

AIR EMISSION PERMIT NO. 16300110- 001

IS ISSUED TO

Northern Natural Gas Company

NORTHERN NATURAL GAS - HUGO

No Street Address

Hugo, Washington County, Minnesota 55038

The emission units and emission stacks at the stationary source authorized in this permit are as described in the following permit application:

Permit Type
Total Facility Operating Permit

Application Date
February 1997

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, 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: State

Issue Date: May 22, 1997

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

Michael J. Sandusky
Acting Division Manager
Air Quality Division

for Peder A. Larson
Acting Commissioner
Minnesota Pollution Control Agency

BN:yma

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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 rule 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:

The facility will use a 7229 hp natural gas-fired turbine to compress natural gas in a pipeline. The facility will operate an emergency generator as a backup for electrical power. Uncontrolled emissions from the facility are less than the thresholds for all criteria pollutants. However, the natural gas-fired turbine is subject to 40 CFR pt. 60, subp. GG and the Permittee will therefore receive a state operating permit.

TABLE A: LIMITS AND OTHER REQUIREMENTS

05/22/97

Facility Name: Northern Natural Gas - Hugo

Permit Number: 16300110 - 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, subp. 14 and Minn. R. 7007.0800, subp. 16(J)
Performance Testing: Conduct all performance tests in accordance with Minn. R. ch. 7017 unless otherwise noted in Tables A, B, and/or C.	Minn. R. ch. 7017
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
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 Deviation: due 2 days after Discovery of Deviation (Discovery of Deviation Endangering Human Health or the Environment Report (written)), submit a written description of any deviation endangering human health or the environment to the Commissioner. 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
Application for Permit Amendment: If you need a permit amendment, submit 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

TABLE A: LIMITS AND OTHER REQUIREMENTS

05/22/97

Facility Name: Northern Natural Gas - Hugo

Permit Number: 16300110 - 001

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)
Recordkeeping: Retain all records at the Northern Natural Gas Co. North Branch Compressor Station, 6579 420th St., P.O. Box 309, North Branch, MN 55056 [telephone:612-674-4488], 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

05/22/97

Facility Name: Northern Natural Gas - Hugo

Permit Number: 16300110 - 001

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

What to do	Why to do it
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)
Sulfur Dioxide: less than or equal to 0.015 percent by volume at 15 percent oxygen and on a dry basis.	40 CFR Section 60.333(a)
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

TABLE A: LIMITS AND OTHER REQUIREMENTS

05/22/97

Facility Name: Northern Natural Gas - Hugo
Permit Number: 16300110 - 001

Subject Item: SV 002

Associated Items: EU 002 Back-up Generator

What to do	Why to do it
Opacity: less than or equal to 20 percent opacity once operating temperatures have been obtained. The averaging time for this limit is any ten consecutive seconds.	Minn. R. 7011.2300, subp. 1

TABLE A: LIMITS AND OTHER REQUIREMENTS

05/22/97

Facility Name: Northern Natural Gas - Hugo

Permit Number: 16300110 - 001

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

What to do	Why to do it
Sulfur Content of Fuel: less than or equal to 0.8 percent by weight	40 CFR Section 60.333(b)
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)
Fuel burned: Natural gas only.	Minn. R. 7007.0800, subp. 2
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, or an approved alternative method.	40 CFR Section 60.334(b)
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 60.334(b)
Sulfur Monitoring: If after the first 2 years of sulfur monitoring, the sulfur content of the fuel shows little variability, and when calculated as sulfur dioxide, represents consistent compliance with 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 60.334(b)
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 60.334(b)
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 60.334(b)

TABLE B: SUBMITTALS

05/22/97

Facility Name: Northern Natural Gas - Hugo
Permit Number: 16300110 - 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

05/22/97

Facility Name: Northern Natural Gas - Hugo

Permit Number: 16300110 - 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 earlier 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.	SV001
Performance Test Plan	due 30 days before Performance Test for NOx.	SV001
Performance Test Report - Microfiche Copy	due 105 days after Performance Test for NOx.	SV001
Performance Test Report	due 45 days after Performance Test for NOx.	SV001

TABLE B: RECURRENT SUBMITTALS

05/22/97

Facility Name: Northern Natural Gas - Hugo

Permit Number: 16300110 - 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 (due by July 30 and January 30 of each year). The report must be submitted even if there were no deviations for the reporting period. To be submitted on a form approved by the Commissioner.	Total Facility
Compliance Certification	due 30 days after end of each calendar year following Permit Issuance (by January 30th for the previous calendar year). To be submitted on a form approved by the Commissioner.	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 (624H)
DRAFT AIR EMISSION PERMIT NO. 16300110-001

This technical support document is for all the interested parties of the draft permit and to meet the requirements that have been set forth by the federal regulations and Minnesota Rules (Minn. R. pt. 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 draft permit.

1. General Information

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	Hugo Compressor Station
1600 West 82nd Street, Suite 210	Hugo, Rice County, MN
Minneapolis, MN 55431	

Owner/Address	
Mr. David J. Barth, V.P. Operations	
Northern Natural Gas Company	
1600 West 82nd Street, Suite 210	
Minneapolis, MN 55431	

1.2. Description Of The Permit Action

Facility Description: The facility is a natural gas compressor station near Hugo, Minnesota. The station will consist of one natural gas turbine and one 80 kW emergency generator.

Permit Action 001: This permit was for the construction of a new facility. The facility consists of a natural gas turbine and an emergency generator. The potential emissions from the emission units, without control, are less than the thresholds for all criteria pollutants. They are required to get a permit due to being subject to 40 CFR 60, Subp. GG.

Environmental Review is not required for the installation of the new emission units as the allowable emissions are less than 100 tons per year for criteria pollutants

1.3. Emissions of the Facility

Table 1. Potential to Emit Summary and Attainment Status:

Pollutant	Potential to Emit of Entire Facility (tons per year)	Attainment or Unclassified?
Particulate Matter (PM)	10.4	Y
Particulate Matter less than 10 micron (PM ₁₀)	10.4	Y
Sulfur Dioxide (SO ₂)	0.15	Y
Nitrogen Oxides (NO _x)	25.3	Y
Volatile Organic Compounds (VOCs)/Ozone	8.71	Y
Carbon Monoxide (CO)	72.8	Y
Lead	0	Y
HAPs*	0.54	NA
Fugitive Emissions	0.91	NA

*HAPs were determined by ratio from other known fuel-burning HAP calculations (AQD 871A), to ensure that the facility is an area source for HAPs. Further breakdown is unnecessary.

Table 2. Facility Classification

Classification (put x in appropriate box)	Major	Synthetic Minor	Minor	N/A
Prevention of Significant Deterioration			x	
Non Attainment Area (list pollutant)			CO	
Operating Permit Program			x	

2. Regulatory and/or Statutory Basis of Emission Limit

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

STACK/VENT I.D.: 001

EMISSION UNIT: 001 - Gas Turbine

Emission Limit and/or Special Conditions: NO_x emissions shall not exceed 0.0157% by volume at 15 percent oxygen and on a dry basis

Factual and legal basis for above: 40 CFR 60, Subp. GG - Standards of Performance for Stationary Gas Turbines. 60.332(a)(2)

Comments: Stationary gas turbine (not electric utility turbine) with a manufacturer's rated base load of 30 megawatts or less...

From AP-42, Section 3.1.1: 4021 hp is equivalent to 3 MW, therefore 10,600 hp = 7.9 MW

From Subp. GG: 100 MMBtu = 107.26 GigaJoules, therefore 103 MMBtu = 110.42 GJ.

Further, 110.42 GJ x (Watt-hr/13.73 KiloJoules) = 8.0 MW

Monitoring of fuel nitrogen content is required. They have submitted a request for a custom fuel-monitoring schedule in accordance with 60.334(b), per criteria discussed in EPA memo dated 8/14/87.

STACK/VENT I.D.: 001 EMISSION UNIT: 001 - Gas Turbine
Emission Limit and/or Special Conditions: Performance testing, NO_x in the exhaust gas will not be required per custom fuel-monitoring schedule approved by EPA.
Factual and legal basis for above: 40 CFR 60, Subp. GG - Standards of Performance for Stationary Gas Turbines. 60.335(a)
Comments: To be performed at 7229 hp.

STACK/VENT I.D.: 001 EMISSION UNIT: 001 - Gas Turbine
Emission Limit and/or Special Conditions: SO₂ emissions shall not exceed 0.015% by volume at 15 percent oxygen and on a dry basis. Shall not burn fuel which contains sulfur in excess of 0.8 percent by weight. Performance testing required for SO₂.
Factual and legal basis for above: 40 CFR 60, Subp. GG - Standards of Performance for Stationary Gas Turbines. 60.333
Comments: Monitoring of fuel sulfur content is required according to custom fuel-monitoring schedule per 60.334(b). Will request from EPA ability to use a gas chromatograph to determine sulfur content of fuel.

STACK/VENT I.D.: 002 EMISSION UNIT: 002 - Emergency Generator
Emission Limit and/or Special Conditions: Shall not exceed 20 percent opacity for more than ten consecutive seconds once operating temperatures have been obtained.
Factual and legal basis for above: Minn. R. 7011.2300
Comments: Performance test if requested by the Division Manager. Diesel fuel tank is about 500 gallons.

STACK/VENT I.D.: 002 EMISSION UNIT: 002 - Emergency Generator (300 kW)
Emission Limit and/or Special Conditions: Sulfur limit does not apply
Factual and legal basis for above: Minn. R. 7011.2300, subp. 2
Comments: Existing emission unit

AP-42, App. A-14: $80 \text{ kW} \times 2.5435 \times 10^3 = 0.2 \text{ MMBtu/hr}$; Turbine = 56.7 MMBtu/hr
Total heat input at facility = 56.9 MMBtu/hr outside of metro region.

3. Conclusion

Based on the information provided by Northern Natural Gas Company, the MPCA has reasonable assurance that the proposed construction and operation of the emission facility, as described in the Air Emission Permit No. 16300110-001 and this technical support document, will not cause or contribute to a violation of applicable federal regulations and Minnesota Rules.

Attachments:

1. GI Forms
2. EC forms for Calculations
3. CD forms

Need further information?

Permit Engineer: Bonnie J. Nelson
Telephone No.: 612-282-5846