

**AIR EMISSION PERMIT NO. 08300056- 001**  
**IS ISSUED TO**

**NORTHERN BORDER PIPELINE COMPANY**

[PO Box 3330, Omaha, Nebraska 68103]

Compressor Station No. 12  
One mile West, then a half mile South of the intersection of U.S. Highways 14 and 59  
Lyon County, Minnesota

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

|                                 |                  |
|---------------------------------|------------------|
| Permit Type                     | Application Date |
| Total Facility Operating Permit | 09/24/96         |

This permit authorizes the Permittee to operate and construct the stationary source at the address listed above unless otherwise noted in Table A. The Permittee must comply with all the conditions of the permit and with all general conditions listed in Minn. R. 7007.0800, subp. 16, [and all standard permit requirements listed in 40 CFR § 70.6\(a\)](#) which are incorporated by reference. Any changes or modifications to the stationary source must be performed in compliance with Minn. R. 7007.1150 to 7007.1500. Terms used in the permit as defined in the state air pollution control rules unless the term is explicitly defined in the permit.

**Permit Type:** Federal ; Part 70

**Issue Date:** July 14, 1997

**Expiration:**

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Michael J. Sandusky  
Acting Division Manager  
Air Quality Division

for Peder A. Larson  
Commissioner  
Minnesota Pollution Control Agency

TRW:dal

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**NOTICE TO THE PERMITTEE:**

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

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

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

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

**PERMIT SHIELD:**

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

The permit shield, however does not apply to Minn. R. ch. 7030 (Noise Pollution Control).

**FACILITY DESCRIPTION:**

Northern Border Pipeline Company (the Permittee) owns a natural gas pipeline that runs through the southwest corner of Minnesota. Northern Plains Natural Gas Company (a wholly-owned subsidiary) is the operator of this pipeline. Due to increased demand for natural gas, an additional compressor station is proposed to be built in Lyon County (Compressor Station No. 12). Air emission sources at the station include: a 41,426 horsepower gas turbine, a 300 kilowatt (kW) emergency generator, a small boiler, and a 15 kW emergency generator. The boiler and the 15 kW emergency generator are insignificant activities.

The MPCA received an application for a total facility permit from the Permittee on September 24, 1996. The main emission source at the station is the turbine. Potential emissions calculations showed that the station would be a Part 70 major source, but a nonmajor source for Prevention of Significant Deterioration review.

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/14/97

Facility Name: Northern Border Pipeline - Compressor 12

Permit Number: 08300056 - 001

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

**Subject Item:****Total Facility**

| <b>What to do</b>  | <b>Why to do it</b>                           |
|--|---|
| Performance Testing: conduct all performance testing in accordance with Minn. R. ch. 7017 unless otherwise noted in Tables A, B, and/or C.   | Minn. R. 7017 and 40 CFR 60.8                 |
| Circumvention: Do not install or use a device or means that conceals or dilutes emissions, which would otherwise violate a federal or state air pollution control rule, without reducing the total amount of pollutant emitted.  | Minn. R. 7011.0020                            |
| Shutdowns: Notify the Commissioner at least 24 hours in advance of shutdown of any process or control equipment if the shutdown would cause an increase in the emission of air contaminants. At the time of notification, notify the Commissioner of the cause of the shutdown and the estimated duration. Notify the Commissioner again when the shutdown is over.  | Minn. R. 7019.1000, subp. 1                   |
| Breakdowns: Notify the Commissioner immediately of a breakdown of more than one hour duration of any process or control equipment if the breakdown causes an increase in the emission of air contaminants. At the time of notification, or as soon thereafter as possible, the permittee shall also notify the Commissioner of the cause of the breakdown and the estimated duration. Notify the Commissioner again when the breakdown is over.  | Minn. R. 7019.1000, subp. 2                   |
| Oral Notification of Deviations Endangering Human Health or the Environment: Within 24 hours of discovery, orally notify the commissioner of any deviation from permit conditions which could endanger human health or the environment.  | Minn. R. 7007.0800, subp. 6(A)                |
| Discovery of Deviations Endangering Human Health or the Environment (written): due two working days after discovery of deviation, submit a written description of any deviation endangering human health or the environment to the Commissioner. Include the following information in the written description: cause of the deviation; exact dates of the period of the deviation; if the deviation has been corrected; the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the deviation. | Minn. R. 7007.0800, subp. 6(A)                |
| Fugitive Emissions: Do not cause or permit the handling, use, transporting, or storage of any material in a manner which may allow avoidable amounts of particulate matter to become airborne. Comply with all other requirements listed in Minn. R. 7011.0150.  | Minn. R. 7011.0150                            |
| Application for Permit Amendment: If you need a permit amendment, submit an application in accordance with the requirements of Minn. R. 7007.1150 through Minn. R. 7007.1500. Submittal dates vary, depending on the type of amendment needed.   | Minn. R. 7007.1150 through Minn. R. 7007.1500 |
| Extension Requests: The permittee may apply for an Administrative Amendment to extend a deadline in a permit by no more than 120 days, provided the proposed deadline extension meets the requirements of Minn. R. 7007.1400, subp. 1(H).  | Minn. R. 7007.1400, subp. 1(H)                |
| Recordkeeping: Maintain records describing any insignificant modifications (as required by Minn. R. 7007.1250, subp. 3) or changes contravening permit terms (as required by Minn. R. 7007.1350, subp. 2), including records of the emissions resulting from those changes.  | Minn. R. 7007.0800, subp. 5(B)                |
| Recordkeeping: Retain all records at the facility for a period of five (5) years from the date of monitoring, sample, measurement, or report. Records which must be retained at this location include all calibration and maintenance records, all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by the permit. Records must conform to the requirements listed in Minn. R. 7007.0800, subp. 5(A).   | Minn. R. 7007.0800, subp. 5(C)                |
| Noise: The Permittee shall comply with the noise standards set forth in Minn. R. 7030.0010 to 7030.0080 at all times during the operation of any emission units. This is a state only requirement and is not federally enforceable.  | Minn. R. 7030.0010 - 7030.0080                |
| The permittee shall comply with the General Conditions listed in Minn.. R. 7007.0800, subp. 16.  | Minn. R. 7007.0800, subp. 16                  |
| Inspections: Upon presentation of credentials and other documents as may be required by law, allow the Agency, or its representative, to enter the Permittee's premises, to have access to and copy any records required by this permit, to inspect at reasonable times (which include any time the source is operating) any facilities, equipment, practices or operations, and to sample or monitor any substance or parameters at any location.   | Minn. R. 7007.0800, subp. 9(A)                |
| Emission Fees: due 60 days after receipt of an MPCA bill.  | Minn. R. 7002.0005 through Minn. R. 7002.0095 |

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/14/97

Facility Name: Northern Border Pipeline - Compressor 12

Permit Number: 08300056 - 001

**Subject Item:** SV 001**Associated Items:** EU 001 Gas Turbine

| What to do   | Why to do it  |
|--|---|
| Nitrogen Oxides: less than or equal to 52.5 lbs/hour (also, less than or equal to 0.0217 percent by volume at 15 percent oxygen and on a dry basis).   | Manufacturers guarantee and ensures compliance with 40 CFR Section 60.332(a)(2) |
| Opacity: greater than or equal to 20 percent opacity for no more than 10 consecutive seconds once operating temperatures have been obtained.   | Minn. R. 7011.2300, subp. 1   |
| Performance Test: due 180 days after Initial Startup but no later than 60 days after achieving maximum production rate to determine compliance with the manufacturers guaranteed nitrogen oxides limit and the limit at 40 CFR Section 60.322(a)(2). | 40 CFR Section 60.8(a)  |
| Performance Test Pre-test Meeting: due 7 days before Performance Test  | Minn. R. 7017.2030, subp. 4   |

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/14/97

Facility Name: Northern Border Pipeline - Compressor 12  
Permit Number: 08300056 - 001

**Subject Item:** SV 002

**Associated Items:** EU 002 Emergency Generator

| What to do   | Why to do it                |
|--|-----------------------------|
| Opacity: greater than or equal to 20 percent opacity for no more than 10 consecutive seconds once operating temperatures have been obtained. | Minn. R. 7011.2300, subp. 1 |

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

07/14/97

Facility Name: Northern Border Pipeline - Compressor 12

Permit Number: 08300056 - 001

Subject Item: EU 001 Gas Turbine

Associated Items: SV 001

| What to do  | Why to do it                |
|---|-----------------------------|
| Fuel burned: Natural gas only.  | Minn. R. 7007.0800, subp. 2 |
| Sulfur Content of Fuel: less than or equal to 0.8 percent by weight   | 40 CFR Section 60.333(b)    |
| Fuel Monitoring: The sulfur content of the fuel shall be monitored as described by the custom schedule developed by the Permittee, and approved by the Administrator on December 9, 1996. The approved schedule allows the Permittee to forgo fuel nitrogen sampling.   | 40 CFR Section 60.334(b)(2) |
| Custom Monitoring Schedule (a): Sulfur monitoring shall be conducted twice monthly for six months. If the monitoring shows little variability in the fuel sulfur content, and indicates consistent compliance with 40 CFR Section 60.333(b), then sulfur monitoring shall be conducted once per quarter for six quarters.   | 40 CFR Section 60.334(b)(2) |
| Custom Monitoring Schedule (b): If, after the monitoring required in item (a) above, the sulfur content shows little variability and, when calculated as sulfur dioxide, represents consistent compliance with 40 CFR Section 60.333(a), sulfur monitoring shall be conducted twice per annum. This monitoring shall be conducted during the first and third quarters of each calendar year.  | 40 CFR Section 60.334(b)(2) |
| Test Methods: Compliance with the sulfur content standard shall be determined by using the alternative fuel testing method submitted to, and approved by the Administrator in a letter dated March 14, 1997.  | 40 CFR Section 60.335(e)    |
| Notification of Noncompliance: Should any sulfur analysis indicate noncompliance with 40 CFR Section 60.333(b), as described in 40 CFR Section 60.334(c)(2), the Permittee shall notify the MPCA of such excess emissions and the custom fuel monitoring schedule shall be re-examined by the Administrator. Sulfur monitoring shall be conducted weekly during the interim period when the custom fuel-monitoring schedule is being re-examined. | 40 CFR Section 60.334(b)(2) |
| Reporting: If there is a change in fuel supply, the Permittee shall notify the Commissioner of such change for re-examination of the custom fuel schedule. A substantial change in fuel quality shall be considered as a change in fuel supply. Sulfur monitoring shall be conducted weekly during the interim period when this custom schedule is being re-examined.   | 40 CFR Section 60.334(b)(2) |
| Notification of Modification: The Permittee must notify the Commissioner of any physical or operational change to an existing NSPS affected facility which may increase the emission rate 60 days or as soon as possible before the change is commenced.  | 40 CFR Section 60.7(a)(4)   |

## TABLE B: SUBMITTALS

07/14/97

Facility Name: Northern Border Pipeline - Compressor 12  
Permit Number: 08300056 - 001

Table B lists the submittals you must send to the Commissioner. Table B is divided into two sections, for source-specific submittal requirements and for submittals required of all permittees. Source-specific submittals are further organized as either one-time only or recurrent requirements. You may also be subject to additional reporting requirements contained in the compliance schedule located in Table C of this permit. All submittals must be postmarked or received by the date specified in the table, and certified by a responsible official, defined in Minn. R. 7007.0100, subp. 21. Submittals which must be provided on standardized forms approved by the Commissioner are noted in Tables B and C.

Send any application for a permit or permit amendment to: Permit Information Coordinator, Permit Section, Air Quality Division, Minnesota Pollution Control Agency, 520 Lafayette Road North, St. Paul, Minnesota 55155-4914. Also send the Permit Information Coordinator notices of: accumulated insignificant activities, installation of control equipment, replacement of an emissions unit, and changes that contravene a permit term.

Send all other submittals to: Compliance Tracking Coordinator, Compliance Determination Unit, Air Quality Division, Minnesota Pollution Control Agency, 520 Lafayette Road North, St. Paul, Minnesota 55155-4194.



**TABLE B: ONE TIME SUBMITTALS OR NOTIFICATIONS**

07/14/97

Facility Name: Northern Border Pipeline - Compressor 12

Permit Number: 08300056 - 001

| <b>What to send</b>                                     | <b>When to send</b>   | <b>Portion of Facility Affected</b> |
|---|---|-------------------------------------|
| Application for Permit Reissuance                       | due 180 days before expiration of Existing Permit   | Total Facility                      |
| Computer Dispersion Modeling Protocol                   | due 1,096 days after Permit Issuance<br>This protocol will describe the proposed modeling methodology and input data, in accordance with all requirements of 40 CFR pt. 51, App. W. | Total Facility                      |
| Computer Dispersion Modeling Results                    | due 1,462 days after Permit Issuance<br>To be submitted after the MPCA has reviewed and approved the modeling protocol.   | Total Facility                      |
| Notification of the Actual Date of Initial Startup      | due 15 days after Initial Startup   | EU001                               |
| Notification of the Anticipated Date of Initial Startup | due 30 days before Anticipated Date of Initial Startup , but not more than 60 days before.  | EU001                               |
| Notification of the Date Construction Began             | due 30 days after Start Of Construction   | EU001                               |
| Performance Test Notification (written)                 | due 30 days before Performance Test   | SV001                               |
| Performance Test Plan                                   | due 30 days before Performance Test   | SV001                               |
| Performance Test Report - Microfiche Copy               | due 105 days after Performance Test   | SV001                               |
| Performance Test Report                                 | due 45 days after Performance Test  | SV001                               |

**TABLE B: RECURRENT SUBMITTALS**

07/14/97

Facility Name: Northern Border Pipeline - Compressor 12

Permit Number: 08300056 - 001

| <b>What to send</b>                       | <b>When to send</b>  | <b>Portion of Facility Affected</b> |
|---|--|-------------------------------------|
| Excess Emissions/Downtime Reports (EER's) | due 30 days after end of each calendar half-year following Startup   | EU001                               |
| Semiannual Deviations Report              | due 30 days after end of each calendar half-year following Permit Issuance   | Total Facility                      |
| Compliance Certification                  | due 30 days after end of each calendar year following Permit Issuance  | Total Facility                      |
| Emissions Inventory Report                | due 91 days after end of each calendar year following Permit Issuance (April 1). To be submitted on a form approved by the Commissioner. | Total Facility                      |

**TECHNICAL SUPPORT DOCUMENT**  
**For**  
**AIR EMISSION PERMIT NO. 08300056-001**  
**NORTHERN BORDER PIPELINE COMPANY**  
**COMPRESSOR STATION NO. 12**  
**(AQD File No. 1871B)**

This Technical Support Document (TSD) is for all the interested parties of the permit and to meet the requirements that have been set forth by the federal regulations and Minnesota Rules (40 CFR § 70.7(a)(5) and Minn. R. 7007.0850, subp. 1). The purpose of this document is to provide the legal and factual justification for each applicable requirement or policy decision considered in the preliminary determination to issue the permit.

**1. General Information**

**1.1. Applicant and Stationary Source Location:**

| <b>Applicant/Address</b>   | <b>Stationary Source/Address<br/>(SIC Code: 4922)</b>   |
|--|---|
| Northern Border Pipeline Company<br>P.O. Box 3330<br>Omaha, Nebraska 68103 | Compressor Station No. 12<br>One mile west, then a half mile south of the<br>intersection of U.S. Highways 14 and 59<br>(Lyon County) |

**1.2. Description of the Permit Action**

Northern Border Pipeline Company (the Permittee) owns a natural gas pipeline that runs through the southwest corner of Minnesota. Northern Plains Natural Gas Company (a wholly-owned subsidiary) is the operator of this pipeline. Due to increased demand for natural gas, an additional compressor station is proposed to be built in Lyon County (Compressor Station No. 12). Air emission sources at the station include: a 41,426 horsepower gas turbine, a 300 kilowatt (kW) emergency generator, a small boiler, and a 15 kW emergency generator. The boiler and the 15 kW emergency generator are insignificant activities.

The Minnesota Pollution Control Agency (MPCA) received an application for a Total Facility Permit from the Permittee on September 24, 1996. The main emission source at the station is the turbine. Potential emissions calculations showed that the station would be a Part 70 major source, but a nonmajor source for Prevention of Significant Deterioration (PSD) review.

An environmental assessment worksheet (EAW) was required for this permit action. The public notice period for the EAW commenced on January 13, 1997, and ended on February 12, 1997. No comments or questions were received pertaining to the EAW. In addition, no comments pertaining to the permit were received from the public or U.S. Environmental Protection Agency (EPA) during their respective comment periods.

### 1.3. Emissions of the Facility

**Table 1. Facility Classification**

|   | <b>Major</b> | <b>Synthetic<br/>Minor</b> | <b>Nonmajor</b> | <b>N/A</b> |
|---|--------------|----------------------------|-----------------|------------|
| Prevention of Significant Deterioration |              |                            | <b>X</b>        |            |
| Non Attainment Area                     |              |                            |                 | <b>X</b>   |
| Operating Permit Program                | <b>X</b>     |                            |                 |            |

**Table 2. Potential to Emit Allowed in the Proposed Total Facility Permit**

| <b>Pollutant</b> | <b>Potential to Emit<br/>from the Facility<br/>(TPY)</b> | <b>Relevant<br/>Threshold<br/>(TPY)</b> | <b>PSD* Review Required<br/>(Yes or No)</b> |
|------------------|--|---|---|
| PM               | 19   | 250*                                    | No  |
| PM <sub>10</sub> | 19   | 250*                                    | No  |
| SO <sub>2</sub>  | 9.3  | 250*                                    | No  |
| NO <sub>x</sub>  | 233  | 250*                                    | No  |
| VOC              | 13   | 250*                                    | No  |
| CO               | 99   | 250*                                    | No  |
| Total HAPs       | 3.3  | 25**                                    | NA  |

\*Federal Prevention of Significant Deterioration Regulation, 40 CFR § 52.21

\*\* National Emission Standards for Hazardous Air Pollutants, 40 CFR § 63.2

## 2. Regulatory and/or Statutory Basis of Emission Limit

### 2.1 Summary of Limits and Conditions Indicated in Part 1 of the Permit

#### Gas Turbine

**Stack/Vent I.D.:** 001      **Emission Unit:** 001

#### *Requirement or Condition:*

1. Nitrogen Oxides: less than or equal to 52.5 pounds per hour
2. Nitrogen Oxides: less than or equal to 0.0217 percent by volume at 15 percent oxygen and on a dry basis
3. Sulfur Dioxide: less than or equal to 0.015 percent by volume at 15 percent oxygen and on a dry basis
4. Opacity: greater than or equal to 20 percent for no more than 10 consecutive seconds once operating temperatures are obtained
5. Sulfur Content Fuel: must be less than or equal to 0.8 percent by weight.
6. Fuel Monitoring: the fuel will be monitored according a custom schedule and analytical method.
7. Fuel burned: only natural gas.
8. Notifications: dates of initial construction, anticipated initial startup, actual initial startup.
9. Initial Performance Test: for nitrogen oxides.

*Factual and/or legal basis for above:*

1. Manufacturers guarantee, used as the basis for potential emissions calculations to ensure compliance as a nonmajor source under 40 CFR § 52.21
2. 40 CFR § 60.332(a)(2)
3. 40 CFR § 60.333(a)
4. Minn. R. 7011.2300, subp. 1
5. 40 CFR § 60.333(b)
6. 40 CFR § 60.334(b)(2); 40 CFR § 60.335(d)
7. Minn. R. 7007.0800, subp. 2
8. 40 CFR § 60.7(a)
9. 40 CFR § 60.335(b); 40 CFR § 60.8

*Comments:*

1. The Permittee stated that the turbine is guaranteed to emit NO<sub>x</sub> at a rate not to exceed 52.5 lb per hour. This limit was the basis of the PTE calculations for this unit and it is more stringent than the limit dictated by the NSPS, i.e. requirement No. 2 above (see attachment for calculations). Consequently, 52.5 lb. per hour will be the limit the test results will be compared to.
2. The custom fuel monitoring schedule was approved by EPA (see attachment) on December 9, 1996, for meeting the requirements of 40 CFR pt. 60, subp. GG. The approved schedule allows the Permittee to forgo fuel nitrogen monitoring.
3. NBPC proposed an alternate testing method for sulfur in natural gas, which was not an ASTM reference method. The method was submitted to, and approved by the EPA (see attachment) on March 14, 1997.
6. The semiannual deviations report will fulfill the requirements for an excess emission report under 40 CFR § 60.334(c)(2) and 40 CFR § 60.7(c).

**Emergency Generator (300kW)**

**Stack/Vent I.D.: 002      Emission Unit: 002**

*Requirement or Condition:*

1. Opacity: greater than or equal to 20 percent for no more than 10 consecutive seconds once operating temperatures are obtained.

*Factual and/or legal basis for above:*

1. Minn. R. 7011.2300, subp. 1.

### **3. Conclusion**

Based on the information provided by Northern Border Pipeline Company, the MPCA has reasonable assurance that the proposed construction of the emission facility, as described in the Air Emission Permit No. 08300056-001, and this TSD, will not cause or contribute to a violation of applicable federal regulations and Minnesota Rules.

#### **Attachments:**

1. Custom fuel schedule EPA letter
2. Alternative monitoring method EPA letter
3. Facility emissions summary (GI-07)
4. Manufacturers guarantee of NO<sub>x</sub> emission rate
5. NO<sub>x</sub> emission limit calculation for SV 001

#### **Contact for further information:**

Permit Engineer: Trent Wickman  
Telephone No.: (507)537-7136