

Revision to

Conditional Permit to Operate and Compliance

Schedule No. 730015

American Crystal Sugar Company

Drayton Sugar Beet Plant

Pembina County, North Dakota

AIR POLLUTION CONTROL
CONDITIONAL PERMIT TO OPERATE
AND
COMPLIANCE SCHEDULEPermit Number 730015
Amendment Number 02*supplemental sheet*American Crystal Sugar Company
Drayton Beet Sugar Factory
Drayton, North Dakota
Pembina County

In accordance with the letter and compliance schedule dated March 3, 1977 and signed by I. V. Fordyce, Manager of Environmental Control, Permit Number 730015 is amended as follows:

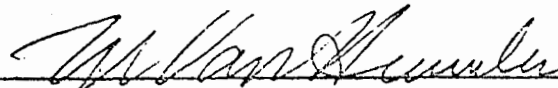
To add Condition 16.

16. The owner described in Item 1 shall install, calibrate, maintain and operate equipment for continuously monitoring and recording opacity measurements by September 30, 1978 on Source Unit C. The monitoring and recording shall be in accordance with the requirements for Notification and Record Keeping, subsection 12.106 of Section 12.100 and Monitoring Requirements, subsection 12.111 of Section 12.100 of R23-25-12 of the North Dakota Air Pollution Control Regulations.

FOR THE NORTH DAKOTA STATE DEPARTMENT OF HEALTH

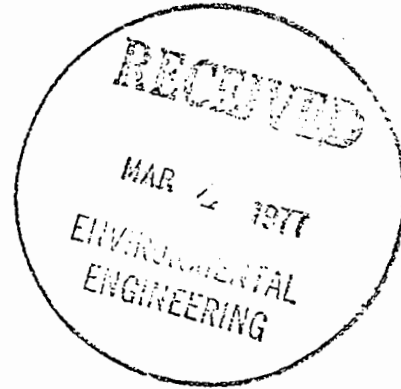
Date: 5/6/77

by

W. Van Heuvelen, Chief
Environmental Control

AMERICAN CRYSTAL SUGAR COMPANY

March 3, 1977



Mr. W. Van Heuvelen, Chief
Environmental Control
North Dakota State Department of Health
Missouri Office Building
1200 Missouri Avenue
Bismarck, North Dakota 58505



Dear Mr. Van Heuvelen:

RE: CONTINUOUS OPACITY MONITOR -- DRAYTON BOILER

Enclosed is a compliance schedule for the installation of a continuous opacity monitoring instrument on the 392 MBTU/hour boiler at our Drayton plant as required by your letter of January 27, 1977.

Sincerely,

A handwritten signature in cursive script that reads "I. V. Fordyce".

I. V. Fordyce, Manager
Environmental Control

IVF/mlj

Enc.

cc: (w/enc)

S. E. Bichsel
K. J. Stewart
K. G. Kevorkian
D. E. Sims
A. L. Sandberg
C. W. Thoreson
R. L. Kent
R. G. Nunnally
W. B. Dosland

NORTH DAKOTA STATE DEPARTMENT OF HEALTH
Air Pollution Control Program
1200 Missouri Avenue
Bismarck, North Dakota - 58501

COMPLIANCE SCHEDULE
For Installation of Continuous Opacity Monitoring Instruments

NAME OF FIRM OR ORGANIZATION: American Crystal Sugar Company

PLANT LOCATION Drayton, ND

SOURCE IDENTIFICATION NUMBER (From Permit to Operate): Unit No. 3 - Code 30A
Permit No. 730015 -- 392 MBTU/hr. Boiler

DATE BY WHICH FINAL PLANS AND SPECIFICATIONS WILL BE SUBMITTED TO THE DEPARTMENT FOR REVIEW AND APPROVAL. INCLUDE A DESCRIPTION OF THE STACK AND THE LOCATION ON THE STACK WHERE THE EQUIPMENT IS TO BE INSTALLED.

MONTH February DAY 1 YEAR 1978

DATE BY WHICH CONTRACTS FOR THE CONTINUOUS OPACITY MONITORING EQUIPMENT WILL BE AWARDED; OR DATE BY WHICH ORDERS WILL BE ISSUED FOR THE PURCHASE OF COMPONENT PARTS.

MONTH April DAY 1 YEAR 1978

DATE OF INITIATION OF ON-SITE CONSTRUCTION OR INSTALLATION OF THE CONTINUOUS OPACITY MONITORING EQUIPMENT.

MONTH August DAY 1 YEAR 1978

DATE BY WHICH ON-SITE CONSTRUCTION OR INSTALLATION IS TO BE COMPLETED AND OPERATION OF THE OPACITY MONITOR IS TO BEGIN.

MONTH September DAY 30 YEAR 1978

NAME OF PERSON SUBMITTING SCHEDULE I. V. Fordyce TITLE Mgr. Env. Control
(Owner or Authorized Agent)

SIGNATURE *I. V. Fordyce*

DATE 3/3/77 PHONE (218) 236-8020



**AIR POLLUTION CONTROL
PERMIT TO CONSTRUCT
FOR
BEST AVAILABLE RETROFIT TECHNOLOGY (BART)**

Pursuant to the Air Pollution Control Rules of the State of North Dakota (North Dakota Administrative Code Article 33-15, Chapter 33-15-14 and Chapter 33-15-25), the North Dakota Department of Health hereby grants a Permit to Construct for the following BART source:

I. General Information:

A. **Permit to Construct Number:** PTC10005

B. **Source:**

1. **Name:** Coal Creek Station
2. **Location:** Sections 8, 9, 16, 17, T145N, R82W, McLean County, North Dakota
3. **Source Type:** Fossil-fuel fired steam electric plant with a nominal generating capacity of 1,100 megawatts.
4. **Equipment at the Facility Subject to BART:**

Unit 1 -Lignite-fired boiler (nominal 6015 x 10⁶ Btu/hour heat input)

Unit 2 -Lignite-fired boiler (nominal 6022 x 10⁶ Btu/hour heat input)

C. **Owner/Operator:**

1. **Name:** Great River Energy
2. **Address:** 12300 Elm Creek Boulevard
Maple Grove, MN 55369-4718

II. Permit Conditions:

The Permit to Construct only establishes the BART emission limits if, and when, EPA approves those limits as a part of the Regional Haze SIP. This permit allows the construction and initial operation of new or modified air pollution control equipment and process modifications at the source to comply with the BART limits. If new emission units are created, then a new Permit to Construct may be required in accordance with NDAC 33-15-14-02. The source shall be

Environmental Health
Section Chief's Office
701.328.5150

Division of
Air Quality
701.328.5188

Division of
Municipal Facilities
701.328.5211

Division of
Waste Management
701.328.5166

Division of
Water Quality
701.328.5210

operated in accordance with the terms of this Permit to Construct and the Title V Permit to Operate until a revised Title V Permit to Operate is issued. The source is subject to all applicable rules, regulations, and orders now or hereafter in effect of the North Dakota Department of Health and to the conditions specified below:

A. **Special Conditions:**

1. **Emission Limits:** The term “30-day rolling average”, as used in this permit, shall be determined by calculating an arithmetic average of all hourly rates for the current boiler operating day and the previous 29 boiler operating days. A new 30-day rolling average shall be calculated for each boiler operating day. Each 30-day rolling average rate shall include start-up, shutdown, emergency and malfunction periods unless those periods are exempt by this permit. The 30-day rolling average emission rate is calculated as follows:

- Calculate the hourly average emission rate for any hour in which any fuel is combusted in the boiler.
- Calculate the 30-day rolling average emission rate as the arithmetic average of all valid hourly average emission rates for the 30 successive boiler operating days.

The term “boiler operating day”, as used in this permit, means any twenty-four-hour period between midnight and the following midnight during which any fuel is combusted at any time at the steam generating unit.

- a. Great River Energy shall not discharge or cause the discharge of sulfur dioxide (SO₂) into the atmosphere from Unit 1 and Unit 2 in excess of either:
- (1) 0.15 pounds per million British thermal units (lb/10⁶ Btu) of heat input on a 30-day rolling average basis;
- or as an alternative
- (2) 5.0 percent of the SO₂ reaching the scrubber inlet on a 30-day rolling average basis (95.0% reduction).

Great River Energy may average emissions from Unit 1 and Unit 2 provided the average does not exceed either 0.15 lb/10⁶ Btu; or 5.0 percent of the SO₂ reaching the inlet of both scrubbers.

- b. Great River Energy shall not discharge or cause the discharge of nitrogen oxides (NO_x) into the atmosphere from Unit 1 and Unit 2 in excess of 0.17 pounds per million British thermal units (lb/10⁶ Btu) of heat input per unit, on a 30-day rolling average basis.

Great River Energy may average emissions from Unit 1 and Unit 2 provided the actual average emission rate does not exceed 0.17 pounds per million British Thermal Units (lb/10⁶ Btu) of heat input on a 30-day rolling average basis.

- c. Great River Energy shall not discharge or cause the discharge of filterable (non-condensable) particulate matter (PM) into the atmosphere in excess of the following:

Unit 1 - 0.07 lb/10⁶ Btu

Unit 2 - 0.07 lb/10⁶ Btu

Compliance with the limit is determined in accordance with the procedures in II.A.4.b.5.

- d. The emission limits apply at all times including startup, shutdown, emergency and malfunction.

2. **Compliance Date:** Compliance with the emission limits and other requirements of this permit is required as expeditiously as practicable but in no event later than five years after the U.S. Environmental Protection Agency approves this permit as a part of the Regional Haze SIP. Compliance shall be demonstrated within 180 days of initial startup of the equipment required to meet the BART limits, but no later than five years after the U.S. EPA approves this permit as a part of the Regional Haze SIP.

3. **Continuous Emission Monitoring (CEM):** The emissions from Unit 1 (main stack) and Unit 2 (main stack) shall each be measured by continuous emission monitors (CEM) for SO₂, NO_x, CO₂, and flow. The monitoring requirements under Condition II.A.4 shall be the compliance determination method for SO₂ and NO_x.

4. **Monitoring Requirements and Conditions:**

- a. Requirements:

Great River Energy is only required to monitor compliance with one SO₂ limit (i.e., either the lb/10⁶ Btu limit or the 95% reduction limit). If Great River Energy monitors for both limits, and compliance is indicated for one limit but not the other, no excess emissions or monitoring deviations shall be reported with respect to the other limit.

Testing and monitoring protocols used to demonstrate compliance with the emission limits of Condition II.A.1 above shall be as follows:

Pollutant/ Parameter	Monitoring Requirement (Method)	Condition Number (II.A. ...)
Particulate	Compliance Assurance Monitoring (CAM)/ Emissions Test	4.b.(6)/4.b.(5)
SO ₂ (inlet)	CEM; or Coal Sampling Data & Emission Factor ^a	4.b.(1), 4.b.(2), 4.b.(3), 4.b.(7), & 4.b.(8)
SO ₂ (outlet)	CEM	

Pollutant/ Parameter	Monitoring Requirement (Method)	Condition Number (II.A. ...)
NO _x	CEM	4.b.(1), 4.b.(2), 4.b.(3), & 4.b.(8)
CO ₂	CEM	4.b.(1), 4.b.(2), & 4.b.(3)
Flow	Flow Monitor	4.b.(1), 4.b.(2), & 4.b.(3)

^a Emission factor refers to the value (e.g. percentage of inlet sulfur leaving the boiler), that is determined by stack testing, which is used to calculate the scrubber SO₂ inlet rate.

b. Emission Monitoring Conditions:

- (1) The monitoring shall be in accordance with the following applicable requirements of Chapter 33-15-06 of the North Dakota Air Pollution Control Rules and the Acid Rain Program. Emissions are calculated using 40 CFR 75.
 - (a) Section 33-15-06-04 of the North Dakota Air Pollution Control Rules, Monitoring Requirements.
 - (b) 40 CFR 72 and 40 CFR 75.
- (2) The Department may require additional performance audits of the CEM systems.
- (3) When a failure of a continuous emission monitoring system occurs, an alternative method, acceptable to the Department, for measuring or estimating emissions must be undertaken as soon as possible. The procedures outlined in 40 CFR 75, Subpart D for substitution are considered an acceptable method for the emission rate limit. The procedures of Method 19, Paragraph 12.7, are considered an acceptable method for the percent reduction requirement. Timely repair of the emission monitoring system must be made.
- (4) Great River Energy shall maintain and operate air pollution control monitoring equipment in a manner consistent with the manufacturer's recommended Operations and Maintenance (O&M) procedures, or a site-specific O&M procedure (developed from the manufacturer's recommended O&M procedures). Great River Energy shall have the O&M procedures available on-site and provide the Department with a copy when requested.
- (5) Within 180 days of initial startup of the equipment required to meet the BART limits, but not later than 5 years after approval of the Regional Haze SIP by the U.S. Environmental Protection Agency, Great River Energy shall conduct an emissions test to measure particulate emissions, using EPA Test Method 5B or Method 17 in 40 CFR 60, Appendix A. A test shall consist of three runs, with each run at least 120 minutes in duration and each run collecting a minimum

sample of 60 dry standard cubic feet. Other EPA approved test methods may be used provided they are approved, in advance, by the Department.

- (6) Monitoring for particulate matter shall be conducted in accordance with the Compliance Assurance Monitoring (CAM) Plan developed in accordance with NDAC 33-15-14-06.10. The CAM plan revision to address the BART PM limit shall be submitted with the Title V revision application for the BART limits.
- (7) In lieu of using a continuous emission monitor to determine the SO₂ reaching the wet scrubber inlets in accordance with Condition II.A.1.a., Great River Energy may use coal sampling and an emission factor established by stack testing. The requirements in 40 CFR 60, Appendix A, Method 19 shall be used to determine coal sampling and analysis requirements.

For purposes of determining compliance with the SO₂ percent reduction requirement, the reduction efficiency shall be determined as follows:

$$\% \text{ Reduction} = \frac{\text{Inlet SO}_2 \text{ Rate} - \text{Outlet SO}_2 \text{ Rate}}{\text{Inlet SO}_2 \text{ Rate}} \times 100$$

Where: The Inlet SO₂ Rate is in units of lb/10⁶ Btu, lb/hr, or ppmvd @ 3% O₂ and the Outlet SO₂ Rate is in the same units as the Inlet SO₂ Rate.

- (8) When averaging the emissions of Unit 1 and Unit 2, compliance shall be determined in accordance with the following:

$$\text{Average ER} = \frac{(\text{ER}_1)(\text{HI}_1) + (\text{ER}_2)(\text{HI}_2)}{(\text{HI}_1 + \text{HI}_2)}$$

Where:

Average ER = Average Emission Rate

ER₁ = Actual Emission Rate (lb/10⁶ Btu or % Reduction) of Unit 1

ER₂ = Actual Emission Rate (lb/10⁶ Btu or % Reduction) of Unit 2

HI₁ = Actual Heat Input (10⁶ Btu) of Unit 1

HI₂ = Actual Heat Input (10⁶ Btu) of Unit 2

Notes:

- ER and HI are 30-day rolling averages.
- 30-day rolling average for the 30 successive boiler operating days as defined in Condition II.A.1.
- % Reduction can be on either a lb/10⁶ Btu, ppmvd @ 3% O₂, or pounds of SO₂ basis.

5. Recordkeeping Requirements:

- a. Great River Energy shall maintain compliance monitoring records for Unit 1 and Unit 2 as outlined in Table 1 Monitoring Records, that includes the following information:
- (1) The date, place (as defined in the permit) and time of sampling or measurement.
 - (2) The date(s) testing was performed.
 - (3) The company, entity, or person that performed the testing.
 - (4) The testing techniques or methods used.
 - (5) The results of such testing.
 - (6) The unit load that existed at the time of sampling or measurement.
 - (7) The records of quality assurance for emissions measuring systems including but not limited to quality control activities, audits and calibration drifts as required by the applicable test method.
 - (8) A copy of all field data sheets from the emissions testing.
 - (9) A record shall be kept of all major maintenance activities conducted on the emission units or air pollution control equipment.
 - (10) Records shall be kept as to the type of fuel usage.

Table 1 Monitoring Records

Pollutant/Parameter	Compliance Monitoring Record
Particulate	CAM Data & Emissions Test Data
SO ₂ outlet (lb/10 ⁶ Btu)	CEM Data
SO ₂ inlet (% Reduction)	CEM Data; or Coal Sampling Data & Emission Factor for Inlet SO ₂ Rate
SO ₂ outlet (% Reduction)	CEM Data
NO _x	CEM Data
CO ₂	CEM Data
Flow	Flow Monitor Data

- b. In addition to requirements outlined in Condition II.A.5.a, recordkeeping for Unit 1 and Unit 2 shall be in accordance with the following applicable requirements of Chapter

33-15-06 and Chapter 33-15-14 of the North Dakota Air Pollution Control Rules and the Acid Rain Program.

- (1) Section 33-15-06-05 of the North Dakota Air Pollution Control Rules, Reporting and Recordkeeping Requirements.
 - (2) 40 CFR 72 and 40 CFR 75.
 - (3) 40 CFR 64, Section 64.9 - Reporting and Recordkeeping Requirements, Paragraph (b) General Recordkeeping Requirements.
- c. Great River Energy shall retain records of all required compliance monitoring data and support information for a period of at least five years from the date of the compliance monitoring sampling, measurement, report, or application. Support information includes all maintenance records of the emission units and all original strip-chart recordings/computer printouts and calibrations of the continuous compliance monitoring instrumentation, and copies of all reports required by the permit.

6. Reporting:

- a. For Unit 1 and Unit 2, reporting shall be in accordance with the following applicable requirements of Chapter 33-15-06 and Chapter 33-15-14 of the North Dakota Air Pollution Control Rules and the Acid Rain Program.
- (1) Section 33-15-06-05 of the North Dakota Air Pollution Control Rules, Reporting and Recordkeeping Requirements.
 - (2) 40 CFR 72 and 40 CFR 75.
 - (3) 40 CFR Part 64, Section 64.9 - Reporting and Recordkeeping Requirements, Paragraph (a) General Reporting Requirements.
 - (4) Quarterly excess emissions reports for Unit 1 and Unit 2 shall be submitted no later than the 30th day following the end of each calendar quarter. Excess emissions are defined as emissions which exceed the emission limits for Unit 1 and Unit 2 as outlined in Condition II.A.1. Data regarding only one of the two SO₂ limits needs to be included in the excess emissions report. Excess emissions shall be reported for the following:

<u>Parameter</u>	<u>Reporting Period</u>
SO ₂ lb/10 ⁶ Btu or % reduction	(30-day rolling average)
NO _x lb/10 ⁶ Btu	(30-day rolling average)

- b. Great River Energy shall submit a semi-annual report for all monitoring records required under Condition II.A.5 on forms supplied or approved by the Department. All

instances of deviations from the permit must be identified in the report. A monitoring report shall be submitted within 45 days after June 30 and December 31 of each year.

- c. Great River Energy shall submit an annual compliance certification report within 45 days after December 31 of each year on forms supplied or approved by the Department.
- d. For emission units where the method of compliance monitoring is demonstrated by either an EPA Test Method or portable analyzer, the test report shall be submitted to the Department within 60 days after completion of the test.
- e. Great River Energy shall submit an annual emission inventory report on forms supplied or approved by the Department. This report shall be submitted by March 15 of each calendar year. Insignificant units/activities listed in this permit do not need to be included in the annual emission inventory report.
- f. Great River Energy shall submit to the Department written semi-annual reports detailing progress toward completion of the requirements of this permit. The semi-annual reports shall be submitted no later than 45 days after June 30 and December 31 of each year. The first report shall be due following the end of the first complete semi-annual period after the permit is issued.
- g. Great River Energy shall notify the Department of the actual startup date of the equipment required to meet the BART limits.

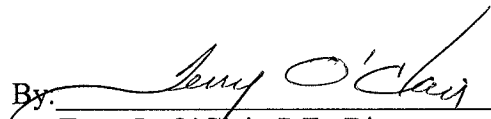
B. General Conditions:

1. This permit shall in no way permit or authorize the maintenance of a public nuisance or danger to public health or safety.
2. Great River Energy shall comply with all State and Federal environmental laws and rules. In addition, Great River Energy shall comply with all local building, fire, zoning, and other applicable ordinances, codes, rules and regulations.
3. All reasonable precautions shall be taken by Great River Energy to prevent and/or minimize fugitive emissions during the construction period.
4. Great River Energy shall at all times, including periods of startup, shutdown, and malfunction, maintain and operate Unit 1 and Unit 2 and all other emission units including associated air pollution equipment and fugitive dust suppression operations in a manner consistent with good air pollution control practices for minimizing emissions.
5. Any duly authorized officer, employee or agent of the North Dakota Department of Health may enter and inspect any property, premise or place at which the source listed in Item I.B. of this permit is or will be located at any time for the purpose of ascertaining the state of compliance with the North Dakota Air Pollution Control Rules and the conditions of this permit.
6. Any violation of a condition issued as part of this approval to construct is regarded as a violation of construction authority and is subject to enforcement action.

7. The conditions of this permit herein become, upon the effective date of this permit, enforceable by the Department pursuant to any remedies it now has or may in the future have, under the North Dakota Air Pollution Control Law, NDCC Chapter 23-25. Each and every condition of this permit is a material part thereof, and is not severable.

FOR THE NORTH DAKOTA
DEPARTMENT OF HEALTH

Date: 2/23/10

By: 
Terry L. O'Clair, P.E., Director
Division of Air Quality

Revision to

Permit to Operate

No. F76001

Montana Dakota Utilities Company

R. M. Heskett Power Station

Morton County, North Dakota

AIR POLLUTION CONTROL
PERMIT TO OPERATE

Permit number F76001
Amendment Number 01

supplemental sheet

Montana Dakota Utilities Company
R. M. Heskett Power Station
Mandan, North Dakota
Morton County

In accordance with the letter and compliance schedules dated March 15, 1977 and signed by Earl F. Backhaus, Assistant Manager Power Production, Permit Number F76001 is amended as follows:

To add Condition 7.K.

- 7.K. The owner described in Item 1 shall install, calibrate, maintain and operate equipment for continuously monitoring and recording opacity measurements by June 1, 1978 on Source Unit A.1. and by July 1, 1978 on Source Unit A.2. The monitoring and recording shall be in accordance with the requirements for Notification and Record Keeping, subsection 12.106 of Section 12.100 and Monitoring Requirements, subsection 12.111 of Section 12.100 of R23-25-12 of the North Dakota Air Pollution Control Regulations.

Date: 5/6/77

FOR THE NORTH DAKOTA STATE DEPARTMENT OF HEALTH

by

W. Van Heuvelen

W. Van Heuvelen, Chief
Environmental Control

MONTANA-DAKOTA UTILITIES CO.

400 NORTH FOURTH STREET - BISMARCK, ND 58501 - TEL. (701)224-3000

March 15, 1977



Mr. W. Van Heuvelen, Chief
Environmental Control
North Dakota State Department of Health
1200 Missouri Avenue
Bismarck, North Dakota 58505

Dear Mr. Van Heuvelen:

Forwarded herewith are the completed Compliance Schedule forms for installation of continuous opacity monitoring equipment on the two steam generators at our R. M. Heskett Station as requested in your letter of January 27, 1977.

Sincerely,

Earl F. Backhaus

Earl F. Backhaus
Asst. Manager, Power Production

EFB:fs

NORTH DAKOTA STATE DEPARTMENT OF HEALTH
Air Pollution Control Program
1200 Missouri Avenue
Bismarck, North Dakota - 58501

COMPLIANCE SCHEDULE

For Installation of Continuous Opacity Monitoring Instruments

NAME OF FIRM OR ORGANIZATION: Montana-Dakota Utilities Co.

PLANT LOCATION R. M. Heskett Station Unit No. 1, Mandan, ND

SOURCE IDENTIFICATION NUMBER (From Permit to Operate): E76001

DATE BY WHICH FINAL PLANS AND SPECIFICATIONS WILL BE SUBMITTED TO THE DEPARTMENT FOR REVIEW AND APPROVAL. INCLUDE A DESCRIPTION OF THE STACK AND THE LOCATION ON THE STACK WHERE THE EQUIPMENT IS TO BE INSTALLED.

MONTH September DAY 1 YEAR 1977

DATE BY WHICH CONTRACTS FOR THE CONTINUOUS OPACITY MONITORING EQUIPMENT WILL BE AWARDED; OR DATE BY WHICH ORDERS WILL BE ISSUED FOR THE PURCHASE OF COMPONENT PARTS.

MONTH February DAY 1 YEAR 1978

DATE OF INITIATION OF ON-SITE CONSTRUCTION OR INSTALLATION OF THE CONTINUOUS OPACITY MONITORING EQUIPMENT.

MONTH April DAY 1 YEAR 1978

DATE BY WHICH ON-SITE CONSTRUCTION OR INSTALLATION IS TO BE COMPLETED AND OPERATION OF THE OPACITY MONITOR IS TO BEGIN.

MONTH June DAY 1 YEAR 1978

NAME OF PERSON SUBMITTING SCHEDULE Earl F. Backhaus TITLE Ass't. Manager,
(Owner or Authorized Agent) Power Production

SIGNATURE *Earl F. Backhaus*

DATE March 15, 1977 PHONE 224-3262

NORTH DAKOTA STATE DEPARTMENT OF HEALTH
Air Pollution Control Program
1200 Missouri Avenue
Bismarck, North Dakota - 58501

COMPLIANCE SCHEDULE
For Installation of Continuous Opacity Monitoring Instruments

NAME OF FIRM OR ORGANIZATION: Montana-Dakota Utilities Co.

PLANT LOCATION R. M. Heskett Station Unit No. 2, Mandan, ND

SOURCE IDENTIFICATION NUMBER (From Permit to Operate): F76001

DATE BY WHICH FINAL PLANS AND SPECIFICATIONS WILL BE SUBMITTED TO THE DEPARTMENT FOR REVIEW AND APPROVAL. INCLUDE A DESCRIPTION OF THE STACK AND THE LOCATION ON THE STACK WHERE THE EQUIPMENT IS TO BE INSTALLED.

MONTH September DAY 1 YEAR 1977

DATE BY WHICH CONTRACTS FOR THE CONTINUOUS OPACITY MONITORING EQUIPMENT WILL BE AWARDED; OR DATE BY WHICH ORDERS WILL BE ISSUED FOR THE PURCHASE OF COMPONENT PARTS.

MONTH February DAY 1 YEAR 1978

DATE OF INITIATION OF ON-SITE CONSTRUCTION OR INSTALLATION OF THE CONTINUOUS OPACITY MONITORING EQUIPMENT.

MONTH May DAY 1 YEAR 1978

DATE BY WHICH ON-SITE CONSTRUCTION OR INSTALLATION IS TO BE COMPLETED AND OPERATION OF THE OPACITY MONITOR IS TO BEGIN.

MONTH July DAY 1 YEAR 1978

NAME OF PERSON SUBMITTING SCHEDULE Earl F. Backhaus TITLE Ass't. Manager,
(Owner or Authorized Agent) Power Production

SIGNATURE Earl F. Backhaus

DATE March 15, 1977 PHONE 224-3262



**AIR POLLUTION CONTROL
PERMIT TO CONSTRUCT**

Pursuant to the Air Pollution Control Rules of the State of North Dakota (North Dakota Administrative Code Article 33-15, Chapter 33-15-14 and Chapter 33-15-25), the North Dakota Department of Health hereby grants a Permit to Construct for the following source:

I. General Information:

- A. **Permit to Construct Number:** PTC10028
- B. **Source:**
1. **Name:** R.M. Heskett Station Unit 2
 2. **Location:** Mandan, North Dakota, Morton County
 3. **Source Type:** Fossil-fuel fired steam electric unit with a nominal generating capacity of 916.5 million British thermal units per hour (10^6 Btu/hr).
- C. **Owner/Operator:**
1. **Name:** Montana-Dakota Utilities Co.
 2. **Address:** 400 N Fourth Street
Bismarck, ND 58501-4092

II. Permit Conditions:

This Permit to Construct establishes sulfur dioxide emission limits for R.M. Heskett Station Unit 2 if, and when, EPA approves those limits as part of the North Dakota Regional Haze SIP. While this Permit to Construct authorizes the construction and initial operation of new or modified air pollution control equipment and process changes to reduce sulfur dioxide emissions, the permittee may be required to apply for a Prevention of Significant Deterioration (PSD) permit to authorize any significant net emissions increase of particulate matter, PM_{10} and/or $PM_{2.5}$, that will result from the installation of the new or modified pollution control equipment and the process changes.

If new emission units are created, a new Permit to Construct may be required in accordance with NDAC 33-15-14-02. The source shall be operated in accordance with the terms of this Permit to Construct, any required PSD permit and the Title V Permit to Operate until a revised Title V Permit to Operate is issued. The source is subject to all applicable rules, regulations, and orders now or hereafter in effect of the North Dakota Department of Health and to the conditions specified below:

A. Special Conditions:

1. **Emission Limits:** The term "12-month rolling average," as used in this permit, shall be determined by calculating an arithmetic average of all operating hourly rates for the current month and the previous 11 months. A new 12-month rolling average shall be calculated by the 30th day following the end of each month. Each 12-month rolling average rate shall include start-up, shutdown, emergency and malfunction periods unless those periods are exempt by this permit. The 12-month rolling average emission rate is calculated from average monthly values as follows:
 - If demonstrating compliance with the limit in Condition II.A.1.a(1), calculate the SO₂ removal efficiency for the month as determined by the outlet SO₂ emissions measured by the continuous emissions monitoring system (CEMS) and compare to the average sulfur input to the boiler. The average monthly sulfur input to the boiler shall be based on the amount of fuel combusted in the boiler and the average of the coal sulfur concentration samples measured during the month.
 - If demonstrating compliance with the limit in Condition II.A.1.a(2), provide the outlet SO₂ emissions as measured and calculated by the CEMS.
- a. The permittee shall not discharge or cause the discharge of sulfur dioxide (SO₂) into the atmosphere from Unit 2 in excess of either:
 - (1) 30.0% of the SO₂ equivalent reaching the inlet of the boiler (70.0% reduction) on a 12-month rolling average basis, or as an alternative;
 - (2) 0.60 pounds per million British thermal units (lb/10⁶ Btu) on a 12-month rolling average basis.
- b. The permittee shall conduct an optimization study to establish the highest sustained sulfur (SO₂) removal efficiency achievable by adding limestone to the bed material, taking into account any technical, operational, and reliability considerations, other pollutant emissions and environmental impacts, and cost effectiveness.
 - (1) Within 180 days of initial start-up of the limestone injection system, the permittee shall submit a protocol that describes the parameters to be monitored/measured during the study and provide a schedule for completion of the study and report.
 - (2) Upon Department approval of the test protocol and schedule, the optimization study shall be completed and a report submitted to the Department within the schedule approved in the study protocol.

- (3) If the study results indicates that sulfur (SO₂) removal beyond the limits in Condition II.A.1.a(1) and II.A.1.a(2) is achievable, after taking into account technical feasibility, operational and reliability consideration, other pollutant emissions and environmental impacts, and cost effectiveness, the permittee shall apply for a Permit to Construct to make the new SO₂ limit federally enforceable. The permittee shall begin complying with the new limit as outlined in the new, or amended, Permit to Construct.
- c. The SO₂ emission limits apply at all times including startup, shutdown, emergency and malfunction.
2. **Compliance Date:** Compliance with the emission limits and other requirements of this permit is required as expeditiously as practicable but in no event later than five years after the U.S. Environmental Protection Agency (EPA) approves this permit as part of the Regional Haze SIP. For purposes of establishing the first month of the 12-month rolling average limits in Condition II.A.1., the permittee shall begin monitoring for compliance within five years of EPA approval of the SIP, as described above, or within six months after initial startup of the limestone injection system, whichever is earlier.
3. **Continuous Emission Monitoring System (CEMS):** The emissions from Unit 2 (main stack) shall be measured by continuous emission monitors (CEM) for SO₂, CO₂, and flow. The monitoring requirements under Condition II.A.4 shall be the compliance determination method for SO₂.
4. **Monitoring Requirements and Conditions:**
- a. Requirements:

Testing and monitoring protocols used to demonstrate compliance with the emission limits of Condition II.A.1 above shall be as follows:

Table 1
Monitoring Requirements by Pollutant/Parameter

Pollutant/Parameter	Monitoring Requirement (Method)	Condition Number
SO ₂ (inlet)	Coal Sampling Data	4.b.(6)
SO ₂ (outlet)	CEMS	4.b.(1), 4.b.(2), 4.b.(3), 4.b.(4) & 4.b.(6)
CO ₂	CEMS	4.b.(1), 4.b.(2), & 4.b.(3) & 4.b.(4)
Flow	Flow Monitor	4.b.(1), 4.b.(2), & 4.b.(3) & 4.b.(4)

- b. Emission Monitoring Conditions:
- (1) The monitoring shall be in accordance with the following applicable requirements of Chapter 33-15-06 of the North Dakota Air Pollution

Control Rules and the Acid Rain Program. Emissions are calculated using 40 CFR Part 75.

- (a) Section 33-15-06-04 of the North Dakota Air Pollution Control Rules, Monitoring Requirements.
 - (b) 40 CFR 72 and 40 CFR 75.
- (2) The Department may require additional performance audits of the CEMS.
 - (3) When a failure of a continuous emission monitoring system occurs, an alternative method, acceptable to the Department, for measuring or estimating emissions must be undertaken as soon as possible. The procedures outlined in 40 CFR 75, Subpart D for substitution are considered an acceptable method for the emission rate limit. Timely repair of the emission monitoring system must be made.
 - (4) The permittee shall maintain and operate air pollution control monitoring equipment in a manner consistent with the manufacturer's recommended procedures, or a site-specific QA/QC Plan required by 40 CFR 75. The permittee shall have the QA/QC Plan available on-site and provide the Department with a copy when requested.
 - (5) Within 180 days of initial startup of the equipment required to meet the SO₂ limits, conduct an emissions test to measure particulate emissions, using EPA Test Method 5, 5B or Method 17 in 40 CFR Part 60, Appendix A. Other test methods may be used provided they are approved, in advance, by the Department.
 - (6) The requirements in 40 CFR 60, Appendix A, Method 19, Section 12.5.3 shall be used to determine overall reduction of SO₂ emissions based on outlet CEMS data and inlet coal sample analysis. Section 12.5.3.2 shall be used to calculate the inlet SO₂ rate. In place of the ASTM D 2234 requirements of 12.5.2.1 of Method 19, coal sample collection will be conducted at least daily when the boiler is in operation to generate the average monthly inlet SO₂ emission rate. Coal sample analysis shall occur at least weekly whenever samples are collected during that week. Daily samples within a calendar week may be combined to form a composite sample that is analyzed for the required parameters.

For purposes of determining compliance with the SO₂ percent reduction requirement, the reduction efficiency shall be determined as follows:

$$\% \text{ Reduction} = \frac{\text{Inlet SO}_2 \text{ Rate} - \text{Outlet SO}_2 \text{ Rate}}{\text{Inlet SO}_2 \text{ Rate}} \times 100$$

Where: The Inlet SO₂ Rate is in units of lb/10⁶ Btu or lb/hr and the Outlet SO₂ Rate is in the same units as the Inlet SO₂ Rate.

5. Recordkeeping Requirements:

- a. The permittee shall maintain compliance monitoring records for Unit 2 as outlined in Table 2 - Monitoring Records, that includes the following information:
- (1) A copy of the sample analysis report(s), including the date that the sample analysis was performed; the company, entity, or person that performed the analysis; and the testing techniques or methods used.
 - (2) The records of quality assurance for emissions measuring systems including but not limited to quality control activities, audits and calibration drifts as required by the applicable test method.
 - (3) A copy of all field data sheets from the emissions testing.
 - (4) A record shall be kept of all major maintenance activities conducted on the emission units or air pollution control equipment.
 - (5) Records shall be kept as to the type of fuel usage.

**Table 2
Monitoring Records**

Pollutant/Parameter	Compliance Monitoring Record
SO ₂ outlet (lb/10 ⁶ Btu & lb/hr)	CEMS Data
SO ₂ inlet (lb/10 ⁶ Btu)	Coal Sampling Data
CO ₂	CEMS Data
Flow	Flow Monitor Data

- b. In addition to requirements outlined in Condition II.5.a., recordkeeping for Unit 2 shall be in accordance with the following applicable requirements of Chapter 33-15-06, Chapter 33-15-14 of the North Dakota Air Pollution Control Rules and the Acid Rain Program:
- (1) Section 33-15-06-05 of the North Dakota Air Pollution Control Rules, Reporting and Recordkeeping Requirements.
 - (2) 40 CFR 72 and 40 CFR 75 as incorporated by NDAC 33-15-21-08.1 and 09.
- c. The permittee shall retain records of all required compliance monitoring data and support information for a period of at least five years from the date of the compliance monitoring sampling, measurement, report, or application. Support information includes all maintenance records of the emission units and all original strip-chart recordings/computer printouts and calibrations of the continuous compliance monitoring instrumentation, and copies of all reports required by the permit.

6. **Reporting:**

a. Reporting shall be in accordance with the following applicable requirements of Chapter 33-15-06 and Chapter 33-15-14 of the North Dakota Air Pollution Control Rules and the Acid Rain Program:

- (1) Section 33-15-06-05 of the North Dakota Air Pollution Control Rules, Reporting and Recordkeeping Requirements.
- (2) 40 CFR 72 and 40 CFR 75 as incorporated by NDAC 33-15-21-08.1 and 09.
- (3) NDAC 33-15-14-06.5.

b. Quarterly excess emissions reports for Unit 2 shall be submitted no later than the 30th day following the end of each calendar quarter. Excess emissions are defined as emissions which exceed the emission limits for Unit 2 as outlined in Condition II.A.1.a(1) or (2). Excess emissions shall be reported for the following:

<u>Parameter</u>	<u>Reporting Period</u>
SO ₂ % reduction	(Monthly and 12-month rolling average)
or	
SO ₂ lb/10 ⁶ Btu at outlet	(Monthly and 12-month rolling average)

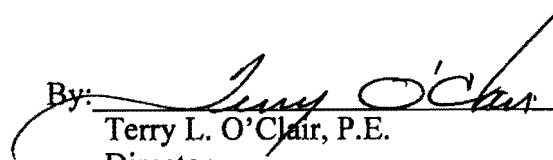
- c. The permittee shall submit a semi-annual report for all monitoring records required under Condition II.A.5 on forms supplied or approved by the Department. All instances of deviations from the permit must be identified in the report. A monitoring report shall be submitted within 45 days after June 30 and December 31 of each year.
- d. The permittee shall submit an annual compliance certification report within 45 days after December 31 of each year on forms supplied or approved by the Department.
- e. For emission units where the method of compliance monitoring is demonstrated by either an EPA Test Method or portable analyzer, the test report shall be submitted to the Department within 60 days after completion of the test.
- f. The permittee shall submit an annual emission inventory report on forms supplied or approved by the Department. This report shall be submitted by March 15 of each calendar year. Insignificant units/activities listed in this permit do not need to be included in the annual emission inventory report.
- g. The permittee shall notify the Department within 15 days of the actual startup date of the equipment required to meet the SO₂ permit limit.

B. General Conditions:

1. This permit shall in no way permit or authorize the maintenance of a public nuisance or danger to public health or safety.
2. The permittee shall comply with all State and Federal environmental laws and rules. In addition, the permittee shall comply with all local building, fire, zoning, and other applicable ordinances, codes, rules and regulations.
3. All reasonable precautions shall be taken by the permittee to prevent and/or minimize fugitive emissions during the construction period.
4. The permittee shall at all times, including periods of startup, shutdown, and malfunction, maintain and operate Unit 2 and all other emission units including associated air pollution equipment and fugitive dust suppression operations in a manner consistent with good air pollution control practices for minimizing emissions.
5. Any duly authorized officer, employee or agent of the North Dakota Department of Health may enter and inspect any property, premise or place at which the source listed in Item I.B. of this permit is or will be located at any time for the purpose of ascertaining the state of compliance with the North Dakota Air Pollution Control Rules and the conditions of this permit.
6. The conditions of this permit herein become, upon the effective date of this permit, enforceable by the Department pursuant to any remedies it now has or may in the future have, under the North Dakota Air Pollution Control Law, NDCC Chapter 23-25. Each and every condition of this permit is a material part thereof, and is not severable.

FOR THE NORTH DAKOTA
DEPARTMENT OF HEALTH

Date: 7/22/10

By: 
Terry L. O'Clair, P.E.
Director
Division of Air Quality

Revision to

Permit to Operate

No. 730004

Basin Electric Power Cooperative

Leland Olds Station

Mercer County, North Dakota

NORTH DAKOTA STATE DEPARTMENT OF HEALTH

Page 1 of 1 pages

AIR POLLUTION CONTROL
PERMIT TO OPERATE

Permit number 730004
Amendment Number 01

supplemental sheet

Basin Electric Power Cooperative
Leland Olds Station
Stanton, North Dakota
Mercer County

To Add Condition 7.K.

7. K. The owner described in Item 1 shall calibrate, maintain and operate equipment for continuously monitoring and recording opacity by September 30, 1978 on Source Units A.1. and A.2. The monitoring and recording shall be in accordance with the requirements for Notification and Recordkeeping, Subsection 12.106 of Section 12.100 and Monitoring Requirements, Subsection 12.111 of Section 12.100 of R23-25-12 of the North Dakota Air Pollution Control Regulations.

FOR THE NORTH DAKOTA STATE DEPARTMENT OF HEALTH

Date: 5/6/77

by



W. Van Heuvelen, Chief

Environmental Control



**AIR POLLUTION CONTROL
PERMIT TO CONSTRUCT
FOR
BEST AVAILABLE RETROFIT TECHNOLOGY (BART)**

Pursuant to the Air Pollution Control Rules of the State of North Dakota (North Dakota Administrative Code Article 33-15, Chapter 33-15-14 and Chapter 33-15-25), the North Dakota Department of Health hereby grants a Permit to Construct for the following BART source:

I. General Information:

A. **Permit to Construct Number:** PTC10004

B. **Source:**

1. **Name:** Leland Olds Station
2. **Location:** Stanton, North Dakota, Mercer County
3. **Source Type:** Fossil-fuel fired steam electric plant with a nominal generating capacity of 656 megawatts.

4. **Equipment at the Facility Subject to BART:**

Unit 1 - Coal-fired boiler (nominal 2622×10^6 Btu/hour heat input)

Unit 2 - Coal-fired boiler (nominal 5130×10^6 Btu/hour heat input)

C. **Owner/Operator:**

1. **Name:** Basin Electric Power Coop.
2. **Address:** 1717 E Interstate Avenue
Bismarck, ND 58501-0564

II. Permit Conditions:

The Permit to Construct only establishes the BART emission limits if, and when, EPA approves those limits as part of the Regional Haze SIP. This permit allows the construction and initial operation of new or modified air pollution control equipment and process modifications at the source to comply with the BART limits. If new emission units are created, a new Permit to Construct may be required in accordance with NDAC 33-15-14-02. The source shall

be operated in accordance with the terms of this Permit to Construct and the Title V Permit to Operate until a revised Title V Permit to Operate is issued. The source is subject to all applicable rules, regulations, and orders now or hereafter in effect of the North Dakota Department of Health and to the conditions specified below:

A. **Special Conditions:**

1. **Emission Limits:** The term “30-day rolling average,” as used in this permit, shall be determined by calculating an arithmetic average of all hourly rates for the current boiler operating day and the previous 29 boiler operating days. A new 30-day rolling average shall be calculated for each boiler operating day. Each 30-day rolling average rate shall include start-up, shutdown, emergency and malfunction periods unless those periods are exempt by this permit. The 30-day rolling average emission rate is calculated as follows:

- Calculate the hourly average emission rate for any hour in which any fuel is combusted in the boiler.
- Calculate the 30-day rolling average emission rate as the arithmetic average of all valid hourly average emission rates for the 30 successive boiler operating days.

The term “boiler operating day,” as used in this permit, means any twenty-four-hour period between midnight and the following midnight during which any fuel is combusted at any time at the steam generating unit.

- a. Basin Electric shall not discharge or cause the discharge of sulfur dioxide (SO₂) into the atmosphere from Unit 1 and Unit 2 in excess of either:
 - (1) 0.15 pounds per million British thermal units (lb/10⁶ Btu) of heat input on a 30-day rolling average basis;

or as an alternative
 - (2) 5.0% of the SO₂ reaching the inlet of the scrubber (95.0% reduction) on a 30-day rolling average basis.

For determining compliance with the above emission limits, Basin Electric may average emissions from Unit 1 and Unit 2 provided the average does not exceed 0.15 lb/10⁶ Btu; or 5.0 percent (95.0% reduction) of the SO₂ reaching the inlet of the scrubbing system(s), as appropriate.

- b. Basin Electric shall not discharge or cause the discharge of nitrogen oxides (NO_x) into the atmosphere from Unit 1 in excess of 0.19 pounds per million British thermal units (lb/10⁶ Btu) of heat input, on a 30-day rolling average basis.

Basin Electric shall not discharge or cause the discharge of nitrogen oxides (NO_x) into the atmosphere from Unit 2 in excess of 0.35 pounds per million British thermal units (lb/10⁶ Btu) of heat input, on a 30-day rolling average basis.

For determining compliance with the above emission limits, Basin Electric may average emissions from Unit 1 and Unit 2 provided the actual average emission rate does not exceed the average allowable emission rate calculated in accordance with Condition II.A(4)(b)(8).

- c. Basin Electric shall not discharge or cause the discharge of filterable (non-condensable) particulate matter (PM) into the atmosphere in excess of the following:

Unit 1 - 0.07 lb/10⁶ Btu

Unit 2 - 0.07 lb/10⁶ Btu

Compliance with the limits is determined in accordance with the procedures in Condition II.A.4.b.5.

- d. The emission limits apply at all times including startup, shutdown, emergency and malfunction.

2. **Compliance Date:** Compliance with the emission limits and other requirements of this permit is required as expeditiously as practicable but in no event later than five years after the U.S. Environmental Protection Agency approves this permit as a part of the Regional Haze SIP. Compliance shall be demonstrated within 180 days of initial startup of the equipment required to meet the BART limits, but no later than 5 years after the U.S. Environmental Protection Agency approves this permit as a part of the Regional Haze SIP.

3. **Continuous Emission Monitoring (CEM):** The emissions from Unit 1 (main stack) and Unit 2 (main stack) shall each be measured by continuous emission monitors (CEM) for SO₂, NO_x, CO₂, and flow. The monitoring requirements under Condition II.A.4 shall be the compliance determination method for SO₂ and NO_x.

4. **Monitoring Requirements and Conditions:**

- a. Requirements:

Basin Electric is only required to monitor compliance with one SO₂ limit (i.e., either the lb/10⁶ Btu limit or the 95% reduction limit). If Basin Electric monitors for both limits, and compliance is indicated for one limit but not the other, no excess emissions or monitoring deviations shall be reported with respect to the other limit.

Testing and monitoring protocols used to demonstrate compliance with the emission limits of Condition II.A.1 above shall be as follows:

Pollutant/ Parameter	Monitoring Requirement (Method)	Condition Number (II.A. ...)
Particulate	Compliance Assurance Monitoring (CAM)/ Emissions Test	4.b.(6)/4.b.(5)
SO ₂ (inlet)	CEM; or Coal Sampling Data & Emission Factor ^a	4.b.(1), 4.b.(2), 4.b.(3), 4.b.(7), & 4.b.(8)
SO ₂ (outlet)	CEM	
NO _x	CEM	4.b.(1), 4.b.(2), 4.b.(3), & 4.b.(8)
CO ₂	CEM	4.b.(1), 4.b.(2), & 4.b.(3)
Flow	Flow Monitor	4.b.(1), 4.b.(2), & 4.b.(3)

^a Emission factor refers to the value (e.g. percentage of inlet sulfur leaving the boiler), that is determined by stack testing, which is used to calculate the scrubber SO₂ inlet rate.

b. Emission Monitoring Conditions:

- (1) The monitoring shall be in accordance with the following applicable requirements of Chapter 33-15-06 of the North Dakota Air Pollution Control Rules and the Acid Rain Program. Emissions are calculated using 40 CFR Part 75.
 - (a) Section 33-15-06-04 of the North Dakota Air Pollution Control Rules, Monitoring Requirements.
 - (b) 40 CFR 72 and 40 CFR 75.
- (2) The Department may require additional performance audits of the CEM systems.
- (3) When a failure of a continuous emission monitoring system occurs, an alternative method, acceptable to the Department, for measuring or estimating emissions must be undertaken as soon as possible. The procedures outlined in 40 CFR 75, Subpart D for substitution are considered an acceptable method for the emission rate limit. The procedures of Method 19, Paragraph 12.7, are considered an acceptable method for the percent reduction requirement. Timely repair of the emission monitoring system must be made.
- (4) Basin Electric shall maintain and operate air pollution control monitoring equipment in a manner consistent the manufacturer's recommended

Operations and Maintenance (O&M) procedures, or a site-specific O&M procedure (developed from the manufacturer's recommended O&M procedures). Basin Electric shall have the O&M procedures available on-site and provide the Department with a copy when requested.

- (5) Within 180 days of initial startup of the equipment required to meet the BART limits, but not later than 5 years after approval of the Regional Haze SIP by the U.S. Environmental Protection Agency, Basin Electric shall conduct an emissions test to measure particulate emissions, using EPA Test Method 5B or Method 17 in 40 CFR Part 60, Appendix A. A test shall consist of three runs, with each run at least 120 minutes in duration and each run collecting a minimum sample of 60 dry standard cubic feet. Other EPA approved test methods may be used provided they are approved, in advance, by the Department.
- (6) Monitoring for particulate matter shall be conducted in accordance with the Compliance Assurance Monitoring (CAM) Plan developed in accordance with NDAC 33-15-14-06.10. The CAM plan revision to address the BART PM limit shall be submitted with the Title V permit revision application for the BART limits.
- (7) In lieu of using a continuous emission monitor to determine the SO₂ reaching the scrubber inlet(s) in accordance with Condition II.A.1.a., Basin Electric may use coal sampling and an emission factor established by stack testing. The requirements in 40 CFR 60, Appendix A, Method 19 shall be used to determine coal sampling and analysis requirements.

For purposes of determining compliance with the SO₂ percent reduction requirement, the reduction efficiency shall be determined as follows:

$$\% \text{ Reduction} = \frac{\text{Inlet SO}_2 \text{ Rate} - \text{Outlet SO}_2 \text{ Rate}}{\text{Inlet SO}_2 \text{ Rate}} \times 100$$

Where: The Inlet SO₂ Rate is in units of lb/10⁶ Btu, lb/hr, or ppmvd @ 3% O₂ and the Outlet SO₂ Rate is in the same units as the Inlet SO₂ Rate.

- (8) When averaging the emissions of Unit 1 and Unit 2, compliance shall be determined in accordance with the following:

$$\text{Average AER} = \frac{[(\text{AER}_1)(\text{HI}_1) + (\text{AER}_2)(\text{HI}_2)]}{(\text{HI}_1 + \text{HI}_2)}$$

$$\text{Average ER} = \frac{[(\text{ER}_1)(\text{HI}_1) + (\text{ER}_2)(\text{HI}_2)]}{(\text{HI}_1 + \text{HI}_2)}$$

AER = Allowable Emission Rate (lb/MMBtu or %

		Reduction)
Average ER	=	Average Actual Emission Rate
ER ₁	=	Actual Emission Rate (lb/MMBtu or % Reduction) of Unit 1
ER ₂	=	Actual Emission Rate (lb/MMBtu or % Reduction) of Unit 2
HI ₁	=	Actual Heat Input (MMBtu) of Unit 1
HI ₂	=	Actual Heat Input (MMBtu) of Unit 2

Notes:

- ER and HI are 30-day rolling averages.
- 30-day rolling average for the 30 successive boiler operating days as defined in Condition II.A.1.
- % Reduction can be on either a lb/10⁶ Btu, ppmvd @ 3% O₂, or pounds of SO₂ basis.

5. **Recordkeeping Requirements:**

- a. Basin Electric shall maintain compliance monitoring records for Unit 1 and Unit 2 as outlined in Table 1 Monitoring Records, that includes the following information:
- (1) The date, place (as defined in the permit) and time of sampling or measurement.
 - (2) The date(s) testing was performed.
 - (3) The company, entity, or person that performed the testing.
 - (4) The testing techniques or methods used.
 - (5) The results of such testing.
 - (6) The unit load that existed at the time of sampling or measurement.
 - (7) The records of quality assurance for emissions measuring systems including but not limited to quality control activities, audits and calibration drifts as required by the applicable test method.
 - (8) A copy of all field data sheets from the emissions testing.
 - (9) A record shall be kept of all major maintenance activities conducted on the emission units or air pollution control equipment.
 - (10) Records shall be kept as to the type of fuel usage.

Table 1 Monitoring Records

Pollutant/Parameter	Compliance Monitoring Record
Particulate	CAM Data & Emissions Test Data
SO ₂ outlet (lb/10 ⁶ Btu)	CEM Data
SO ₂ inlet (% Reduction)	CEM Data; or Coal Sampling Data & Emission Factor for Inlet SO ₂ Rate
SO ₂ outlet (% reduction)	CEM Data
NO _x	CEM Data
CO ₂	CEM Data
Flow	Flow Monitor Data

b. In addition to requirements outlined in Condition II.A.5.a, recordkeeping for Unit 1 and Unit 2 shall be in accordance with the following applicable requirements of Chapter 33-15-06 and Chapter 33-15-14 of the North Dakota Air Pollution Control Rules and the Acid Rain Program:

- (1) Section 33-15-06-05 of the North Dakota Air Pollution Control Rules, Reporting and Recordkeeping Requirements.
- (2) 40 CFR 72 and 40 CFR 75.
- (3) 40 CFR Part 64, Section 64.9 - Reporting and Recordkeeping Requirements, Paragraph (b) General Recordkeeping Requirements.

c. Basin Electric shall retain records of all required compliance monitoring data and support information for a period of at least five years from the date of the compliance monitoring sampling, measurement, report, or application. Support information includes all maintenance records of the emission units and all original strip-chart recordings/computer printouts and calibrations of the continuous compliance monitoring instrumentation, and copies of all reports required by the permit.

6. Reporting:

a. For Unit 1 and Unit 2, reporting shall be in accordance with the following applicable requirements of Chapter 33-15-06 and Chapter 33-15-14 of the North Dakota Air Pollution Control Rules and the Acid Rain Program.

- (1) Section 33-15-06-05 of the North Dakota Air Pollution Control Rules, Reporting and Recordkeeping Requirements.

- (2) 40 CFR 72 and 40 CFR 75.
- (3) 40 CFR Part 64, Section 64.9 - Reporting and Recordkeeping Requirements, Paragraph (a) General Reporting Requirements.
- (4) Quarterly excess emissions reports for Unit 1 and Unit 2 shall be submitted no later than the 30th day following the end of each calendar quarter. Excess emissions are defined as emissions which exceed the emission limits for Unit 1 and Unit 2 as outlined in Condition II.A.1. Data regarding only one of the two SO₂ limits must be included in the excess emissions report. Excess emissions shall be reported for the following:

<u>Parameter</u>	<u>Reporting Period</u>
SO ₂ lb/10 ⁶ Btu or percent reduction	(30-day rolling average)
NO _x lb/10 ⁶ Btu	(30-day rolling average)

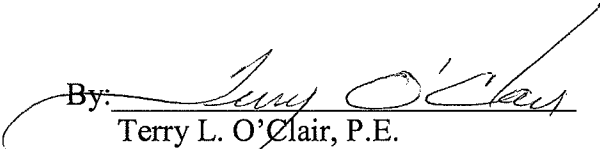
- b. Basin Electric shall submit a semi-annual report for all monitoring records required under Condition II.A.5 on forms supplied or approved by the Department. All instances of deviations from the permit must be identified in the report. A monitoring report shall be submitted within 45 days after June 30 and December 31 of each year.
- c. Basin Electric shall submit an annual compliance certification report within 45 days after December 31 of each year on forms supplied or approved by the Department.
- d. For emission units where the method of compliance monitoring is demonstrated by either an EPA Test Method or portable analyzer, the test report shall be submitted to the Department within 60 days after completion of the test.
- e. Basin Electric shall submit an annual emission inventory report on forms supplied or approved by the Department. This report shall be submitted by March 15 of each calendar year. Insignificant units/activities listed in this permit do not need to be included in the annual emission inventory report.
- f. Basin Electric shall submit to the Department written semi-annual reports detailing progress toward completion of the requirements of this permit. The semi-annual reports shall be due no later than 45 days after June 30 and December 31 of each year. The first report shall be due following the end of the first complete semi-annual period after the permit is issued.
- g. Basin Electric shall notify the Department of the actual startup date of the equipment required to meet the BART limits.

B. General Conditions:

1. This permit shall in no way permit or authorize the maintenance of a public nuisance or danger to public health or safety.
2. Basin Electric shall comply with all State and Federal environmental laws and rules. In addition, Basin Electric shall comply with all local building, fire, zoning, and other applicable ordinances, codes, rules and regulations.
3. All reasonable precautions shall be taken by Basin Electric to prevent and/or minimize fugitive emissions during the construction period.
4. Basin Electric shall at all times, including periods of startup, shutdown, and malfunction, maintain and operate Unit 1 and Unit 2 and all other emission units including associated air pollution equipment and fugitive dust suppression operations in a manner consistent with good air pollution control practices for minimizing emissions.
5. Any duly authorized officer, employee or agent of the North Dakota Department of Health may enter and inspect any property, premise or place at which the source listed in Item I.B. of this permit is or will be located at any time for the purpose of ascertaining the state of compliance with the North Dakota Air Pollution Control Rules and the conditions of this permit.
6. Any violation of a condition issued as part of this approval to construct is regarded as a violation of construction authority and is subject to enforcement action.
7. The conditions of this permit herein become, upon the effective date of this permit, enforceable by the Department pursuant to any remedies it now has or may in the future have, under the North Dakota Air Pollution Control Law, NDCC Chapter 23-25. Each and every condition of this permit is a material part thereof, and is not severable.

FOR THE NORTH DAKOTA
DEPARTMENT OF HEALTH

Date: 2/23/10

By: 
Terry L. O'Clair, P.E.
Director
Division of Air Quality

North Dakota
State Implementation Plan
Revision

(New Section)

Section 8.3.2

Continuous Opacity Monitoring for M.R. Young Station Unit 1
Main Boiler

Applicability:

This SIP revision is only applicable to the existing Unit 1 boiler at the M.R. Young Station near Center, North Dakota

Background:

Minnkota Power Cooperative (Minnkota) currently operates Unit 1 of the M.R. Young Station near Center, North Dakota. Unit 1 was constructed in the late 1960's and came on-line in 1970. As such, Minnkota is required to continuously monitor the opacity of emissions from Unit 1 as mandated by 40 CFR 51, Appendix P, Section 2.2.1. On May 6, 1977, the Department modified the Permit to Operate for Unit 1 to require the continuous monitoring of opacity. Minnkota has continuously monitored opacity at Unit 1 since the compliance date of August 30, 1978.

In 2006, Minnkota entered into a Consent Decree with the Department and the U.S. Environmental Protection Agency to settle allegations of noncompliance under the Prevention of Significant Deterioration Program. As part of this settlement, Minnkota was required to control sulfur dioxide emissions from Unit 1. Minnkota has installed a wet scrubber which will treat all of the flue gas from Unit 1 and achieve 95% reduction of the inlet sulfur dioxide. However, the large amount of moisture from the scrubber has made monitoring of the opacity in accordance with the requirements of 40 CFR 51, Appendix P, Section 3.1.1 infeasible. Specifically, water droplets contained in the flue gas could potentially result in the monitor overstating the true opacity.

Unit 1 at the M.R. Young Station is subject to a 20% opacity limit under NDAC 33-15-03-01.2 except for one six-minute period per hour in which up to 40% opacity is allowed. Minnkota has been able to comply with the 20% opacity limit prior to the installation of the scrubber with limited exceedances. The addition of the wet scrubber will reduce visible emissions further. Minnkota will assure compliance with the opacity limit through the use of a continuous emissions monitor for particulate matter as well as periodic visible emissions readings using Test Method 9 of Appendix A to 40 CFR 60. Minnkota has developed a Compliance Assurance Monitoring (CAM) plan for particulate matter in accordance with 40 CFR 64. The CAM plan indicates that 20% opacity occurs with a filterable particulate matter emission rate of 0.062 lb/10⁶ Btu.

In response to the installation of the scrubber, Minnkota has requested alternative monitoring procedures and requirements in accordance with 40 CFR 51, Appendix P, Section 6.1. The Department believes that alternative monitoring procedures are warranted based on the large amount of moisture and the low stack gas temperature.

For the purpose of this SIP amendment, the PM CEMS is used only for demonstrating compliance with the visible emissions standard. This SIP amendment does not cover monitoring for demonstrating compliance with the particulate matter emission limit for this unit.

Alternative Monitoring Procedures and Requirements:

1. Monitoring Parameters:

Minnkota is required to continuously monitor the particulate matter emission rate. Installation and operation of particulate matter monitoring system must comply with the following:

- a. The PM CEMS must be appropriate for the stack conditions;
- b. The PM CEMS must be installed, operated and maintained in accordance with the manufacturer's recommendations, the applicable requirements of 40 CFR § 60.40 et seq. and the General Provisions at 40 CFR §§ 60.7 – 60.13;
- c. Minnkota must certify the PM CEMS in accordance with performance specification 11 (PS-11) at 40 CFR Part 60, Appendix A; and
- d. Quality assurance/quality control requirements must be performed in accordance with 40 CFR Part 60, Appendix F, Procedure 2.

Minnkota shall conduct Method 9 (M9) visible emissions (opacity) readings in accordance with the following:

- a. Minnkota will take weekly M9 readings, for at least one hour each week, for six consecutive weeks during regular source operation;
- b. If continuous compliance with opacity is demonstrated for six consecutive weeks, Minnkota can begin taking monthly M9 readings;
- c. Monthly M9 readings must be taken for at least one hour each consecutive month but may be performed in no less than 30-minute intervals during regular source operation; and
- d. If excess emissions of opacity (greater than 20% opacity) are identified, Minnkota must revert back to weekly M9 readings for six consecutive weeks, conducted in accordance with (a) above, or until continuous compliance with the opacity limit is demonstrated, whichever is longer.

2. Frequency of Monitoring:

Filterable PM – Continuous

Visible Emissions – Monthly unless exceedances are identified

3. Requirements:

Filterable PM Emission rate shall not exceed 0.052 lb/10⁶ Btu (3-hour average)
Visible Emissions shall not exceed 20% (6-minute average)

4. Recordkeeping:

Minnkota shall keep records of all PM and visible emissions readings. All records shall be kept for at least five years.

5. Reporting:

Minnkota shall submit a quarterly excess emissions report which includes any excess emissions measured by the PM CEMS and visible emissions readings. The report shall also list any time period monitoring is not conducted as outlined in this section. Minnkota shall also submit an annual certification indicating compliance with the visible emissions limit.

Public Comment: January 8 – February 7, 2013

Finalized: March 1, 2013

State North Dakota

State Agency Department of Health

Affected Area EPA-approved source specific regulations

Regulation Milton R. Young Station Units 1 and 2.

Rule Number PTC10007.

Rule Title Air pollution control permit to construct for best available retrofit technology (BART).

State Effective Date 02/23/2010

State Adoption Date

EPA Effective Date 05/07/2012

Notice of Final Rule Date 04/06/2012

Notice of Final Rule Citation 77 FR 20894

Comments

Rule:



[\(d\) M.R.Young PTC Permit 10007 \(02-23-2010\).pdf](#)



NORTH DAKOTA
DEPARTMENT of HEALTH

ENVIRONMENTAL HEALTH SECTION
Gold Seal Center, 918 E. Divide Ave.
Bismarck, ND 58501-1947
701.328.5200 (fax)
www.ndhealth.gov



February 23, 2010

Mr. John Graves
Environmental Manager
Minnkota Power Cooperative, Inc.
P.O. Box 13200
Grand Forks, ND 58208-3200

Re: BART Permit to Construct

Dear Mr. Graves:

Pursuant to Subsection 33-15-25-02.2 of the Air Pollution Control Rules of the State of North Dakota, the Department of Health has completed final review of your Best Available Retrofit Technology (BART) analysis dated October 2006 and subsequent supplements. Enclosed is a Permit to Construct which establishes the BART emission limits for the M.R. Young Station located near the City of Center in Oliver County. A public comment period was held regarding BART and other elements of the Regional Haze State Implementation Plan (SIP) from December 8, 2009 to January 8, 2010, during which comments were received by the Department and considered in our determination.

Please advise the Department within 15 days after completing the project to allow for an inspection by the Department. Compliance with the BART limits must be achieved as expeditiously as possible, but not later than five years after the Environmental Protection Agency's approval of those limits as part of North Dakota's Regional Haze SIP.

In addition, within 12 months after commencing operation of the new and/or modified equipment, a permit revision application for the project for a significant modification to Title V Permit to Operate No. T5F76009 must be submitted to the Department.

If you have any questions, please contact me at (701)328-5188.

Sincerely,

Terry L. O'Clair, P.E.
Director
Division of Air Quality

TLO/CDT:saj

Enc:

xc/enc: Gail Fallon, EPA - Region 8
Custer District Health Unit, Mandan



**AIR POLLUTION CONTROL
PERMIT TO CONSTRUCT
FOR
BEST AVAILABLE RETROFIT TECHNOLOGY (BART)**

Pursuant to the Air Pollution Control Rules of the State of North Dakota (North Dakota Administrative Code Article 33-15, Chapter 33-15-14 and Chapter 33-15-25), the North Dakota Department of Health hereby grants a Permit to Construct for the following BART source:

I. General Information:

A. **Permit to Construct Number:** PTC10007

B. **Source:**

1. **Name:** Milton R. Young Station
2. **Location:** Center, North Dakota, Oliver County
3. **Source Type:** Fossil-fuel fired steam electric plant with a nameplate generating capacity of 734 megawatts.
4. **Equipment at the Facility Subject to BART:**

Unit 1 - Lignite-fired boiler (nominal 3200×10^6 Btu/hour heat input)

Unit 2 - Lignite-fired boiler (nominal 6300×10^6 Btu/hour heat input)

C. **Operator:**

1. **Name:** Minnkota Power Coop.
2. **Address:** 1822 Mill Road
Grand Forks, ND 58208-3200

II. Permit Conditions:

The Permit to Construct only establishes the BART emission limits if, and when, EPA approves those limits as part of the Regional Haze SIP. This permit allows the construction and initial operation of new or modified air pollution control equipment and process modifications at the source to comply with the BART limits. If new

emission units are created, a new Permit to Construct may be required in accordance with NDAC 33-15-14-02. The source shall be operated in accordance with the terms of this Permit to Construct and the Title V Permit to Operate until a revised Title V Permit to Operate is issued. The source is subject to all applicable rules, regulations, and orders now or hereafter in effect of the North Dakota Department of Health and to the conditions specified below:

A. **Special Conditions:**

1. **Emission Limits:** The term “30-day rolling average,” as used in this permit, shall be determined by calculating an arithmetic average of all hourly rates for the current boiler operating day and the previous 29 boiler operating days. A new 30-day rolling average shall be calculated for each boiler operating day. Each 30-day rolling average rate shall include start-up, shutdown, emergency and malfunction periods unless those periods are exempt by this permit. The 30-day rolling average emission rate is calculated as follows:

- Calculate the hourly average emission rate for any hour in which any fuel is combusted in the boiler.
- Calculate the 30-day rolling average emission rate as the arithmetic average of all valid hourly average emission rates for the 30 successive boiler operating days.

The term “boiler operating day,” as used in this permit, means any twenty-four-hour period between midnight and the following midnight during which any fuel is combusted at any time at the steam generating unit.

- a. Minnkota shall not discharge, or cause the discharge, of sulfur dioxide (SO₂) into the atmosphere from Unit 1 in excess of 5.0% of the SO₂ reaching the inlet of the scrubber on a 30-day rolling average basis (95% reduction).
- b. Minnkota shall not discharge, or cause the discharge, of sulfur dioxide (SO₂) into the atmosphere from Unit 2 in excess of either:
 - 1) 0.15 lb/10⁶ Btu and 10% of the SO₂ reaching the inlet of the scrubber (90.0% reduction) on a 30-day rolling average basis;
 - or as an alternative
 - 2) 5.0% of the SO₂ reaching the inlet of the scrubber (95.0% reduction) on a 30-day rolling average basis.

If Minnkota chooses to comply with the 95% reduction requirement at Unit 2, Minnkota may average the % reduction from Unit 1 and Unit 2 provided:

- 1) The average reduction is at least 95.0% as determined in accordance with Condition II.A.4.b(8).

- 2) The reduction by Unit 1 is at least 95.0%, and
 - 3) The reduction by Unit 2 is at least 90.0%.
- c. Minnkota shall not discharge or cause the discharge of nitrogen oxides (NO_x) into the atmosphere from Unit 1 in excess of 0.36 pounds per million British thermal units (lb/10⁶ Btu) of heat input and from Unit 2 in excess of 0.35 pounds per million British thermal units (lb/10⁶ Btu), on a 30-day rolling average basis. These limits do not apply during startup. During startup, NO_x emissions from Unit 1 shall not exceed 2070.2 lb/hr on a 24-hour rolling average basis and 3995.6 lb/hr from Unit 2 on a 24-hour rolling average basis. For purposes of this permit, startup is defined as follows:

Startup is the period of time from initial fuel combustion to the point in time when the measured heat input to the boiler on a 6-hour rolling average basis is greater than or equal to 2500 x 10⁶ Btu/hr for Unit 1 and 4800 x 10⁶ Btu/hr for Unit 2. For purposes of determining compliance, startup cannot exceed 61 hours for Unit 1 and 115 hours for Unit 2.

If a startup period is less than 24 hours, compliance with the startup limit will be based on the arithmetic average of the hourly emission rates during the startup period without regard to the 24-hour average specified for the limit (i.e., averaging period equals the startup period).

- d. Minnkota shall not discharge or cause the discharge of filterable particulate matter (PM) into the atmosphere in excess of the following:

Unit 1 - 0.03 lb/10⁶ Btu

Unit 2 - 0.03 lb/10⁶ Btu

Compliance with the limit is determined in accordance with Condition II.A.4.b.5.

- e. The sulfur dioxide and particulate matter emission limits apply at all times including startup, shutdown, emergency and malfunction.

2. **Compliance Date:** Compliance with the emission limits and other requirements of this permit is required as expeditiously as practicable but in no event later than five years after the U.S. Environmental Protection Agency approves this permit as a part of the Regional Haze SIP. Compliance shall be demonstrated within 180 days of initial startup of the equipment required to meet the BART limits, but no later than five years after the U.S. Environmental Protection Agency approves this permit as a part of the Regional Haze SIP.

3. **Continuous Emission Monitoring (CEM):** The emissions from Unit 1 (main stack) and Unit 2 (main stack) shall each be measured by continuous emission monitors (CEM) for SO₂, NO_x, CO₂, and flow. The CEM systems shall be the compliance determination method for SO₂ and NO_x.

4. **Monitoring Requirements and Conditions:**

a. Requirements:

Testing and monitoring protocols used to demonstrate compliance with the emission limits of Condition II.A.1 above shall be as follows:

Pollutant/ Parameter	Monitoring Requirement (Method)	Condition Number (II.A. ...)
Particulate	Compliance Assurance Monitoring (CAM)/ Emissions Test	4.b.(6)/4.b.(5)
SO ₂ (inlet and outlet)	CEM	4.b.(1), 4.b.(2), 4.b.(3), 4.b.(7) & 4.b.(8)
NO _x	CEM	4.b.(1), 4.b.(2), 4.b.(3), & 4.b.(8)
CO ₂	CEM	4.b.(1), 4.b.(2), & 4.b.(3)
Flow	Flow Monitor	4.b.(1), 4.b.(2), & 4.b.(3)

b. Emission Monitoring Conditions:

- (1) The monitoring shall be in accordance with the following applicable requirements of Chapter 33-15-06 of the North Dakota Air Pollution Control Rules and the Acid Rain Program. Emissions are calculated using 40 CFR Part 75.
 - (a) Section 33-15-06-04 of the North Dakota Air Pollution Control Rules, Monitoring Requirements.
 - (b) 40 CFR 72 and 40 CFR 75.
- (2) The Department may require additional performance audits of the CEM systems.
- (3) When a failure of a continuous emission monitoring system occurs, an alternative method, acceptable to the Department, for measuring or estimating emissions must be undertaken as soon as possible. The procedures outlined in 40 CFR 75, Subpart D for substitution are considered an acceptable method for the emission rate limit. The procedures of Method 19, Paragraph 12.7, are considered an acceptable

method for the percent reduction requirement. Timely repair of the emission monitoring system must be made.

- (4) Minnkota shall maintain and operate air pollution control monitoring equipment in a manner consistent the manufacturer's recommended Operations and Maintenance (O&M) procedures, or a site-specific O&M procedure (developed from the manufacturer's recommended O&M procedures). Minnkota shall have the O&M procedures available on-site and provide the Department with a copy when requested.
- (5) Within 180 days of initial startup of the equipment required to meet the BART limits, but not later than 5 years after approval of the Regional Haze SIP by the U.S. Environmental Protection Agency, Minnkota shall conduct an emissions test to measure particulate emissions, using EPA Test Method 5B or Method 17 in 40 CFR Part 60, Appendix A. A test shall consist of three runs, with each run at least 120 minutes in duration and each run collecting a minimum sample of 60 dry standard cubic feet. Other EPA approved test methods may be used provided they are approved, in advance, by the Department.
- (6) Monitoring for particulate matter shall be conducted in accordance with the Compliance Assurance Monitoring (CAM) Plan developed in accordance with NDAC 33-15-14-06.10. The CAM plan revision to address the BART PM limit shall be submitted with the Title V permit revision application for the BART limits.
- (7) For purposes of determining compliance with the SO₂ percent reduction requirement, the reduction efficiency shall be determined as follows:

$$\% \text{ Reduction} = \frac{\text{Inlet SO}_2 \text{ Rate} - \text{Outlet SO}_2 \text{ Rate}}{\text{Inlet SO}_2 \text{ Rate}} \times 100$$

Where: The Inlet SO₂ Rate and Outlet SO₂ Rate are in units of lb/10⁶ Btu (30-day rolling average).

- (8) When averaging the SO₂ emissions of Unit 1 and Unit 2, compliance shall be determined in accordance with the following:

$$\text{Average \% Reduction} = \frac{[(ER_1)(HI_1) + (ER_2)(HI_2)]}{(HI_1 + HI_2)}$$

ER₁ = Actual % Reduction of Unit 1

ER₂ = Actual % Reduction of Unit 2

HI₁ = Actual Heat Input (MMBtu) of Unit 1

HI₂ = Actual Heat Input (MMBtu) of Unit 2

Notes:

- ER and HI are 30-day rolling averages.
- 30-day rolling average for the 30 successive boiler operating days as defined in Condition II.A.1.
- % Reduction is on a lb/10⁶ Btu of SO₂ basis.

5. Recordkeeping Requirements:

- a. Minnkota shall maintain compliance monitoring records for Unit 1 and Unit 2 as outlined in Table 1 Monitoring Records, that includes the following information:
- (1) The date, place (as defined in the permit) and time of sampling or measurement.
 - (2) The date(s) testing was performed.
 - (3) The company, entity, or person that performed the testing.
 - (4) The testing techniques or methods used.
 - (5) The results of such testing.
 - (6) The unit load that existed at the time of sampling or measurement.
 - (7) The records of quality assurance for emissions measuring systems including but not limited to quality control activities, audits and calibration drifts as required by the applicable test method.
 - (8) A copy of all field data sheets from the emissions testing.
 - (9) A record shall be kept of all major maintenance activities conducted on the emission units or air pollution control equipment.
 - (10) Records shall be kept as to the type of fuel usage.

Table 1 Monitoring Records

Pollutant/Parameter	Compliance Monitoring Record
Particulate	CAM Data & Emissions Test Data
SO ₂ (lb/10 ⁶ Btu) inlet and outlet	CEM Data
SO ₂ (% Reduction) inlet and outlet	CEM Data
NO _x	CEM Data

Pollutant/Parameter	Compliance Monitoring Record
CO ₂	CEM Data
Flow	Flow Monitor Data

b. In addition to requirements outlined in Condition II.A.5.a, recordkeeping for Unit 1 and Unit 2 shall be in accordance with the following applicable requirements of Chapter 33-15-06 and Chapter 33-15-14 of the North Dakota Air Pollution Control Rules and the Acid Rain Program:

- (1) Section 33-15-06-05 of the North Dakota Air Pollution Control Rules, Reporting and Recordkeeping Requirements.
- (2) 40 CFR 72 and 40 CFR 75.
- (3) 40 CFR Part 64, Section 64.9 - Reporting and Recordkeeping Requirements, Paragraph (b) General Recordkeeping Requirements.

c. Minnkota shall retain records of all required compliance monitoring data and support information for a period of at least five years from the date of the compliance monitoring sampling, measurement, report, or application. Support information includes all maintenance records of the emission units and all original strip-chart recordings/computer printouts and calibrations of the continuous compliance monitoring instrumentation, and copies of all reports required by the permit.

6. Reporting:

a. For Unit 1 and Unit 2, reporting shall be in accordance with the following applicable requirements of Chapter 33-15-06 and Chapter 33-15-14 of the North Dakota Air Pollution Control Rules and the Acid Rain Program.

- (1) Section 33-15-06-05 of the North Dakota Air Pollution Control Rules, Reporting and Recordkeeping Requirements.
- (2) 40 CFR 72 and 40 CFR 75.
- (3) 40 CFR Part 64, Section 64.9 - Reporting and Recordkeeping Requirements, Paragraph (a) General Reporting Requirements.
- (4) Quarterly excess emissions reports for Unit 1 and Unit 2 shall be submitted no later than the 30th day following the end of each calendar quarter. Excess emissions are defined as emissions which exceed the emission limits for Unit 1 and Unit 2 as outlined in Condition II.A.1. For Unit 2, data regarding only one of the two alternative SO₂ limits must be included in the

excess emissions report. Excess emissions shall be reported for the following:

<u>Parameter</u>	<u>Reporting Period</u>
SO ₂ lb/10 ⁶ Btu	(30-day rolling average) SO ₂ percent emitted (reduction)
NO _x lb/10 ⁶ Btu	(30-day rolling average)
NO _x lb/hr (startup)	(30-day rolling average) (24-hour rolling average)

- b. Minnkota shall submit a semi-annual report for all monitoring records required under Condition II.A.5 on forms supplied or approved by the Department. All instances of deviations from the permit must be identified in the report. A monitoring report shall be submitted within 45 days after June 30 and December 31 of each year.
- c. Minnkota shall submit an annual compliance certification report within 45 days after December 31 of each year on forms supplied or approved by the Department.
- d. For emission units where the method of compliance monitoring is demonstrated by either an EPA Test Method or a portable analyzer test, the test report shall be submitted to the Department within 60 days after completion of the test.
- e. Minnkota shall submit an annual emission inventory report on forms supplied or approved by the Department. This report shall be submitted by March 15 of each calendar year. Insignificant units/activities listed in this permit do not need to be included in the annual emission inventory report.
- f. Minnkota shall submit to the Department written semi-annual reports detailing progress toward completion of the requirements of this permit. The semi-annual reports shall be submitted no later than 45 days after June 30 and December 31 of each year. The first report shall be due following the end of the first complete semi-annual period after the permit is issued.
- g. Minnkota shall notify the Department of the actual startup date of the equipment required to meet the BART limits.

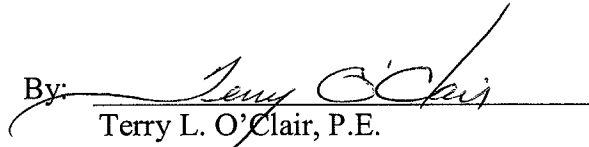
B. General Conditions:

1. This permit shall in no way permit or authorize the maintenance of a public nuisance or danger to public health or safety.
2. Minnkota shall comply with all State and Federal environmental laws and rules. In addition, Minnkota shall comply with all local building, fire, zoning, and other applicable ordinances, codes, rules and regulations.

3. All reasonable precautions shall be taken by Minnkota to prevent and/or minimize fugitive emissions during the construction period.
4. Minnkota shall at all times, including periods of startup, shutdown, and malfunction, maintain and operate Unit 1 and Unit 2 and all other emission units including associated air pollution equipment and fugitive dust suppression operations in a manner consistent with good air pollution control practices for minimizing emissions.
5. Any duly authorized officer, employee or agent of the North Dakota Department of Health may enter and inspect any property, premise or place at which the source listed in Item I.B. of this permit is or will be located at any time for the purpose of ascertaining the state of compliance with the North Dakota Air Pollution Control Rules and the conditions of this permit.
6. Any violation of a condition issued as part of this approval to construct is regarded as a violation of construction authority and is subject to enforcement action.
7. The conditions of this permit herein become, upon the effective date of this permit, enforceable by the Department pursuant to any remedies it now has or may in the future have, under the North Dakota Air Pollution Control Law, NDCC Chapter 23-25. Each and every condition of this permit is a material part thereof, and is not severable.

FOR THE NORTH DAKOTA
DEPARTMENT OF HEALTH

Date: 2/23/10

By: 
Terry L. O'Clair, P.E.
Director
Division of Air Quality

Revision to

Permit to Operate

No. F76009

Minnkota Power Cooperative, Inc.

Milton R. Young Unit #1

Oliver County, North Dakota

AIR POLLUTION CONTROL
PERMIT TO OPERATE

Permit number F76009
Amendment Number 01

supplemental sheet

Minnkota Power Cooperative, Inc.
Milton R. Young Station, Unit #1
Center, North Dakota
Oliver County

In accordance with the compliance schedule dated March 18, 1977 and signed by Gary G. Kapity, Environmental Engineer, Permit Number F76009 is amended as follows:

To add Condition 7.K.

7.K. The owner described in Item 1 shall install, calibrate, maintain and operate equipment for continuously monitoring and recording opacity measurements by August 30, 1978 on Source Unit A.1. The monitoring and recording shall be in accordance with the requirements for Notification and Record Keeping, subsection 12.106 of Section 12.100 and Monitoring Requirements, subsection 12.111 of Section 12.100 of R23-25-12 of the North Dakota Air Pollution Control Regulations.

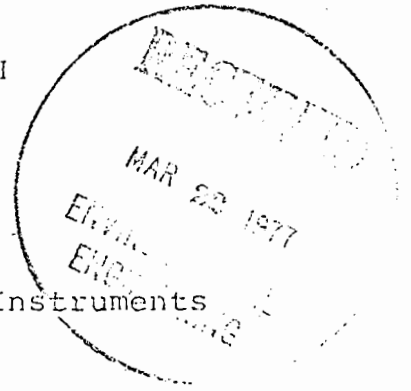
FOR THE NORTH DAKOTA STATE DEPARTMENT OF HEALTH

Date: 5/6/77

by W. Van Heuvelen

W. Van Heuvelen, Chief
Environmental Control

NORTH DAKOTA STATE DEPARTMENT OF HEALTH
Air Pollution Control Program
1200 Missouri Avenue
Bismarck, North Dakota - 58501



COMPLIANCE SCHEDULE

For Installation of Continuous Opacity Monitoring Instruments

NAME OF FIRM OR ORGANIZATION: Minnkota Power Cooperative, Inc.

PLANT LOCATION Box 127, Center, North Dakota

SOURCE IDENTIFICATION NUMBER (From Permit to Operate): F 76009

DATE BY WHICH FINAL PLANS AND SPECIFICATIONS WILL BE SUBMITTED TO THE DEPARTMENT FOR REVIEW AND APPROVAL. INCLUDE A DESCRIPTION OF THE STACK AND THE LOCATION ON THE STACK WHERE THE EQUIPMENT IS TO BE INSTALLED.

MONTH September DAY 1 YEAR 1977

DATE BY WHICH CONTRACTS FOR THE CONTINUOUS OPACITY MONITORING EQUIPMENT WILL BE AWARDED; OR DATE BY WHICH ORDERS WILL BE ISSUED FOR THE PURCHASE OF COMPONENT PARTS.

MONTH November DAY 1 YEAR 1977

DATE OF INITIATION OF ON-SITE CONSTRUCTION OR INSTALLATION OF THE CONTINUOUS OPACITY MONITORING EQUIPMENT.

MONTH April DAY 1 YEAR 1978

DATE BY WHICH ON-SITE CONSTRUCTION OR INSTALLATION IS TO BE COMPLETED AND OPERATION OF THE OPACITY MONITOR IS TO BEGIN.

MONTH August DAY 30 YEAR 1978

NAME OF PERSON SUBMITTING SCHEDULE Gary G. Kapity TITLE Environmental Engineer
(Owner or Authorized Agent)

SIGNATURE Gary G. Kapity

DATE 8-18-77 PHONE 701-795-4240

701-795-4000

Revision to

Permit to Operate

No. F76007

United Power Association

Stanton Plant

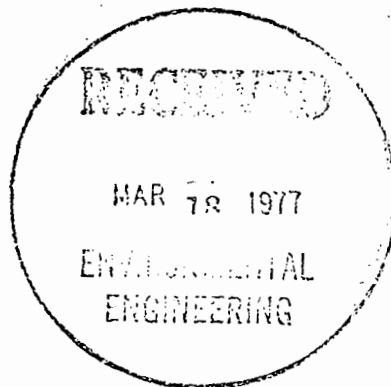
Mercer County, North Dakota

united power association

elk river, minnesota 55330 • phone 612-441-3121 • tax 910-578-3902

arch 16, 1977

Mr. W. Van Heuvelen, Chief
Environmental Control
Division of Environmental Engineering
North Dakota State Department of Health
1200 Missouri Avenue
Bismarck, North Dakota 58505



Dear Mr. Van Heuvelen:

Pursuant to your letter of January 27, 1977 and Section 51.19 of Title 40, Part 51 of the Code of Federal Regulations, enclosed please find a completed Compliance Schedule for the installation of an opacity monitor at United Power Association's Stanton Power Station.

We will be available to furnish any additional information you may require.

Sincerely yours,

UNITED POWER ASSOCIATION

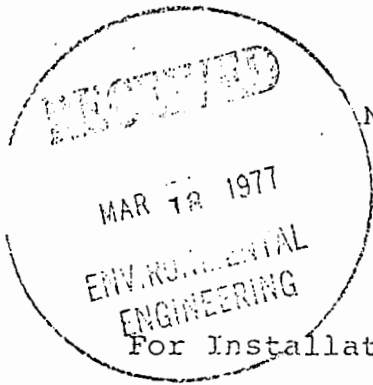
A handwritten signature in cursive script that reads "Dan McConnon".

Dan McConnon, Manager
Environmental and Safety

DM:sgb

Encl.

cc: Robert Taylor, UPA, Stanton, w/encl.



NORTH DAKOTA STATE DEPARTMENT OF HEALTH
Air Pollution Control Program
1200 Missouri Avenue
Bismarck, North Dakota - 58501

COMPLIANCE SCHEDULE

For Installation of Continuous Opacity Monitoring Instruments

NAME OF FIRM OR ORGANIZATION: United Power Association - Stanton Power Station

PLANT LOCATION Stanton, North Dakota

SOURCE IDENTIFICATION NUMBER (From Permit to Operate): F 76007

DATE BY WHICH FINAL PLANS AND SPECIFICATIONS WILL BE SUBMITTED TO THE DEPARTMENT FOR REVIEW AND APPROVAL. INCLUDE A DESCRIPTION OF THE STACK AND THE LOCATION ON THE STACK WHERE THE EQUIPMENT IS TO BE INSTALLED.

MONTH November DAY 15 YEAR 1977

DATE BY WHICH CONTRACTS FOR THE CONTINUOUS OPACITY MONITORING EQUIPMENT WILL BE AWARDED; OR DATE BY WHICH ORDERS WILL BE ISSUED FOR THE PURCHASE OF COMPONENT PARTS.

MONTH January DAY 15 YEAR 1978

DATE OF INITIATION OF ON-SITE CONSTRUCTION OR INSTALLATION OF THE CONTINUOUS OPACITY MONITORING EQUIPMENT.

MONTH April DAY 1 YEAR 1978

DATE BY WHICH ON-SITE CONSTRUCTION OR INSTALLATION IS TO BE COMPLETED AND OPERATION OF THE OPACITY MONITOR IS TO BEGIN.

MONTH September DAY 30 YEAR 1978

NAME OF PERSON SUBMITTING SCHEDULE Dan McConnon TITLE Mgr., Environmental and Safety
(Owner or Authorized Agent)

SIGNATURE Dan McConnon

DATE March 15, 1977 PHONE (612)441-3121



**AIR POLLUTION CONTROL
PERMIT TO CONSTRUCT
FOR
BEST AVAILABLE RETROFIT TECHNOLOGY (BART)**

Pursuant to the Air Pollution Control Rules of the State of North Dakota (North Dakota Administrative Code Article 33-15, Chapter 33-15-14 and Chapter 33-15-25), the North Dakota Department of Health hereby grants a Permit to Construct for the following BART source:

I. General Information:

A. **Permit to Construct Number:** PTC10006

B. **Source:**

1. **Name:** Stanton Generating Station
2. **Location:** Section 21, T144N, R84W, Mercer County, North Dakota
3. **Source Type:** Fossil-fuel fired steam electric plant with a nominal generating capacity of 188 megawatts.
4. **Equipment at the Facility Subject to BART:**
Unit 1 - Coal-fired boiler (nominal 1,800 x 10⁶ Btu/hour heat input)

C. **Owner/Operator:**

1. **Name:** Great River Energy
2. **Address:** 12300 Elm Creek Blvd
Maple Grove, MN 55369-4718

II. Permit Conditions:

The Permit to Construct only establishes the BART emission limits if, and when, EPA approves those limits as part of the Regional Haze SIP. This permit allows the construction and initial operation of new or modified air pollution control equipment and process modifications at the source to comply with the BART limits. If new emission units are created, then a new Permit to Construct may be required in accordance with NDAC 33-15-14-02. The source shall be operated in accordance with the terms of this Permit to Construct and the Title V Permit to Operate until a

revised Title V Permit to Operate is issued. The source is subject to all applicable rules, regulations, and orders now or hereafter in effect of the North Dakota Department of Health and to the conditions specified below:

A. **Special Conditions:**

1. **Emission Limits:** The term “30-day rolling average”, as used in this permit, shall be determined by calculating an arithmetic average of all hourly rates for the current boiler operating day and the previous 29 boiler operating days. A new 30-day rolling average shall be calculated for each boiler operating day. Each 30-day rolling average rate shall include start-up, shutdown, emergency and malfunction periods unless those periods are exempt by this permit. The 30-day rolling average emission rate is calculated as follows:

- Calculate the hourly average emission rate for any hour in which any fuel is combusted in the boiler.
- Calculate the 30-day rolling average emission rate as the arithmetic average of all valid hourly average emission rates for the 30 successive boiler operating days.

The term “boiler operating day”, as used in this permit, means any twenty-four-hour period between midnight and the following midnight during which any fuel is combusted at any time at the steam generating unit.

- a. When burning only lignite coal, Great River Energy shall not discharge or cause the discharge of sulfur dioxide (SO₂) into the atmosphere from Unit No. 1 in excess of either:
 - 1) 0.24 pounds per million British thermal units (lb/10⁶ Btu) of heat input on a 30-day rolling average basis;
 - or
 - 2) 10.0% of the SO₂ reaching the spray dryer inlet on a 30-day rolling average basis (90.0% reduction).
- b. When burning subbituminous coal, Great River Energy shall not discharge or cause the discharge of sulfur dioxide (SO₂) into the atmosphere from Unit No. 1 in excess of either:
 - 1) 0.16 pounds per million British thermal units (lb/10⁶ Btu) of heat input on a 30-day rolling average basis;
 - or
 - 2) 10.0% of the SO₂ reaching the spray dryer inlet on a 30-day rolling average basis (90.0% reduction).

c. When both lignite coal and subbituminous coal are burned in Unit 1 in a 30-day averaging period, Great River Energy shall not discharge or cause the discharge of sulfur dioxide (SO₂) into the atmosphere from Unit 1 in excess of either:

1) The SO₂ emission limit determined using the following formula:

$$E_{SO_2} = (E_L H_L + E_S H_S) / (H_L + H_S)$$

Where:

E_{SO_2} = SO₂ emission limit in pounds per million British thermal units (lb/10⁶ Btu) of heat input on a 30-day rolling average basis

E_L = 0.24 lb/10⁶ Btu of heat input

E_S = 0.16 lb/10⁶ Btu of heat input

H_L = total heat input (in million Btu) from the combustion of lignite coal for the current operating day and the previous 29 boiler operating days

H_S = total heat input (in million Btu) from the combustion of subbituminous coal for the current operating day and the previous 29 boiler operating days

or

2) 10.0% of the SO₂ reaching the spray dryer inlet on a 30-day rolling average basis (90.0% reduction).

d. When burning only lignite coal, Great River Energy shall not discharge or cause the discharge of nitrogen oxides (NO_x) into the atmosphere from Unit No. 1 in excess of 0.29 pounds per million British thermal units (lb/10⁶ Btu) of heat input, on a 30-day rolling average basis.

e. When burning subbituminous coal, Great River Energy shall not discharge or cause the discharge of nitrogen oxides (NO_x) into the atmosphere from Unit No. 1 in excess of 0.23 pounds per million British thermal units (lb/10⁶ Btu) of heat input, on a 30-day rolling average basis.

f. When both lignite coal and subbituminous coal are burned in Unit 1 in a 30-day averaging period, Great River Energy shall not discharge or cause the discharge of nitrogen oxides (NO_x) into the atmosphere from Unit No. 1 in excess of the NO_x emission limit determined using the following formula:

$$E_{NOX} = (E_L H_L + E_S H_S) / (H_L + H_S)$$

Great River Energy is only required to monitor compliance with one SO₂ limit (i.e., either the lb/10⁶ Btu limit or the 90% reduction limit). If Great River Energy monitors for both limits, and compliance is indicated for one limit but not the other, no excess emissions or monitoring deviations shall be reported with respect to the other limit.

Testing and monitoring protocols used to demonstrate compliance with the emission limits of Condition II.A.1 above shall be as follows:

Pollutant/ Parameter	Monitoring Requirement (Method)	Condition Number (II.A. ...)
Particulate	Compliance Assurance Monitoring (CAM)/ Emissions Test	4.b.(6)/4.b.(5)
SO ₂ (inlet)	CEM; or Coal Sampling Data & Emission Factor ^a	4.b.(1), 4.b.(2), 4.b.(3), & 4.b.(7)
SO ₂ (outlet)	CEM	4.b.(1), 4.b.(2), 4.b.(3) & 4.b.(7)
NO _x	CEM	4.b.(1), 4.b.(2) & 4.b.(3)
CO ₂	CEM	4.b.(1), 4.b.(2), & 4.b.(3)
Flow	Flow Monitor	4.b.(1), 4.b.(2), & 4.b.(3)

^a Emission factor refers to the value (e.g. percentage of inlet sulfur leaving the boiler), that is determined by stack testing, which is used to calculate the scrubber SO₂ inlet rate.

b. Emission Monitoring Conditions

- (1) The monitoring shall be in accordance with the following applicable requirements of Chapter 33-15-06 of the North Dakota Air Pollution Control Rules and the Acid Rain Program. Emissions are calculated using 40 CFR Part 75.
 - (a) Section 33-15-06-04 of the North Dakota Air Pollution Control Rules, Monitoring Requirements.
 - (b) 40 CFR 72 and 40 CFR 75.
- (2) The Department may require additional performance audits of the CEM systems.
- (3) When a failure of a continuous emission monitoring system occurs, an alternative method, acceptable to the Department, for measuring or estimating

emissions must be undertaken as soon as possible. The procedures outlined in 40 CFR 75, Subpart D for substitution are considered an acceptable method for the emission rate limit. The procedures of Method 19, Paragraph 12.7, are considered an acceptable method for the percent reduction requirement. Timely repair of the emission monitoring system must be made.

- (4) Great River Energy shall maintain and operate air pollution control monitoring equipment in a manner consistent with the manufacturer's recommended Operations and Maintenance (O&M) procedures, or a site-specific O&M procedure (developed from the manufacturer's recommended O&M procedures). Great River Energy shall have the O&M procedures available on-site and provide the Department with a copy when requested.
- (5) Within 180 days of initial startup of the equipment required to meet the BART limits, but not later than 5 years after approval of the Regional Haze SIP by the U.S. Environmental Protection Agency, Great River Energy shall conduct an emissions test to measure particulate emissions, using EPA Test Method 5B or Method 17 in 40 CFR Part 60, Appendix A. A test shall consist of three runs, with each run at least 120 minutes in duration and each run collecting a minimum sample of 60 dry standard cubic feet. Other EPA-approved test methods may be used provided they are approved, in advance, by the Department.
- (6) Monitoring for particulate matter shall be conducted in accordance with the Compliance Assurance Monitoring (CAM) Plan developed in accordance with NDAC 33-15-14-06.10. The CAM plan revision to address the BART PM limit shall be submitted with the Title V revision application for the BART limits.
- (7) In lieu of using a continuous emission monitor to determine the SO₂ reaching the spray dryer / fabric filter inlet in accordance with Condition II.A.1.a., II.A.1.b. or II.A.1.c., Great River Energy may use coal sampling and an emission factor established by stack testing. The requirements in 40 CFR 60, Appendix A, Method 19 shall be used to determine coal sampling and analysis requirements.

For purposes of determining compliance with the SO₂ percent reduction requirement, the reduction efficiency shall be determined as follows:

$$\% \text{Reduction} = \frac{\text{Inlet SO}_2 \text{ Rate} - \text{Outlet SO}_2 \text{ Rate}}{\text{Inlet SO}_2 \text{ Rate}} \times 100$$

Where: The Inlet SO₂ Rate is in units of lb/10⁶ Btu, lb/hr, or ppmvd @ 3% O₂ and the Outlet SO₂ Rate is in the same units as the Inlet SO₂ Rate.

Notes:

- 30-day rolling average is determined for the 30 successive boiler operating days defined in the permit.
- % reduction can be on either a lb/10⁶ Btu, ppmvd @ 3% O₂, or pounds of SO₂ basis.

5. Recordkeeping Requirements:

- a. Great River Energy shall maintain compliance monitoring records for Unit 1 as outlined in Table 1 Monitoring Records, that includes the following information:
- (1) The date, place (as defined in the permit) and time of sampling or measurement.
 - (2) The date(s) testing was performed.
 - (3) The company, entity, or person that performed the testing.
 - (4) The testing techniques or methods used.
 - (5) The results of such testing.
 - (6) The unit load that existed at the time of sampling or measurement.
 - (7) The records of quality assurance for emissions measuring systems including but not limited to quality control activities, audits and calibration drifts as required by the applicable test method.
 - (8) A copy of all field data sheets from the emissions testing.
 - (9) A record shall be kept of all major maintenance activities conducted on the emission units or air pollution control equipment.
 - (10) Records shall be kept as to the type of fuel usage.

Table 1 Monitoring Records

Pollutant/Parameter	Compliance Monitoring Record
Particulate	CAM Data & Emissions Test Data
SO ₂ outlet (lb/10 ⁶ Btu)	CEM Data
SO ₂ inlet (% Reduction)	CEM Data; or Coal Sampling Data & Emission Factor for Inlet SO ₂ Rate
SO ₂ outlet (% Reduction)	CEM Data

Pollutant/Parameter	Compliance Monitoring Record
NO _x	CEM Data
CO ₂	CEM Data
Flow	Flow Monitor Data

- b. In addition to requirements outlined in Condition II.A.5.a, recordkeeping for Unit 1 shall be in accordance with the following applicable requirements of Chapter 33-15-06 and Chapter 33-15-14 of the North Dakota Air Pollution Control Rules and the Acid Rain Program:
- (1) Section 33-15-06-05 of the North Dakota Air Pollution Control Rules, Reporting and Recordkeeping Requirements.
 - (2) 40 CFR 72 and 40 CFR 75.
 - (3) 40 CFR Part 64, Section 64.9 - Reporting and Recordkeeping Requirements, Paragraph (b) General Recordkeeping Requirements.
- c. Great River Energy shall retain records of all required compliance monitoring data and support information for a period of at least five years from the date of the compliance monitoring sampling, measurement, report, or application. Support information includes all maintenance records of the emission units and all original strip-chart recordings/computer printouts and calibrations of the continuous compliance monitoring instrumentation, and copies of all reports required by the permit.

6. Reporting:

- a. For Unit 1, reporting shall be in accordance with the following applicable requirements of Chapter 33-15-06 and Chapter 33-15-14 of the North Dakota Air Pollution Control Rules and the Acid Rain Program.
- (1) Section 33-15-06-05 of the North Dakota Air Pollution Control Rules, Reporting and Recordkeeping Requirements.
 - (2) 40 CFR 72 and 40 CFR 75.
 - (3) 40 CFR Part 64, Section 64.9 - Reporting and Recordkeeping Requirements, Paragraph (a) General Reporting Requirements.
 - (4) Quarterly excess emissions reports for Unit 1 shall be submitted no later than the 30th day following the end of each calendar quarter. Excess emissions are defined as emissions which exceed the emission limits for Unit 1 as outlined in Condition II.A.1. Data regarding only one of the two SO₂ limits needs to be

included in the excess emissions report. Excess emissions shall be reported for the following:

<u>Parameter</u>	<u>Reporting Period</u>
SO ₂ lb/10 ⁶ Btu or % reduction	(30-day rolling average)
NO _x lb/10 ⁶ Btu	(30-day rolling average)

- b. Great River Energy shall submit a semi-annual report for all monitoring records required under Condition II.A.5 on forms supplied or approved by the Department. All instances of deviations from the permit must be identified in the report. A monitoring report shall be submitted within 45 days after June 30 and December 31 of each year.
- c. Great River Energy shall submit an annual compliance certification report within 45 days after December 31 of each year on forms supplied or approved by the Department.
- d. For emission units where the method of compliance monitoring is demonstrated by either an EPA Test Method or a portable analyzer test, the test report shall be submitted to the Department within 60 days after completion of the test.
- e. Great River Energy shall submit an annual emission inventory report on forms supplied or approved by the Department. This report shall be submitted by March 15 of each calendar year. Insignificant units/activities listed in this permit do not need to be included in the annual emission inventory report.
- f. Great River Energy shall submit to the Department written semi-annual reports detailing progress toward completion of the requirements of this permit. The semi-annual reports shall be submitted no later than 45 days after June 30 and December 31 of each year. The first report shall be due following the end of the first complete semi-annual period after the permit is issued.
- g. Great River Energy shall notify the Department of the actual startup date of the equipment required to meet the BART limits.

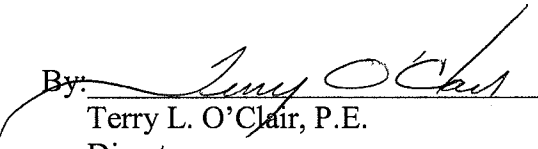
B. General Conditions:

1. This permit shall in no way permit or authorize the maintenance of a public nuisance or danger to public health or safety.
2. Great River Energy shall comply with all State and Federal environmental laws and rules. In addition, Great River Energy shall comply with all local building, fire, zoning, and other applicable ordinances, codes, rules and regulations.

3. All reasonable precautions shall be taken by Great River Energy to prevent and/or minimize fugitive emissions during the construction period.
4. Great River Energy shall at all times, including periods of startup, shutdown, and malfunction, maintain and operate Unit 1 and all other emission units including associated air pollution equipment and fugitive dust suppression operations in a manner consistent with good air pollution control practices for minimizing emissions.
5. Any duly authorized officer, employee or agent of the North Dakota Department of Health may enter and inspect any property, premise or place at which the source listed in Item I.B. of this permit is or will be located at any time for the purpose of ascertaining the state of compliance with the North Dakota Air Pollution Control Rules and the conditions of this permit.
6. Any violation of a condition issued as part of this approval to construct is regarded as a violation of construction authority and is subject to enforcement action.
7. The conditions of this permit herein become, upon the effective date of this permit, enforceable by the Department pursuant to any remedies it now has or may in the future have, under the North Dakota Air Pollution Control Law, NDCC Chapter 23-25. Each and every condition of this permit is a material part thereof, and is not severable.

FOR THE NORTH DAKOTA
DEPARTMENT OF HEALTH

Date: 2/23/10

By: 
Terry L. O'Clair, P.E.
Director
Division of Air Quality

Order
to the

Amoco Oil Company
Mandan Refinery
Morton County, North Dakota

BEFORE THE NORTH DAKOTA STATE DEPARTMENT OF HEALTH
State of North Dakota

In the Matter of Amoco Oil Company,)
Mandan Refinery, P.O. Box 549,)
Mandan, North Dakota 58554;)
W.A. Burns, Manager)

Case No. 77-311 APC
(NDCC 23-25)

.....
ORDER

Pursuant to the above-referenced statutory authority, the Department
HEREBY ORDERS:

1. That pursuant to tentative determinations made by the Department
and finalized on May 6, 1977, that Amoco Oil Company meet the following
requirements.

2. These requirements are pursuant to Section 51.19 (e) of Title 40
of Part 51 of the Code of Federal Regulations and in accordance with the
compliance schedule dated March 7, 1977, signed by W.A. Burns.

3. The compliance schedule requires Amoco Oil Company to install,
calibrate, maintain and operate equipment for continuously monitoring
and recording opacity measurements on the cat cracker regenerator
stack at the Mandan Refinery.

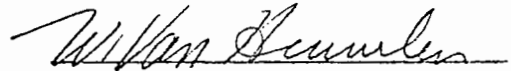
4. The compliance schedule is as follows:

<u>Incremental Date</u>	<u>Progress Description</u>
September 1, 1977	Date by which final plans and specifications will be submitted to the Department for review and approval. Include a description of the stack and the location on the stack where the equipment is to be installed.
October 1, 1977	Date by which contracts for the continuous opacity monitoring equipment will be awarded; or date by which orders will be issued for the purchase of component parts.
August 1, 1978	Date of initiation of on-site construction or installation of the continuous monitoring equipment.
September 30, 1978	Date by which on-site construction or installation is to be completed and operation of the opacity monitor is to begin.

5. The monitoring and recording of opacity measurements shall be in
accordance with the requirements for notification and recordkeeping, Subsection
12.106 of Section 12.100 and monitoring requirements, Subsection 12.111 of Section
12.100 of R23-25-12 of the North Dakota Air Pollution Control Regulations.

6. Jurisdiction is to be retained by the North Dakota State Department of Health for the purpose of enabling either of the parties to this Order to reply to the Department at any time for such further orders and directions as may be necessary or appropriate for the carrying out of this Order, for the modification of any of the provisions hereof, or for the enforcement of compliance therewith.

DATED, this 9th day of May, 1977, at Bismarck, North Dakota.



W. VAN HEUVELEN

Executive Officer



Amoco Oil Company
Mandan Refinery
P.O. Box 549
Mandan, North Dakota 58554
Manufacturing Department

W. A. Burns
Manager

March 7, 1977

Mr. W. Van Heuvelen
Chief Environmental Control
North Dakota State Department of Health
Missouri Office Building
Bismarck, North Dakota 58505



Dear Mr. Van Heuvelen:

In response to your letter of January 27, 1977 we have completed the compliance schedule for installation of a continuous opacity monitoring instrument on our FCU regenerator discharge stack.

As you will recall we are currently engaged in a project which eliminates the existing FCU stack directing the FCU regenerator gasses thru a CO furnace to heat crude oil.

The new opacity monitoring device will be installed on the new CO furnace stack. Attached is a preliminary drawing which indicates the location of the access platform and the opacity instrument on the new stack.

Yours truly,

W. A. Burns

HES:sb

NORTH DAKOTA STATE DEPARTMENT OF HEALTH
Air Pollution Control Program
1200 Missouri Avenue
Bismarck, North Dakota - 58501

COMPLIANCE SCHEDULE

For Installation of Continuous Opacity Monitoring Instruments

NAME OF FIRM OR ORGANIZATION: AMOCO OIL COMPANY

PLANT LOCATION MANDAN, NORTH DAKOTA

SOURCE IDENTIFICATION NUMBER (From Permit to Operate): -

DATE BY WHICH FINAL PLANS AND SPECIFICATIONS WILL BE SUBMITTED TO THE DEPARTMENT FOR REVIEW AND APPROVAL. INCLUDE A DESCRIPTION OF THE STACK AND THE LOCATION ON THE STACK WHERE THE EQUIPMENT IS TO BE INSTALLED.

MONTH September DAY 1 YEAR 1977

DATE BY WHICH CONTRACTS FOR THE CONTINUOUS OPACITY MONITORING EQUIPMENT WILL BE AWARDED; OR DATE BY WHICH ORDERS WILL BE ISSUED FOR THE PURCHASE OF COMPONENT PARTS.

MONTH October DAY 1 YEAR 1977

DATE OF INITIATION OF ON-SITE CONSTRUCTION OR INSTALLATION OF THE CONTINUOUS OPACITY MONITORING EQUIPMENT.

MONTH August DAY 1 YEAR 1978

DATE BY WHICH ON-SITE CONSTRUCTION OR INSTALLATION IS TO BE COMPLETED AND OPERATION OF THE OPACITY MONITOR IS TO BEGIN.

MONTH September DAY 30 YEAR 1978

NAME OF PERSON SUBMITTING SCHEDULE W. A. Burns TITLE Refinery Manager
(Owner or Authorized Agent)

SIGNATURE W.A. Burns

DATE _____ PHONE (701)663-7413

Division of
Environmental Engineering

GENE A. CHRISTIANSON, P.E.
DIRECTOR

(701) 224-2374



Department of Health

March 23, 1977

Bismarck, North Dakota 58505

The Administrator
U.S. Environmental Protection Agency
c/o John A. Green
Regional Administrator
U.S. Environmental Protection Agency
Region VIII
1860 Lincoln
Denver, Colorado 80203

Re: Notice of Public Hearings
Revisions to the State Implementation Plan

Dear Sir:

This is to notify you as required by Section 51.4 (b) (3), Part 51 of Title 40 Code of Federal Regulations that this Department will hold a public hearing on Monday, April 25, 1977 in the Hearing Room, State Capitol, Bismarck, North Dakota beginning at 10:00 a.m.

The purpose of this hearing is to receive and consider testimony and evidence bearing on the Proposed Revisions to the Implementation Plan for the Control of Air Pollution for the State of North Dakota. The revisions to the Plan include amendments to Permits to Operate and issuance of an Order which will require the installation of continuous monitoring equipment at affected existing sources.

Copies of the official notice of hearing, as published in the official County newspapers and of the Proposed Revisions to the State Implementation Plan are attached.

This Department would request that any official comment you may have which would affect the approval by EPA of these revisions to the State Implementation Plan be submitted as testimony at the public hearing on April 25, 1977.

If you have any questions, please feel free to contact this office.

Yours truly,

Van Heuvelen, Chief
Environmental Control

W REK:smp
Encl:

cc: Dale Wells

North Dakota
State Implementation Plan
Revision

(New section)

Section 8.3.1 Continuous Opacity Monitoring for Fluid Bed Catalytic Cracking Units: Tesoro Refining and Marketing Co., Mandan Refinery

Applicability: This SIP revision is only applicable to the existing fluidized bed catalytic cracking unit at the Mandan Refinery located at 900 Old Red Trail Northeast in Mandan, North Dakota.

Background:

The Tesoro Refining and Marketing Company (Tesoro) currently operates a fluidized bed catalytic cracking unit (FCCU) at the Mandan Refinery near Mandan, North Dakota. The refinery, which was previously operated by Amoco Oil Company and more recently by British Petroleum Company (BP), was constructed in the 1950's. As such, the operator of the refinery is required to continuously monitor the opacity of emissions from the FCCU as mandated by 40 CFR 51, Appendix P, Section 2.4. On May 10, 1977, the Department issued an Order to Amoco Oil Co. requiring the installation and operation of continuous opacity monitoring equipment for emissions from the FCCU. The owners/operators of the refinery have continuously monitored the opacity since the compliance date of September 30, 1978.

In 2001, BP, and ultimately Tesoro, entered into a Consent Decree with the U.S. Environmental Protection Agency to settle allegations of noncompliance under the Prevention of Significant Deterioration Program. As part of this settlement, Tesoro was required to control sulfur dioxide emissions from the FCCU. Tesoro installed a wet scrubber and wet electrostatic precipitator (ESP) to comply with the terms of the Consent Decree. A secondary benefit of the control system is the reduction of particulate matter emissions and visible emissions (opacity) from the FCCU. However, the large amount of moisture from the control system has made monitoring of the opacity of emissions using continuous opacity monitoring equipment unfeasible. Specifically, water droplets contained in the flue gas could potentially result in the monitor overstating the true opacity.

The FCCU is subject to a 40% opacity limit under NDAC 33-15-03-01 except for one six-minute period per hour in which up to 60% opacity is allowed. The owners of the refinery, both past and present, have been able to comply with the 40% opacity with limited exceedances prior to the installation of the wet scrubber and wet ESP. The addition of the wet scrubber and wet ESP will only reduce visible emissions further. The alternative monitoring plan is designed to assure that liquid is flowing through the wet scrubber at 2511 gallons per minute (gpm), or more, on an hourly average basis. Tesoro has demonstrated through Method 9 measurements that the FCCU will easily comply with the visible emissions limit (40% opacity) when the scrubber flow rate is at least 2511 gpm. If the flow rate

is less than 2511 gpm, Tesoro will conduct a Method 9 test each day until the required flow rate is achieved.

In response to the installation of the scrubber and wet electrostatic precipitator, Tesoro has requested alternative monitoring procedures and requirements in accordance with 40 CFR 51, Appendix P, Section 6.0. The Department believes that alternative monitoring procedures are warranted based on the large amount of moisture and the low stack gas temperature.

Alternative Monitoring Procedures and Requirements:

Alternative monitoring for visible emissions shall consist of the following:

1. Monitoring Parameters:

Wet Gas Scrubber - Monitor liquid flow rate.

2. Frequency of Monitoring:

Wet Gas Scrubber - Continuous.

3. Requirements:

Wet Gas Scrubber - Flow rate of at least 2511 gallons per minute of scrubber liquid (1-hour average).

4. Recordkeeping:

The owner or operator shall keep records of the liquid flow rate on a continuous basis. Records shall be stored electronically or in hard copy format. All records shall be kept for at least five years.

5. Reporting:

The owner or operator shall submit semi-annual deviations reports for the FCCU. The report shall list any time period monitoring is not conducted as outlined in this section and anytime monitoring indicates the required flow rate is not attained. The owner or operator shall also submit an annual certification indicating compliance with the visible emissions limit.

Public Hearing May 4, 2006
(date)

Finalized February 27, 2007
(date)

July 6, 2020

Ms. Erin Fox Dukart
Environmental Compliance Manager
Basin Electric Power Cooperative
1717 E Interstate Avenue
Bismarck, ND 58503

Re: AVS FIP Replacement
Permit to Construct

Dear Ms. Fox Dukart:

On April 6, 2012, the U.S. Environmental Protection Agency (EPA) issued a Federal Implementation Plan (FIP) for the Antelope Valley Station (AVS). The FIP established nitrogen oxides (NO_x) limits for AVS 1 and 2 under the Regional Haze Program. The North Dakota Department of Environmental Quality (DEQ) is in the process of submitting a State Implementation Plan (SIP) revision to EPA to replace the FIP. Part of that process is the issuance of a Permit to Construct which includes the emission limits, monitoring, recordkeeping and reporting requirements that were included in the FIP. Enclosed is Permit to Construct No. PTC20031 which contains the FIP requirements. Please note that the Permit to Construct is not effective until EPA approves the SIP revision.

We intend to submit the SIP revision within the next few weeks and we expect it will take at least one year for EPA to approve it. If you have any questions, please feel free to contact Tom Bachman of my staff.

Sincerely,



James L. Semerad
Director
Division of Air Quality

JLS/TB:saj
Enc:

**AIR POLLUTION CONTROL
PERMIT TO CONSTRUCT
FOR
FEDERAL IMPLEMENTATION PLAN REPLACEMENT**

Pursuant to the Air Pollution Control Rules of the State of North Dakota (North Dakota Administrative Code Article 33.1-15, Chapter 33.1-15-14 and Chapter 33.1-15-25), the North Dakota Department of Environmental Quality hereby issues a Permit to Construct for the following source:

I. General Information:

A. **Permit to Construct Number:** PTC20031

B. **Source:**

1. **Name:** Antelope Valley Station
2. **Location:** Beulah, ND, Mercer County
3. **Source Type:** Fossil-fuel fired steam electric plant (EGU) with a nominal generating capacity of 900 megawatts.
4. **Equipment at the Facility:**

Unit 1 - Coal-fired boiler (nominal $6,275 \times 10^6$ Btu/hour heat input)

Unit 2 - Coal-fired boiler (nominal $6,275 \times 10^6$ Btu/hour heat input)

C. **Owner/Operator:**

1. **Name:** Basin Electric Power Coop.
2. **Address:** 1717 E Interstate Avenue
Bismarck, ND 58501-0564

II. Permit Conditions:

The Permit to Construct only establishes the emission limits and other requirements if, and when, EPA approves those limits as part of the Regional Haze SIP. The source shall be operated in accordance with the terms of this Permit to Construct and the Title V Permit to Operate until a revised Title V Permit to Operate is issued. The source is subject to all applicable rules,

regulations, and orders now or hereafter in effect of the North Dakota Department of Environmental Quality and to the conditions specified below:

A. **Special Conditions:**

1. **Definitions:** Terms not defined below shall have the meaning given them in the Clean Air Act or EPA's regulations implementing the Clean Air Act. For purposes of this permit:
 - a. *Boiler operating day* means a 24-hour period between 12 midnight and the following midnight during which any fuel is combusted at any time in the EGU. It is not necessary for fuel to be combusted for the entire 24-hour period.
 - b. *Continuous emission monitoring system or CEMS* means the equipment required by this permit to sample, analyze, measure and provide, by means of readings recorded at least once every 15 minutes (using an automated data acquisition and handling system (DAHS)), a permanent record of NO_x emissions, other pollutant emissions, diluent or stack gas volumetric flow rate.
 - c. *NO_x* means nitrogen oxides.
 - d. *Unit* means any of the EGU's identified in section I.B.
 - e. *30-day rolling average*, as used in this permit, shall be determined by calculating an arithmetic average of all hourly rates for the current boiler operating day and the previous 29 boiler operating days. A new 30-day rolling average shall be calculated for each boiler operating day. Each 30-day rolling average rate shall include start-up, shutdown, emergency and malfunction periods unless those periods are exempt by this permit. The 30-day rolling average emission rate is calculated as follows:
 - Calculate the hourly average emission rate for any hour in which any fuel is combusted in the boiler.
 - Calculate the 30-day rolling average emission rate as the arithmetic average of all valid hourly average emission rates for the 30 successive boiler operating days.
2. **Emission Limits:** Basin Electric Power Coop. shall not emit or cause to be emitted from each unit NO_x in excess of 0.17 pounds per million British Thermal Units (0.17 lb/10⁶ Btu) averaged over a 30-day period (30-day rolling average). The emission limits apply at all times including startup, shutdown, emergency and malfunction.

3. **Compliance Date:** Compliance with the emission limits and other requirements of this permit is required when the U.S. Environmental Protection Agency approves this permit as a part of the Regional Haze SIP.
4. **Continuous Emission Monitoring (CEM):** The emissions from each unit shall each be measured by continuous emission monitors (CEM) for NO_x, CO₂ and flow. The monitoring requirements under Condition II.A.5 shall be the compliance determination method for NO_x.
5. **Monitoring Requirements and Conditions:**
 - (a) Compliance determination: At all times Basin Electric Power Coop. shall maintain, calibration and operate a CEMS, in full compliance with the requirements found at 40 CFR Part 75, to accurately measure NO_x, diluent and stack gas volumetric flow rate from each unit. The CEMS shall be used to determine compliance with the emission limits in Section II.A.2.
 - (b) Methods:
 1. For any hour in which fuel is combusted in a unit, Basin Electric shall calculate the hourly average NO_x concentration in lb/MMBtu at the CEMS in accordance with the requirements of 40 CFR Part 75. At the end of each boiler operating day, the owner/operator shall calculate and record a new 30-day rolling average emission rate in lb/MMBtu from the arithmetic average of all valid hourly emission rates from the CEMS for the current boiler operating day and the previous 29 successive boiler operating days.
 2. An hourly average NO_x emission rate in lb/MMBtu is valid only if the minimum number of data points, as specified in 40 CFR Part 75, is acquired by both the NO_x pollutant concentration monitor and the diluent monitor (O₂ or CO₂).
 3. Data reported to meet the requirements of this section shall not include data substituted using the missing data substitution procedures of Subpart D of 40 CFR Part 75, nor shall the data have been bias adjusted according to the procedures of 40 CFR Part 75.
 4. The Department may require additional performance audits of the CEM systems.
 5. Basin Electric Power Coop. shall maintain and operate air pollution control monitoring equipment in a manner

consistent with the manufacturer's recommended Operations and Maintenance (O&M) procedures, or a site-specific O&M procedure (developed from the manufacturer's recommended O&M procedures). Basin Electric Power Coop. shall have the O&M procedures available on-site and provide the Department with a copy when requested.

5. Recordkeeping Requirements:

Basin Electric Power Coop. shall maintain the following records for at least five years:

- (a) All CEMS data, including the date, place and time of sampling or measurement; parameters sampled or measured and results.
- (b) Records of quality assurance and quality control activities for emissions measuring systems including, but not limited to, any records required by 40 CFR Part 75.
- (c) Records of all major maintenance activities conducted on emission units, air pollution control equipment and CEMS.
- (d) Any other records required by 40 CFR Part 75.

6. Reporting:

- (a) Basin Electric Power Coop. shall submit quarterly excess emissions reports no later than the 30th day following the end of each calendar quarter. Excess emissions means emissions that exceed the emissions limits specified in Section II.A.2. The reports shall include the magnitude, date(s) and duration of each period of excess emissions, specific identification of each period of excess emissions that occurs during startups, shutdown and malfunctions of the unit, the nature and cause of any malfunction (if known) and corrective action taken or preventative measures adopted.
- (b) Basin Electric Power Coop. shall submit quarterly CEMS performance reports, to include dates and duration of each period during which the CEMS was inoperative (except for zero and span adjustments and calibration checks), reason(s) why the CEMS was inoperative and steps taken to prevent recurrence, any CEMS repairs or adjustments and results of any CEMS performance tests required by 40 CFR Part 75 (Relative Accuracy Test Audits, Relative Accuracy Audits and Cylinder Gas Audits).

- (c) When no excess emissions have occurred or the CEMS has not been inoperative, repaired or adjusted during the reporting period, such information shall be stated in the report.
- (d) Basin Electric Power Coop. shall submit a semi-annual report for all monitoring records required under Condition II.A.5 on forms supplied or approved by the Department. All instances of deviations from the permit must be identified in the report. A monitoring report shall be submitted within 45 days after June 30 and December 31 of each year.
- (e) Basin Electric Power Coop. shall submit an annual compliance certification report within 45 days after December 31 of each year on forms supplied or approved by the Department.
- (f) Basin Electric Power Coop. shall submit an annual emission inventory report on forms supplied or approved by the Department. This report shall be submitted by March 15 of each calendar year. Insignificant units/activities listed in this permit do not need to be included in the annual emission inventory report.

B. General Conditions:


1. Nothing in this section shall preclude the use, including the exclusive use, of any credible evidence or information, relevant to whether a source would have been in compliance with requirements of this section if the appropriate performance or compliance test procedures or method had been performed.
2. This permit shall in no way permit or authorize the maintenance of a public nuisance or danger to public health or safety.
3. Basin Electric Power Coop. shall comply with all State and Federal environmental laws and rules. In addition, Basin Electric shall comply with all local building, fire, zoning, and other applicable ordinances, codes, rules and regulations.
4. Basin Electric Power Coop. shall at all times, including periods of startup, shutdown, and malfunction, maintain and operate Unit 1 and Unit 2 and all other emission units including associated air pollution equipment and fugitive dust suppression operations in a manner consistent with good air pollution control practices for minimizing emissions.
5. Any duly authorized officer, employee or agent of the North Dakota Department of Environmental Quality may enter and inspect any property, premise or place at which the source listed in Item I.B. of this permit is or will be located at any time for the purpose of ascertaining the state of

compliance with the North Dakota Air Pollution Control Rules and the conditions of this permit.

6. Any violation of a condition issued as part of this approval to construct is regarded as a violation of construction authority and is subject to enforcement action.
7. The conditions of this permit herein become, upon the effective date of this permit, enforceable by the Department pursuant to any remedies it now has or may in the future have, under the North Dakota Air Pollution Control Law, NDCC Chapter 23.1-06.

FOR THE NORTH DAKOTA DEPARTMENT
OF ENVIRONMENTAL QUALITY

Date: 7/6/2020

By: 
James E. Semerad
Director
Division of Air Quality