of the exhaust gases. (s. 285.65(3), Wis. Stats.)
- d. The permittee shall keep and maintain on site technical drawings, blueprints or equivalent records of the physical stack parameters. (s. NR 439.04(1)(d), Wis. Adm. Code)

These requirements are included because the source was reviewed with these stack parameters and it was determined that no increments or ambient air quality standards will be violated when constructed as proposed.

2. The permittee shall burn only refinery gas in process heaters P28 (s. NR 417.07(5), Wis. Adm. Code).
3. The permittee shall keep and maintain on site technical drawings, blueprints or equivalent records

which demonstrate that the burner heat input capacity for P28 is 20.4 MMBTU hour and that only refinery gas can be introduced into P28 (s. NR 439.04(1)(d), Wis. Adm. Code).

XIII. P36, S36 - Asphalt Tank Heaters

Pollutant	Applicable Wis. Adm. Code or Wis. Statute	Limitation/Requirement
Particulate Matter Emissions	s. NR 415.06(1)(a), Wis. Adm. Code	0.60 pounds/MMBTU heat input
Sulfur Dioxide	s. NR 417.07(5), Wis. Adm. Code	4.9 pounds/hour
Visible Emissions	s. NR 431.05, Wis. Adm. Code	40 percent opacity

SPECIFIC PERMIT CONDITIONS APPLICABLE TO P36, S36

1. Stack Parameters

- a. The stack height shall be at least 25 feet above ground level. (s. 285. 5(3), Wis. Stats.)
- b. The stack inside diameter at the outlet may not exceed 7 feet. (s. 285.65(3), Wis. Stats.)
- c. The stack may be equipped with a rainhat or other device which impedes the upward flow of the exhaust gases. (s. 285.65(3), Wis. Stats.)
- d. The permittee shall keep and maintain on site technical drawings, blueprints or equivalent records of the physical stack parameters. (s. NR 439.04(1)(d), Wis. Adm. Code)

These requirements are included because the source was reviewed with these stack parameters and it was determined that no increments or ambient air quality standards will be violated when constructed as proposed.

2. The permittee shall burn only refinery gas in process heaters P36 (s. NR 417.07(5), Wis. Adm. Code).
3. The permittee shall keep and maintain on site technical drawings, blueprints or equivalent records which demonstrate that the burner heat input capacity for P36 is 180 MMBTU hour and that only refinery gas can be introduced into P36 (s. NR 439.04(1)(d), Wis. Adm. Code).

TOTAL FACILITY LIMITATIONS

1. The permittee may not emit more than 403 tons of sulfur dioxide per month averaged over any calendar year (s. NR 417.07(5), Wis. Adm. Code).
2. The permittee shall calculate and maintain a record of the total sulfur dioxide emissions from the

facility for each calendar month. This record to be calculated prior to the end of the following month (s. NR 417.07(5), Wis. Adm. Code).

3. The hydrogen sulfide content of the refinery gas may not exceed 0.10 grains per dry standard cubic foot (ss. NR 417.07(5) & NR 440.26(5)(a)1., Wis. Adm. Code).
4. The sulfur content of #6 oil, in weight percent (%S), may not exceed any value which makes the product of the following equation greater than 3.0 (s. NR 417.07(5), Wis. Adm. Code), :

$$157,000 (\%S)/(\text{heat content of \#6 oil in BTU/gal}) \leq 3.0$$

SPECIFIC PERMIT CONDITIONS APPLICABLE TO THE TOTAL FACILITY

1. The permittee shall sample the #6 oil twice per week and analyze for sulfur content, by weight, and use the API nomograph submitted to the Department on October 21, 1998, to estimate the heat content (in BTU/gallon) of the #6 oil. The sampling to be done in accordance with s. NR 439.08(2)(a) and sulfur testing to be done in accordance with s. NR 439.08(2)(b). In addition, the permittee shall sample the #6 oil twice per quarter in non-consecutive weeks and analyze for heat content in accordance with s. NR 439.08(2)(c). After completing 4 quarters (8 total samples) of this sampling, the permittee may submit a request to cease testing for heat content of the #6 oil and only use the API nomograph to estimate the heat content of the #6 oil. This request must be made in writing and include an analysis of the accuracy of the nomograph in comparison to the heat content testing as well as any other data that the Department determines to be relevant. After submittal of the request and written concurrence from the Department that the nomograph is equivalent to the laboratory testing for estimating heat content, the permittee may cease taking the quarterly samples for laboratory analysis for heat content (s. NR 417.07(5), Wis. Adm. Code).
2. The permittee shall maintain a record of the sulfur content, by weight, of each sample tested under cond. 1. The permittee shall submit a quarterly report of the results of the sulfur content tests to the department by the end of the month immediately following the end of the quarter (s. NR 439.04(1)(a), Wis. Adm. Code).
3. Refinery gas is the fuel gas circulating in the facility's facility-wide refinery gas fuel system. This gas includes fuel gas produced at the refinery, propane produced at the refinery, purchased natural gas and any other gaseous fuel either produced at the refinery or brought into the refinery (s. 285.65(7), Stats.)
4. The permittee shall operate a continuous emission monitor (CEM) on the refinery gas for the purpose of measuring hydrogen sulfide concentration in parts per million by volume on a dry basis (ss. NR 440.26(6)(a)4. & s. NR 417.07(5), Wis. Adm. Code).
5. The hydrogen sulfide CEM shall be operated in accordance with performance specification 7 in 40CFR part 60. Relative accuracy evaluations shall be conducted using 40CFR part 60 Appendix Method 11. The permittee shall comply with the quality control and quality assurance plan which was submitted by the permittee and approved by the department in writing (ss. NR 439.09(4), NR 439.09(7) & NR 440.26(6)(a)4.c., Wis. Adm. Code Wis. Adm. Code and s. 285.65(2), Stats.)
6. The maximum BTU content of #6 oil shall be no greater than 165,000 Btu/gallon (s. NR 417.07(5), Wis. Adm. Code).

7. The permittee shall comply with the production curtailment plan included in Court Stipulation#92CV54 whenever the hydrogen sulfide content of the fuel gas is above 0.10 grains/dry standard cubic foot (162ppmv). This plan may only be changed by Murphy requesting such a change and the department, in writing, approving any changes. Any requests for changes to this plan shall be submitted to the Superior Area Office. A copy of this plan shall be kept at the facility. (s. 285.65(2), Stats.).
8. The owner or operator of a continuous emissions monitoring system shall submit quarterly excess emission reports to the Department within 30 days following the end of each calendar quarter in accordance with the requirements of s. NR 439.09(10) (s. NR 439.09(10), Wis. Adm Code).
9. The permittee shall submit a full excess emission report, as defined below, unless the Department approves, in writing, the submittal of a summary of excess emission report on a Department approved form. Full excess emission reports shall consist, at a minimum, of the following elements (ss. NR 439.09(10)(a)&(d), Wis. Adm. Code)
 - a. The date and starting and ending times or duration of each period of excess emissions and the magnitude of the emissions
 - b. The periods of excess emissions that occur during startups, shutdowns, control equipment malfunction, process malfunction, fuel problems, other known causes or for unknown causes. The report shall identify the cause of any malfunction and the measures taken to reduce excess emissions.
 - c. The date and starting and ending time of any period during which the monitoring system was inoperative for any reason or causes, including monitor malfunction or calibration, except for zero and span checks. The report shall identify the repairs and adjustments made to the system.
 - d. The date and starting and ending time of any period during which the process being monitored was inoperative.
 - e. When no period of excess emissions occurred during the quarter and the monitoring system had no period of downtime, an excess emissions report shall be filed stating such information.
10. The span on the hydrogen sulfide CEM's shall be 425 mg/dscm hydrogen sulfide (ss. NR 417.07(5) & NR 440.26(6)(a)4.a., Wis. Adm. Code).
11. The permittee shall keep a monthly record of the total quantity, in gallons, of #6 oil combusted at the facility (s. NR 439.04(1)(a), Wis. Adm. Code).

GENERAL PERMIT CONDITIONS

1. Whenever testing is required by the Department, the following test methods shall be employed:
 - a. Compliance with visible emission limits shall be determined by U.S. EPA Method 9.
 - b. Compliance with the particulate matter emission limits shall be determined by U.S. EPA Method 5 including backhalf or by USEPA Method 5B or 5F when either of these methods is specified in the permit for determining compliance with an emission limit.
 - c. Compliance with carbon monoxide emission limits shall be determined by U.S. EPA Method 10.

- d. Compliance with nitrogen compound emission limits shall be determined by U.S. EPA Method 7.
- e. Compliance with sulfur dioxide emission limits shall be determined by U.S. EPA Method 6.

(s. NR 439.06, Wis. Adm. Code)

- 2. After the issuance of this operation permit for the sources included in this permit, the permittee shall submit every six months the results of monitoring required by this permit to the Wisconsin Department of Natural Resources, Superior Service Center Air Program, 1705 Tower Avenue, Superior, WI 54880, phone (715) 392-7989. Monitoring reports which have a submittal frequency other than every 6 months specified elsewhere in this permit shall be submitted in accordance with those requirements. The submittal shall meet the requirements of s. NR 407.05(4)(I) and (j), Wis. Adm. Code and shall be submitted in the months selected by the facility as part of the operation permit application. The monitoring results shall be submitted with a certification of the truth, accuracy and completeness of the submittal signed by a responsible official (ss. NR 439.03(1)(b) and NR 439.03(10), Wis. Adm. Code).
- 3. After the issuance of this operation permit for the sources included in this permit, the permittee shall submit to the Wisconsin Department of Natural Resources, Superior Service Center Air Program, 1705 Tower Avenue, Superior, WI 54880, phone (715) 392-7989, annual certification of the source's compliance with the operation permit in the month selected by the facility as part of the operation permit application. The certification reports shall meet the requirements of s. NR 439.03(8) through (10), Wis. Adm. Code. (s. NR 439.03(1)(c), Wis. Adm. Code).
- 4. This permit supersedes Permit#95-SDD-120 (s. 285.65(3), Stats.)