AIR EMISSION PERMIT NO. 14700009- 001

IS ISSUED TO

Northern Natural Gas Company

Northern Natural Gas - Owatonna
Rural Route 1 Box 220-A
Ellendale, Steele County, Minnesota 56026

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

Permit Type	Application Date
Total Facility Operating Permit	September 15, 1995
Major Permit Amendment	January 16, 1998

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. 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: State; True Minor

Issue Date: April 21, 1998

Expiration: Permit does not expire
All Title I Conditions do not expire.

Bonnie Nelson for
Michael J. Sandusky
Division Manager
Air Quality Division

for Peder A. Larson
Commissioner
Minnesota Pollution Control Agency

BJN:yma

TABLE OF CONTENTS

Notice to the Permittee

Permit Shield

Facility Description

Table A: Limits and Other Requirements

Table B: Submittals

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. Certain requirements which have been determined not to apply are listed in Table A of this permit.

The permit shield, however does not apply to:

1. Any national ambient air quality standards adopted under section 109 of the Clean Air Act or increment or visibility under Part C of Title I of the Clean Air Act,
2. Any state ambient air quality standard under Minn. R. ch. 7009, and
3. The state noise pollution control rules, Minn. R. ch. 7030.

FACILITY DESCRIPTION:

The Owatonna Compressor Station is used to pressurize natural gas in order to facilitate its transmission through a pipeline system. The facility consists of a 16,000 BHP natural gas-fired turbine and one emergency generator. The facility is subject to a New Source Performance Standard for the turbine, and therefore requires a permit.

TABLE A: LIMITS AND OTHER REQUIREMENTS

04/21/98

Facility Name: Northern Natural Gas - Owatonna

Permit Number: 14700009 - 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**

What to do	Why to do it
Operation and Maintenance Plan: Retain at the stationary source an operation and maintenance plan for all air pollution control equipment.	Minn. R. 7007.0800, subps. 14 and 16(J)
Operating and/or production limits will be placed on emission units based on operating conditions during compliance testing. Limits set as a result of a compliance test (conducted before or after permit issuance) apply until new operating/production limits are set following formal review of a performance test as specified by Minn. R. 7017.2025.	Minn. R. 7017.2025
Monitoring Equipment: Install or make needed repairs to monitoring equipment within 60 days of issuance of the permit if monitoring equipment is not installed and operational on the date the permit is issued.	Minn. R. 7007.0800, subp. 4(D)
Monitoring Equipment Calibration: Annually calibrate all required monitoring equipment (any requirements applying to continuous emission monitors are listed separately in this permit).	Minn. R. 7007.0800, subp. 4(D)
Operation of Monitoring Equipment: Unless otherwise noted in Tables A, B, and/or C, monitoring a process or control equipment connected to that process is not necessary during periods when the process is shutdown, or during checks of the monitoring systems, such as calibration checks and zero and span adjustments. If monitoring records are required, they should reflect any such periods of process shutdown or checks of the monitoring system.	Minn. R. 7007.0800, subp. 4(D)
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
Shutdown Notifications: Notify the Commissioner at least 24 hours in advance of a planned shutdown of any control equipment or process equipment if the shutdown would cause any increase in the emissions of any regulated air pollutant. If the owner or operator does not have advance knowledge of the shutdown, notification shall be made to the Commissioner as soon as possible after the shutdown. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 3. At the time of notification, the owner or operator shall inform the Commissioner of the cause of the shutdown and the estimated duration. The owner or operator shall notify the Commissioner 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)
Written Notification of Deviations Endangering Human Health or the Environment Report: Within 2 working days of discovery, notify the Commissioner in writing of any deviation from permit conditions which could endanger human health or the environment. Include the following information in this written description: cause of the deviation; exact dates of the period of the deviation; if the deviation has not 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)
Air Pollution Control Equipment: Operate all pollution control equipment whenever the corresponding process equipment and emission units are operated, unless otherwise noted in Table A.	Minn. R. 7007.0800, subp. 2; Minn. R. 7007.0800, subp. 16(J)
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

TABLE A: LIMITS AND OTHER REQUIREMENTS

04/21/98

Facility Name: Northern Natural Gas - Owatonna

Permit Number: 14700009 - 001

Application for Permit Amendment: If a permit amendment is needed, 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)
Record keeping: 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)
Record keeping: Retain all records at the stationary source 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 substances 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

04/21/98

Facility Name: Northern Natural Gas - Owatonna

Permit Number: 14700009 - 001

Subject Item: **EU 001 Stationary Natural Gas-Fired Turbine**

Associated Items: SV 001

What to do	Why to do it
ALTERNATIVE OPERATING SCENARIO	hdr
The Permittee may replace the existing turbine with a similar turbine.	Minn. R. 7007.0800, subp. 11
If the Permittee replaces the existing turbine with a similar turbine, the Permittee shall meet the following conditions: 1. The maximum Brake horsepower (BHP) of the turbine may not exceed 16,000 BHP. 2. The turbine must be equipped with a low-NOx burner and combust only pipeline-quality natural gas. 3. The permittee shall calculate and keep a permanent record of the potential emission rates in lb/hr, of PM, PM10, SO2, NOx, and CO for the replacement turbine. (cont.)	Minn. R. 7007.0800, subp. 2
(continued from previous requirement) 4. If the replacement turbine is a previously-operated unit that is an affected facility as defined in 40 CFR Section 60.330, and the permittee has previously met all applicable requirements in 40 CFR Sections 60.7 and 60.8 for the replacement turbine, notify the MPCA of the replacement no later than 30 days after completion of installation of the replacement turbine. The notification shall include a copy of all previously submitted notifications required by 40 CFR Section 60.7 and results of performance tests required by 40 CFR Section 60.8. 5. If the replacement turbine is a new unit that is an affected facility, complete all applicable notification and testing requirements in 40 CFR Sections 60.7 and 60.8.	Minn. R. 7007.0800, subp. 2
Notification of Replacement: Postmarked within 60 days after making the replacement. Include the max. BHP of the turbine in the notification.	Minn. R. 7007.0800, subp. 2
EMISSION LIMITS	hdr
Nitrogen Oxides: less than or equal to 0.0157 percent by volume at 15 percent oxygen and on a dry basis.	40 CFR Section 60.332(d); Minn. R. 7011.2350
Opacity: less than or equal to 20 percent opacity once operating temperatures have been attained.	Minn. R. 7011.2300, subp. 1
Sulfur Dioxide: less than or equal to 0.5 lbs/million Btu heat input	Minn. R. 7011.2300, subp. 2
OTHER LIMITS	hdr
Sulfur Content of Fuel: less than or equal to 0.8 percent by weight	40 CFR Section 60.333(b); Minn. R. 7011.2350
PERFORMANCE TESTING REQUIREMENTS	hdr
Performance Test: due 180 days after Initial Startup but no later than 60 days after achieving maximum production rate to determine NOx emissions per 40 CFR section 60.332(d).	40 CFR Section 60.8(a)
Performance Test Pre-test Meeting: due 7 days before Performance Test for NOx.	Minn. R. 7017.2030, subp. 4
MONITORING AND RECORD KEEPING REQUIREMENTS	hdr
Analysis for fuel sulfur content of the natural gas shall be conducted using one of the approved ASTM reference methods for the measurement of sulfur in gaseous fuels, a gas chromatograph or an approved alternative method.	40 CFR Section 60.13(i) to meet requirements in 40 CFR Section 60.334(b); Minn. R. 7011.2350
Sulfur monitoring shall be conducted twice monthly for six months. If this monitoring shows little variability in the fuel sulfur content, and indicates consistent compliance with 40 CFR Section 60.333, then sulfur monitoring shall be conducted once per quarter for six quarters.	40 CFR Section 60.13(i) to meet requirements in 40 CFR Section 60.334(b); Minn. R. 7011.2350
Sulfur Monitoring: If after the first 2 years of sulfur monitoring the sulfur content of fuel shows little variability, and when calculated as sulfur dioxide consistently meets the sulfur dioxide emission limits specified under 40 CFR Section 60.333, sample analysis shall be conducted twice per annum. This monitoring shall be conducted during the first and third quarters of each calendar year.	40 CFR Section 60.13(i) to meet requirements in 40 CFR Section 60.334(b); Minn. R. 7011.2350
Notification of noncompliance: Should any sulfur analysis indicate noncompliance with 40 CFR Section 60.333, 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 this custom fuel-monitoring schedule is being re-examined.	40 CFR Section 60.13(i) to meet requirements in 40 CFR Section 60.334(b); Minn. R. 7011.2350

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: Northern Natural Gas - Owatonna

Permit Number: 14700009 - 001

Recordkeeping: Records of sample analysis and fuel supply pertinent to the custom fuel-monitoring schedule shall be retained for a period of five (5) years, and be available for inspection by personnel of federal, state, and local air pollution control agencies.	40 CFR Section 60.13(i) to meet requirements in 40 CFR Section 60.334(b); Minn. R. 7011.2350
Reporting: If there is a change in fuel supply, the Permittee must notify the MPCA of such change for re-examination of the custom fuel-monitoring 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); Minn. R. 7011.2350
REPORTING REQUIREMENTS	hdr

TABLE A: LIMITS AND OTHER REQUIREMENTS

04/21/98

Facility Name: Northern Natural Gas - Owatonna

Permit Number: 14700009 - 001

Subject Item: **EU 002 Emergency Generator**

Associated Items: SV 002

What to do	Why to do it
Opacity: less than or equal to 20 percent opacity once operating temperatures have been attained.	Minn. R. 7011.2300, subp. 1
Sulfur Dioxide: less than or equal to 0.5 lbs/million Btu heat input	Minn. R. 7011.2300, subp. 2

TABLE B: SUBMITTALS

04/21/98

Facility Name: Northern Natural Gas - Owatonna

Permit Number: 14700009 - 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

04/21/98

Facility Name: Northern Natural Gas - Owatonna

Permit Number: 14700009 - 001

What to send	When to send	Portion of Facility Affected
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 no later than 60 days before anticipated initial startup.	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 for NOx.	EU001
Performance Test Plan	due 30 days before Performance Test for NOx.	EU001
Performance Test Report - Microfiche Copy	due 105 days after Performance Test for NOx.	EU001
Performance Test Report	due 45 days after Performance Test for NOx.	EU001

TABLE B: RECURRENT SUBMITTALS

04/21/98

Facility Name: Northern Natural Gas - Owatonna

Permit Number: 14700009 - 001

What to send	When to send	Portion of Facility Affected
Semiannual Deviations Report	due 30 days after end of each calendar half-year following Permit Issuance . The first semiannual report submitted by the Permittee shall cover the calendar half-year in which the permit is issued. The first report of each calendar year covers January 1 - June 30. The second report of each calendar year covers July 1 - December 31.	Total Facility
Compliance Certification	due 30 days after end of each calendar year following Permit Issuance (for the previous calendar year). To be submitted on a form approved by the Commissioner. The report covers all deviations experienced during the calendar year.	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 Northern Natural Gas Company (624A)
AIR EMISSION PERMIT NO. 14700009-001

This Technical Support Document (TSD) is for all the interested parties of the permit. The purpose of this document is to set forth the legal and factual basis for the permit conditions, including references to the applicable statutory or regulatory provisions.

1. General

1.1. Applicant and Stationary Source Location:

Contact/Address	Stationary Source/Address (SIC Code: 4922)
Mr. Ronald Beidelman	Northern Natural Gas Company
Division Environmental Specialist	Owatonna Compressor Station
1600 West 82nd Street, Suite 210	RR 1, Box 220-A
Minneapolis, Minnesota 55431	Ellendale, Steele Co., MN 55431

Owner/Address
Mr. Gary P. Smith, V.P. Operations, NNG Co.
1111 So. 103rd St., Omaha, NE 68124

1.2. Description Of The Facility

Facility Description: The facility is a natural gas compressor station near Owatonna, Minnesota. The facility will be removing 3 existing engines and replacing them with a 16,000 BHP turbine and an emergency generator. The facility is a true minor, yet requires a permit due to being subject to NSPS, Subp. GG for the turbine.

1.2.5 Description of Permit Action

Permit Action - 1998: The facility will be issued a state total facility permit. Flexibility to replace the existing turbine with a like turbine will be incorporated into the permit. The transition between the two compressors would consist of decommissioning the existing turbine, and installing the new turbine in the same physical space previously occupied by the existing turbine. The new turbine would utilize some of the existing “skin” and possibly other components (depending upon what caused the need for the replacement). Two could not operate simultaneously, nor could one act as a “backup” for the existing turbine.

1.3 Description of all submittals since the issuance of the last total facility permit, to be included in the State Permit.

- Title V TFP Application: Received 9/15/95. Overview of total facility.
- Major Modification: The MPCA received a major modification application in January 1998 for permission to remove existing engines and construct and operate a natural gas turbine and an emergency generator.

1.4. Facility Emissions:

Table 1. Total Facility Potential to Emit Summary:

EU #	SV#	Emission Unit Description	PM tpy	PM10 tpy	SO2 tpy	NOx tpy	VOC tpy	Pb tpy	CO tpy	HAPs tpy
001	001	Turbine	22.0	22.0	9.86	52.6	18.3	0	64.0	NA
002	002	Emergency Generator	0.22	0.22	0.17	2.3	0.04	0	0.69	NA
Total Facility Limited Potential Emissions*			22.22	22.22	10.03	54.9	18.7	0	64.69	NA
Total Facility Actual Emissions**			22.22	22.22	10.03	54.9	18.7	0	64.69	NA

*These are the limited potential emissions from column 3 in GI-07. These total emissions numbers are what would appear in a public notice.
**These were estimated by Ron Beidelman based upon similar operations at a similar facility.

Table 2. Facility(TF) and Permit Classification

Classification (put x in appropriate box)	Major/Affected Source	*Synthetic Minor	*Minor
PSD (list pollutant)			x
NAAR (list pollutant)			x
Part 70 Permit Program			x

* Refers to potential emissions that are less than those specified as major by 40 CFR 52.21, 40 CFR pt. 51 Appendix S, and 40 CFR pt. 70.

2. Regulatory and/or Statutory Basis

Summary Regulatory and/or Statutory Basis of the Emission or operational Limit

Regulatory Overview of Facility

The purpose of this table is to give a summary overview of the significant sources of emissions and the applicable regulations and standards(e.g., NEHSAPS, NSPS.Title I conditions, special operating parameters) It is not designed for the discussion of specific limits or requirements, unless they are unusual and need some explanation, nor is it for the discussion of compliance demonstration requirements. This information is obtainable from the permit itself, this section is intended to provide users in the future with a quick picture of how the facility is being regulated and permitted..

*EU, GRP, or SV #	Applicable Regulations	**Comments:
FC	Minn. R. 7009 and 40 CFR pt. 50	Records will be maintained at the facility
SV001, 002	Minn. R. 7011.2300	Standards of Performance for Internal Combustion Engines • Applies to emergency generator and gas turbine
EU001	40 CFR 60.13(i) to comply with 40 CFR pt. 60, subp.GG Minn. R. 7011.2350	National Standards of Performance for Stationary Gas Turbines and enabling Minn. Standards of Performance for Stationary Gas Turbines. NO_x testing and fuel sulfur monitoring • Monitoring of fuel nitrogen content is required according to custom fuel-monitoring schedule per 60.334(b) per criteria discussed in EPA memo dated 8/14/87. This schedule has been approved by EPA for pipeline-quality natural gas compressor stations (see CD-01 forms and attached memo) • Permittee has authorization to use a gas chromatograph to measure fuel sulfur content. The use of the alternative testing method has been approved by EPA for pipeline-quality natural gas at natural-gas compressor stations. (see attached memo) • Turbine contains a low-NO_x burner • Permittee has chosen to comply with 60.333(b) sulfur limit of 0.8% by weight vs. complying with 60.333(a) • The permit authorizes the replacement of the existing NSPS affected unit with a similar NSPS affected unit. It states that all notifications and testing must be conducted initially and records for each unit must be maintained with the unit.

3. Technical Information - Emissions calculations attached.

STACK/VENT I.D.: 002
EMISSION UNIT: 002 - Emergency Generator

Emission Limit and/or Special Conditions: Sulfur Dioxide limit
Factual and legal basis for above: Minn. R. 7011.2300
Comments: Limit is met by equipment design when burning diesel fuel. PTE below limit.

- 0.5 lb/MMBtu x 3.2 MMBtu/hr = 1.6 lb/hr > 0.64 lb/hr NOT LIMITING
- Emission factor from manufacturer's test

4. Conclusion

Based on the information provided by Northern Natural Gas, the MPCA has reasonable assurance that the proposed operation of the emission facility, as described in the Air Emission Permit No. 14700009-001 and this TSD, will not cause or contribute to a violation of applicable federal regulations and Minnesota Rules.

Attachments:	Staff Members on Permit Team:
Permit (GI and CD forms)	Bonnie J. Nelson, P.E.
EC forms and supporting documents	Marshall Cole
Memos	Stuart Arkley