AIR EMISSION PERMIT NO. 01700011- 004
(Part 70 Reissuance)

IS ISSUED TO

NORTHERN NATURAL GAS COMPANY
P.O. Box 3330
Omaha, NE 68103-3300

For its facility at:
2301 County Road 1
Wrenshall, Carlton County, MN 55797

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 Oper. Permit - Reissuance	08/17/2004
Supplement Submittal #1	07/06/2005

This permit authorizes the Permittee to operate 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 are as defined in the state air pollution control rules unless the term is explicitly defined in the permit.

Permit Type: Federal; Part 70/Limits to avoid NSR

Issue Date: October 11, 2005

Expiration: October 11, 2010
All Title I Conditions do not expire.

Richard J. Sandberg, Manager
Air Quality Permits Section
Industrial Division

for Sheryl A. Corrigan
Commissioner
Minnesota Pollution Control Agency

TABLE OF CONTENTS

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	(651) 296-6300
Outside Metro Area	1-800-657-3864
TTY	(651) 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. Subject to the limitations of Minn. R. 7007.1800 and 7017.0100, subp. 2, notwithstanding the conditions of this permit specifying compliance practices for applicable requirements, any person (including the Permittee) may also use other credible evidence to establish compliance or noncompliance with applicable requirements.

FACILITY DESCRIPTION:

The facility is a liquid natural gas plant on County Road 1 near Wrenshall, Minnesota. The Wrenshall station is used to liquefy and store natural gas for later vaporization and distribution into the underground natural gas pipelines as needed. The facility consists of a compressor/turbine building which houses two natural gas-fired turbines, three natural gas-fired vaporizers, and a 630,000 barrel LNG storage tank with a flare which is used to combust excess gasses from the tank, a diesel-fired fire water pump and a natural gas-fired space heater. The facility is a not a major source under New Source Review (40 CFR § 52.21). The permit allows for the replacement of the turbine units with units of equal size that meet certain conditions.

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/11/05

Facility Name: Northern Natural Gas Co - Wrenshall LNG

Permit Number: 01700011 - 004

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
OPERATIONAL REQUIREMENTS	hdr
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
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)
Operation and Maintenance Plan: Retain at the stationary source an operation and maintenance plan for all air pollution control equipment. At a minimum, the O & M plan shall identify all air pollution control equipment and control practices and shall include a preventative maintenance program for the equipment and practices, a description of (the minimum but not necessarily the only) corrective actions to be taken to restore the equipment and practices to proper operation to meet applicable permit conditions, a description of the employee training program for proper operation and maintenance of the control equipment and practices, and the records kept to demonstrate plan implementation.	Minn. R. 7007.0800, subp. 14 and Minn. R. 7007.0800, subp. 16(J)
Operation Changes: In any shutdown, breakdown, or deviation the Permittee shall immediately take all practical steps to modify operations to reduce the emission of any regulated air pollutant. The Commissioner may require feasible and practical modifications in the operation to reduce emissions of air pollutants. No emissions units that have an unreasonable shutdown or breakdown frequency of process or control equipment shall be permitted to operate.	Minn. R. 7019.1000, subp. 4
Ambient Air Quality Standards: The Permittee shall comply, and upon written request demonstrate compliance, with National Primary and Secondary Ambient Air Quality Standards, 40 CFR pt. 50, and the Minnesota Ambient Air Quality Standards, Minn. R. 7009.0010 to 7009.0080.	40 CFR pt. 50; Minn. Stat. Sec. 116.07, subds. 4a and 9; Minn. R. 7007.0100, subps. 7A, 7L, and 7M; Minn. R. 7007.0800, subps. 1, 2, and 4; Minn. R. 7009.0010-7009.0080
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
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 enforceable by the EPA Administrator or citizens under the Clean Air Act.	Minn. R. 7030.0010 - 7030.0080
Inspections: The Permittee shall comply with the inspection procedures and requirements as found in Minn. R. 7007.0800, subp. 9(A).	Minn. R. 7007.0800, subp. 9(A)
The Permittee shall comply with the General Conditions listed in Minn. R. 7007.0800, subp. 16.	Minn. R. 7007.0800, subp. 16
MONITORING REQUIREMENTS	hdr
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)
RECORDKEEPING	hdr
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 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)

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: Northern Natural Gas Co - Wrenshall LNG

Permit Number: 01700011 - 004

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)
REPORTING/SUBMITTALS	hdr
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. 3
Breakdown Notifications: Notify the Commissioner within 24 hours of a breakdown of more than one hour duration of any control equipment or process equipment if the breakdown causes any increase in the emissions of any regulated air pollutant. The 24-hour time period starts when the breakdown was discovered or reasonably should have been discovered by the owner or operator. However, notification is not required in the circumstances outlined in Items A, B and C of Minn. R. 7019.1000, subp. 2. At the time of notification or as soon as possible thereafter, the owner or operator shall inform the Commissioner of the cause of the breakdown and the estimated duration. The owner or operator shall notify the Commissioner when the breakdown is over.	Minn. R. 7019.1000, subp. 2
Notification of Deviations Endangering Human Health or the Environment: As soon as possible after discovery, notify the Commissioner or the state duty officer, either orally or by facsimile, of any deviation from permit conditions which could endanger human health or the environment.	Minn. R. 7019.1000, subp. 1
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: 1. the cause of the deviation; 2. the exact dates of the period of the deviation, if the deviation has been corrected; 3. whether or not the deviation has been corrected; 4. the anticipated time by which the deviation is expected to be corrected, if not yet corrected; and 5. steps taken or planned to reduce, eliminate, and prevent reoccurrence of the deviation.	Minn. R. 7019.1000, subp. 1
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)
Emission Inventory Report: due on or before April 1 of each calendar year following permit issuance. To be submitted on a form approved by the Commissioner.	Minn. R. 7019.3000 through Minn. R. 7019.3100
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

10/11/05

Facility Name: Northern Natural Gas Co - Wrenshall LNG

Permit Number: 01700011 - 004

Subject Item: **GP 001 Natural gas-fired Vaporizers**

Associated Items: EU 002 LNG Vaporizer

EU 003 LNG Vaporizer

EU 004 LNG Vaporizer

SV 002 LNG Vaporizer

SV 003 LNG Vaporizer

SV 004 LNG Vaporizer

What to do	Why to do it
Total Particulate Matter: less than or equal to 0.6 lbs/million Btu heat input . This limit applies separately to each unit in GP 001. The potential emissions are 0.007 lb/MMBtu based on equipment design.	Minn. R. 7011.0510, subp. 1
Opacity: less than or equal to 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity. This limit applies separately to each unit in GP 001.	Minn. R. 7011.0510, subp. 2

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/11/05

Facility Name: Northern Natural Gas Co - Wrenshall LNG

Permit Number: 01700011 - 004

Subject Item: **EU 001 Flare**

Associated Items: CE 001 Flaring

SV 001 Flare

What to do	Why to do it
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011. 0735.	Minn. R. 7011.0610, subp. 1(A)(1)
Opacity: less than or equal to 20 percent opacity except for one six-minute period per hour of not more than 60 percent opacity.	Minn. R. 7011.0610, subp. 1(A)(2)

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/11/05

Facility Name: Northern Natural Gas Co - Wrenshall LNG

Permit Number: 01700011 - 004

Subject Item: **EU 005 Natural Gas-Fired Turbine (ASP-339), 11/1/73**

Associated Items: SV 005 Natural Gas-Fired Turbine

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
Fuel Usage: Natural gas only, by design.	Minn. R. 7005.0100, subp. 35a
REQUIREMENTS FOR REPLACEMENTS MANUFACTURED AFTER OCTOBER 3, 1977	hdr
Sulfur Dioxide: less than or equal to 0.015 percent by volume at 15 percent oxygen and on a dry basis, or Sulfur Content of Fuel: less than or equal to 0.8 percent by weight.	40 CFR Section 60.333; Minn. R. 7011.2350
Recordkeeping: The Permittee shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of the facility including; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative.	40 CFR Section 60.7(b), Minn. R. 7019.0100, subp. 1
Excess Emissions Reporting: The Permittee shall submit reports of excess emissions and monitor downtime, in accordance with 40 CFR Section 60.7(c). Excess emissions shall be reported for all periods of unit operation, including startup, shutdown, and malfunction. For the purpose of reports under 60.7(c), periods of excess emissions and monitor downtime are as defined in 40 CFR Section 60.334(j)(1) through (5).	40 CFR Section 60.334(j); Minn. R. 7011.2350
Fuel Monitoring: The Permittee shall follow the applicable fuel sulfur and nitrogen content monitoring requirements in 40 CFR Section 60.334(h) and shall monitor at the frequency specified in 40 CFR Section 60.334(i). 40 CFR Section 60.334(h)(3) allows the owner or operator to not monitor total sulfur conent of gaseous fuel if the fuel is shown to meet the definition of natural gas as defined in 40 CFR Section 60.331(u). 40 CFR Section 60.334(h)(2) allows the owner or operator to not monitor fuel nitrogen content if a NOx emission allowance (F') for fuel-bound nitrogen is claimed in the applicable equation in 40 CFR Section 60.332.	40 CFR Sections 60.334(h) and (i); Minn. R. 7011.2350
Replacement Combustion Turbine Compressor Engine (RCT): The Permittee may install and operate a pipeline natural gas-fired RCT at the facility as a permanent replacement for EU 005 (the RCT becomes EU 005 upon replacement). The RCT shall: 1. only be a similar unit not exceeding a rated heat input of 40.7 MMBtu/hr and a rated horse power of 4475 hp (at 60 degree F, sea level); 2. meet applicable emission limits and fuel requirements in this subject item; 3. meet the NOx limit in 40 CFR Section 60.332(a)(2) if initial construction or reconstruction (as defined in 40 CFR Section 60.15) of the RCT commenced on or after October 3, 1982; 4. exhaust through a stack with dispersion characteristics equal to or better than SV 005. Stack parameters are listed in Appendix II; and 5. have potential emission rates (in lb/hr) for all pollutants equal to or less than permit limits and potential emission rates of EU 005.	Title I Condition: to avoid classification as major source and modification under 40 CFR Section 52.21; Minn. R. 7007.3000
For each RCT, the Permittee shall: 1. conduct NOx testing as required by 40 CFR Sections 60.335 and 60.8, if initial construction or reconstruction of the RCT commenced on or after October 3, 1982, and NOx testing has not been conducted after the construction or reconstruction; and 2. notify the MPCA and the U.S. EPA Chicago office prior to making the replacement. The Permittee shall record the date of commencement of initial construction (the date the manufacturer first constructed the turbine; this is not the date of the last refurbishment/overhaul of the turbine) or reconstruction of the RCT.	Title I Condition: to avoid classification as major source and modification under 40 CFR Section 52.21; Minn. R. 7007.3000

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/11/05

Facility Name: Northern Natural Gas Co - Wrenshall LNG

Permit Number: 01700011 - 004

Subject Item: **EU 006 Natural Gas-Fired Turbine (ASP-798), 03/01/80**

Associated Items: SV 006 Natural Gas-Fired Turbine

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
Fuel Usage: Natural gas only, by design.	Minn. R. 7005.0100, subp. 35a
REQUIREMENTS FOR REPLACEMENTS MANUFACTURED AFTER OCTOBER 3, 1977	hdr
Sulfur Dioxide: less than or equal to 0.015 percent by volume at 15 percent oxygen and on a dry basis, or Sulfur Content of Fuel: less than or equal to 0.8 percent by weight.	40 CFR Section 60.333; Minn. R. 7011.2350
Recordkeeping: The Permittee shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of the facility including; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative.	40 CFR Section 60.7(b), Minn. R. 7019.0100, subp. 1
Excess Emissions Reporting: The Permittee shall submit reports of excess emissions and monitor downtime, in accordance with 40 CFR Section 60.7(c). Excess emissions shall be reported for all periods of unit operation, including startup, shutdown, and malfunction. For the purpose of reports under 60.7(c), periods of excess emissions and monitor downtime are as defined in 40 CFR Section 60.334(j)(1) through (5).	40 CFR Section 60.334(j); Minn. R. 7011.2350
Fuel Monitoring: The Permittee shall follow the applicable fuel sulfur and nitrogen content monitoring requirements in 40 CFR Section 60.334(h) and shall monitor at the frequency specified in 40 CFR Section 60.334(i). 40 CFR Section 60.334(h)(3) allows the owner or operator to not monitor total sulfur conent of gaseous fuel if the fuel is shown to meet the definition of natural gas as defined in 40 CFR Section 60.331(u). 40 CFR Section 60.334(h)(2) allows the owner or operator to not monitor fuel nitrogen content if a NOx emission allowance (F') for fuel-bound nitrogen is claimed in the applicable equation in 40 CFR Section 60.332.	40 CFR Sections 60.334(h) and (i); Minn. R. 7011.2350
Replacement Combustion Turbine Compressor Engine (RCT): The Permittee may install and operate a pipeline natural gas-fired RCT at the facility as a permanent replacement for EU 005 (the RCT becomes EU 006 upon replacement). The RCT shall: 1. only be a similar unit not exceeding a rated heat input of 40.7 MMBtu/hr and a rated horse power of 4475 hp (at 60 degree F, sea level); 2. meet applicable emission limits and fuel requirements in this subject item; 3. meet the NOx limit in 40 CFR Section 60.332(a)(2) if initial construction or reconstruction (as defined in 40 CFR Section 60.15) of the RCT commenced on or after October 3, 1982; 4. exhaust through a stack with dispersion characteristics equal to or better than SV 006. Stack parameters are listed in Appendix II; and 5. have potential emission rates (in lb/hr) for all pollutants equal to or less than permit limits and potential emission rates of EU 006.	Title I Condition: to avoid classification as major source and modification under 40 CFR Section 52.21; Minn. R 7007.3000
For each RCT, the Permittee shall: 1. conduct NOx testing as required by 40 CFR Sections 60.335 and 60.8, if initial construction or reconstruction of the RCT commenced on or after October 3, 1982, and NOx testing has not been conducted after the construction or reconstruction; and 2. notify the MPCA and the U.S. EPA Chicago office prior to making the replacement. The Permittee shall record the date of commencement of initial construction (the date the manufacturer first constructed the turbine; this is not the date of the last refurbishment/overhaul of the turbine) or reconstruction of the RCT.	Title I Condition: to avoid classification as major source and modification under 40 CFR Section 52.21; Minn. R. 7007.3000

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/11/05

Facility Name: Northern Natural Gas Co - Wrenshall LNG

Permit Number: 01700011 - 004

Subject Item: **TK 001 LNG**

Associated Items: CE 001 Flaring

What to do	Why to do it
The storage vessel shall be equipped with a vapor recovery system or its equivalent.	Minn. R. 7011.1505, subp. 3(C)(2)

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/11/05

Facility Name: Northern Natural Gas Co - Wrenshall LNG

Permit Number: 01700011 - 004

Subject Item: **TK 002 Ethylene**

Associated Items: CE 001 Flaring

What to do	Why to do it
The storage vessel shall be equipped with a permanent submerged fill pipe or shall comply with the requriements of Minn. R. 7011.1505, subp. 3(C).	Minn. R. 7011.1505, subp. 3(B)

TABLE A: LIMITS AND OTHER REQUIREMENTS

Facility Name: Northern Natural Gas Co - Wrenshall LNG

Permit Number: 01700011 - 004

Subject Item: **TK 003 Pentane**

Associated Items: CE 001 Flaring

What to do	Why to do it
The storage vessel shall be equipped with a vapor recovery system or its equivalent.	Minn. R. 7011.1505, subp. 3(C)(1)

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/11/05

Facility Name: Northern Natural Gas Co - Wrenshall LNG

Permit Number: 01700011 - 004

Subject Item: **TK 004 Butane**

Associated Items: CE 001 Flaring

What to do	Why to do it
Total Particulate Matter: less than or equal to 0.3 grains/dry standard cubic foot of exhaust gas unless required to further reduce emissions to comply with the less stringent limit of either Minn. R. 7011.0730 or Minn. R. 7011.0735.	Minn. R. 7011.0715, subp. 1(A)
Opacity: less than or equal to 20 percent	Minn. R. 7011.0715, subp. 1(B)

TABLE A: LIMITS AND OTHER REQUIREMENTS

10/11/05

Facility Name: Northern Natural Gas Co - Wrenshall LNG

Permit Number: 01700011 - 004

Subject Item: **TK 005 Propane**

Associated Items: CE 001 Flaring

What to do	Why to do it
The storage vessel shall be equipped with a vapor recovery system or its equivalent.	Minn. R. 7011.1505, subp. 3(C)(2)

TABLE B: SUBMITTALS

10/11/05

Facility Name: Northern Natural Gas Co - Wrenshall LNG

Permit Number: 01700011 - 004

Table B lists most of the submittals required by this permit. Please note that some submittal requirements may appear in Table A or, if applicable, within a compliance schedule located in Table C. Table B is divided into two sections in order to separately list one-time only and recurrent submittal requirements.

Each submittal must be postmarked or received by the date specified in the applicable Table. Those submittals required by parts 7007.0100 to 7007.1850 must be certified by a responsible official, defined in Minn. R. 7007.0100, subp. 21. Other submittals shall be certified as appropriate if certification is required by an applicable rule or permit condition.

Send any application for a permit or permit amendment to:

AQ Permit Technical Advisor
Industrial Division
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

Also, where required by an applicable rule or permit condition, send to the Permit Technical Advisor notices of:
- accumulated insignificant activities,
- installation of control equipment,
- replacement of an emissions unit, and
- changes that contravene a permit term.

Unless another person is identified in the applicable Table, send all other submittals to:

AQ Compliance Tracking Coordinator
Industrial Division
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

Send submittals that are required to be submitted to the U.S. EPA regional office to:

Mr. George Czerniak
Air and Radiation Branch
EPA Region V
77 West Jackson Boulevard
Chicago, Illinois 60604

Send submittals that are required by the Acid Rain Program to:

U.S. Environmental Protection Agency
Clean Air Markets Division
1200 Pennsylvania Avenue NW (6204N)
Washington, D.C. 20460

TABLE B: ONE TIME SUBMITTALS OR NOTIFICATIONS

10/11/05

Facility Name: Northern Natural Gas Co - Wrenshall LNG

Permit Number: 01700011 - 004

What to send	When to send	Portion of Facility Affected
Application for Permit Reissuance	due 180 days before expiration of Existing Permit	Total Facility

TABLE B: RECURRENT SUBMITTALS

10/11/05

Facility Name: Northern Natural Gas Co - Wrenshall LNG

Permit Number: 01700011 - 004

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. If no deviations have occured, the Permittee shall submit the report stating no deviations.	Total Facility
Compliance Certification	due 31 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, both to the Commissioner and to the US EPA regional office in Chicago. This report covers all deviations experienced during the calendar year.	Total Facility

APPENDIX I

Insignificant Activities and General Applicable Requirements

The table below lists the insignificant activities that are currently at the facility and their associated general applicable requirements.

Minn. R. 7007.1300, subp.	Rule Description of the Activity	General Applicable Requirement
3(A)	Fuel use: space heaters fueled by, kerosene, natural gas, or propane. *The existing current total capacity is 40,000 Btu/hr.*	Minn. R. 7011.0510/0515
3(H)(2)	equipment used for hydraulic or hydrostatic testing	Minn. R. 7011.0710/0715
3(H)(3)	brazing, soldering, and welding	Minn. R. 7011.0510/ 0515 + Minn. R. 7011.0610 + Minn. R. 7011.0710/0715
4	Potential emissions of 2.28 pounds per hour or actual emissions of one ton per year for particulate matter, particulate matter less than ten microns, nitrogen oxide, sulfur dioxide, and VOCs. *The facility has a fire pump and a small portable generator that qualify under this subpart.*	Minn. R. 7011.2300

APPENDIX II

Turbine Stack Parameters

Source ID	Stack/Vent ID	Stack Height (feet)	Stack Temp (^{o}F)	Flow Rate (acfm)	Stack Diameter (feet)
EU 005	SV 005	55.00	750.0	81,500	3.3 x 4
EU 006	SV 006	55.00	750.0	81,500	3.3 x 4

TECHNICAL SUPPORT DOCUMENT
For Northern Natural Gas Co
AIR EMISSION PERMIT NO. 01700011-004

This technical support document is intended for all parties interested in the permit and to meet the requirements that have been set forth by the federal and state regulations (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:

Facility Mailing & Contact Address	Stationary Source/Address (SIC Code: 4922)
Mr. Ron Beidelman 1650 82nd Street W, Suite 1250 Bloomington, MN 55431 (952) 887-1712	NNG Co – Wrenshall LNG 2301 County Road 1 Wrenshall, MN 55797 Carlton County
Owner Address	
P.O. Box 3330, Omaha, NE 68103-3300	

1.2. Description of the Permit Action

The facility is a liquid natural gas plant on County Road 1 near Wrenshall, Minnesota. The Wrenshall station is used to liquefy and store natural gas for later vaporization and distribution into the underground natural gas pipelines as needed. The facility consists of a compressor/turbine building which houses two natural gas-fired turbines, three natural gas-fired vaporizers, a LNG storage tank with a flare which is used to combust excess gasses from the tank, and several insignificant activities.

This is a Part 70 Reissuance.

1.3 Description of any Changes Allowed with this Permit Issuance

This permit carries forward the authorization to replace the natural-gas fired turbines with identical units. The permit does not authorize an increase of potential emissions.

1.4 Description of All Amendments Issued Since the Issuance of the Last Total Facility Permit

There have been two amendments issued since the initial Part 70 permit was issued in February 2000. Additionally, three administrative amendment applications were received

for changes to facility or owner name or mailing address. These are summarized in Table 1 below.

Table 1. Permit Amendment Description

Permit Number and Issuance Date	Action Authorized
01700011-002 May 6, 2003	This was a non-mandatory re-opening of the permit by the MPCA to change the Title V modeling requirements to reflect the MPCA's 2002 modeling policy. This permit changed the requirements from submittal of a protocol and modeling results, to the submittal of computer dispersion modeling information only. This was a major amendment.
01700011-003 December 20, 2004	This was a major amendment that incorporated the requirements of 40 CFR pt. 60, subp. GG, as they applied to a turbine that had been replaced. It also pre-authorized the replacement of similar natural gas turbine units.
NA	Administrative Amendment Application received Dec. 19, 2001, for name change.
NA	Administrative Amendment Application received July 22, 2002, to change the name of the legally responsible official.
NA	Administrative Amendment Application received Nov. 2, 2002, to change the name of the legally responsible official.

1.5. Facility Emissions:

Table 2. Total Facility Potential to Emit Summary

	PM tpy	PM_{10} tpy	SO_2 tpy	NO_x tpy	CO tpy	VOC tpy	Single HAP tpy	All HAPs tpy
Total Facility Limited Potential Emissions	9.48	9.48	23.4	208	108	5.91	neg	2.14
Total Facility Actual Emissions (2003)	1.34	1.34	0.60	60.5	16.4	0.48	HAPs not reported in emission inventory	

Table 3. Facility Classification

Classification	Major/Affected Source	Synthetic Minor	Minor
PSD			X*
Part 70 Permit Program	X		
Part 63 NESHAP			X

*Existing equipment is true minor; permit authorizes replacement and those provisions include limits on the replacement to keep the source minor (considered synthetic limits for the modification).

2. Regulatory and/or Statutory Basis

New Source Review
The Facility has taken limits to avoid major source classification for New Source Review (40 CFR § 52.21).

Part 70 Permit Program
The facility is a major source under the Part 70 permit program.

New Source Performance Standards (NSPS)
Portions of the facility are subject to 40 CFR pt. 60, subp. GG (Standard of Performance for Stationary Gas Turbines).

National Emission Standards for Hazardous Air Pollutants (NESHAP)
The facility is a non-major source under 40 CFR pt. 63. Thus, no NESHAPs apply.

Minnesota State Rules
Portions of the facility are subject to the following Minnesota Standards of Performance:

- Minn. R. 7011.0510 Standards of Performance for Existing Indirect Heating Equipment
- Minn. R. 7011.0515 Standards of Performance for New Indirect Heating Equipment
- Minn. R. 7011.0610 Standards of Performance for Fossil-Fuel-Burning Direct Heating Equipment
- Minn. R. 7011.0715 Standards of Performance for Post-1969 Industrial Process Equipment
- Minn. R. 7011.1505 Standards of Performance for Storage Vessels
- Minn. R. 7011.2300 Standards of Performance for Stationary Internal Combustion Engines

Table 4. Regulatory Overview of Facility

EU, GP, or SV	Applicable Regulations	Comments
GP 001	Minn. R. 7011.0510	Standards of Performance for Existing Indirect Heating Equipment. Determination of applicable limit from rule: • the units were constructed in 1974 and 1975; • the facility is located outside the cities in Table I; • each unit capacity is less than 250 MMBtu/hr; and • the facility has less than 250 MMBtu/hr of indirect heating equipment.
EU 001	Minn. R. 7011.0610	Standards of Performance for Direct Heating Equipment. Because the facility is located outside of Minneapolis/St. Paul and combusts gaseous fuel, the SO_2 limit from the rule does not apply.

EU, GP, or SV	Applicable Regulations	Comments
EU 005	Minn. R. 7011.2300	Minnesota Standard of Performance for Stationary Internal Combustion Engines. This rule applies in additional to the NSPS.
	40 CFR pt. 60, subp. GG; Minn. R. 7011.2350	New Source Performance Standard for Stationary Gas Turbines. The current turbine was constructed in 1973 and is not subject to this standard; however, the permit authorizes the replacement of this unit, so the replacement may be subject to it in the future. Therefore, the NSPS is included in the permit.
	Title I Condition, 40 CFR § 52.21	Prevention of Significant Deterioration (PSD). Limits taken to avoid major source and modification classification under PSD for the replacement turbine. Without these permit conditions, replacing the turbine would likely make the facility a major source under NSR. This authorization is carried forward from the previous permit.
EU 006	Minn. R. 7011.2300	Minnesota Standard of Performance for Stationary Internal Combustion Engines. This rule applies in additional to the NSPS.
	40 CFR pt. 60, subp. GG; Minn. R. 7011.2350	New Source Performance Standard for Stationary Gas Turbines. The current turbine was constructed in 1980 and is only subject to the SO2 requirements of this rule (constructed prior to Oct. 3, 1982). Future replacement units may be subject to additional portions of the NSPS. This situation is anticipated and covered by the replacement turbine requirements.
	Title I Condition, 40 CFR § 52.21	Prevention of Significant Deterioration (PSD). Limits taken to avoid major source and modification classification under PSD for the replacement turbine. Without these permit conditions, replacing the turbine would likely make the facility a major source under NSR. This authorization is carried forward from the previous permit.
TK 001	Minn. R. 7011.1505, subp. 3(C)(2)	Standards of Performance for Storage Vessels, Post-June 11, 1973. The tank has a capacity greater than 40,000 gallons and stores materials that meet the vapor pressure requirements of subp. 3(C)(2) of this standard.
TK 002	Minn. R. 7011.1505, subp. 3(B)	Standards of Performance for Storage Vessels, Post-June 11, 1973. The tank has a capacity greater than 2,000 gallons but less than or equal to 40,000 gallons.

EU, GP, or SV	Applicable Regulations	Comments
TK 003	Minn. R. 7011.1505, subp. 3(C)(1)	Standards of Performance for Storage Vessels, Post-June 11, 1973. The tank has a capacity greater than 40,000 gallons and stores materials that meet the vapor pressure requirements of subp. 3(C)(1) of this standard.
TK 004	Minn. R. 7011.0715	Standards of Performance for Post 1969 Industrial Process Equipment (IPER). This tank has a capacity is less than or equal to 2000 gallons, so it is not subject to the Minnesota Standard for Storage Vessels. Absent a separate standard, IPER applies.
TK 005	Minn. R. 7011.1505, subp. 3(C)(2)	Standards of Performance for Storage Vessels, Post-June 11, 1973. The tank has a capacity greater than 40,000 gallons and stores materials that meet the vapor pressure requirements of subp. 3(C)(2) of this standard.

3. Technical Information

3.1 Calculations of Potential to Emit

Attachment 2 of this TSD contains detailed spreadsheets and supporting information prepared by both the Permittee and the MPCA. All emissions calculations are based on EPA approved emissions factors from AP-42, fuels burned, and equipment capacity.

The tank emissions are accounted for in the emissions factors for the flare (EU 001), so they are not calculated or listed separately.

3.2 Periodic Monitoring

In accordance with the Clean Air Act, it is the responsibility of the owner or operator of a facility to have sufficient knowledge of the facility to certify that the facility is in compliance with all applicable requirements.

In evaluating the monitoring included in the permit, the MPCA considers the following:

- The likelihood of violating the applicable requirements;
- Whether add-on controls are necessary to meet the emission limits;
- The variability of emissions over time;
- The type of monitoring, process, maintenance, or control equipment data already available for the emission unit;
- The technical and economic feasibility of possible periodic monitoring methods; and
- The kind of monitoring found on similar units elsewhere.

Table 4 summarizes the periodic monitoring requirements for those emission units for which the monitoring required by the applicable requirement is nonexistent or inadequate.

Table 5. Periodic Monitoring

Emission Unit or Group	Requirement (basis)	Additional Monitoring	Discussion
GP 001	PM≤ 0.6 lb/MMBtu Opacity ≤ 20% with exceptions (Minn. R. 7011.0510)	None	All of these units use natural gas; therefore, the likelihood of violating either of the emission limits is very small. Design based PTE for each unit, using AP-42, is 0.007 compared to the rule limit of 0.6 lb/MMBtu.
EU 001	PM: variable, depending on airflow Opacity: ≤ 20 % with exceptions (Minn. R. 7011.0610)	None	Based on AP-42, the PTE of the flare is less than 6% of the allowable emissions rate; therefore, it is highly unlikely that it could violate the applicable requirement.
EU 005	SO_2 ≤ 0.5 lb/MMBtu Opacity ≤ 20 % with exceptions (Minn. R. 7011.2300)	None	Based on AP-42 and natural gas sulfur content, the PTE of the unit is significantly less than the rule limit; therefore, it is highly unlikely that it could violate the applicable requirement.
	SO_2 ≤ 0.015% by vol or Sulfur ≤ 0.8% by wt	NSPS monitoring requirements only	At this time, the Permittee does not have an EPA-approved custom fuel monitoring schedule and intends to follow the requirements in 40 CFR § 60.334(h), when applicable.
	various restrictions on replacement turbine (limits to avoid triggering NSR major source)	Notification plus NSPS monitoring	If the replacement is subject to the NSPS requirements, those monitoring provisions of the permit would apply. In addition, the permit requires a notification of the replacement be sent to the MPCA as well as EPA.
EU 006	SO_2 ≤ 0.5	None	Based on AP-42 and natural gas sulfur

Emission Unit or Group	Requirement (basis)	Additional Monitoring	Discussion
	lb/MMBtu Opacity ≤ 20 % with exceptions (Minn. R. 7011.2300)		content, the PTE of the unit is significantly less than the rule limit; therefore, it is highly unlikely that it could violate the applicable requirement.
	SO_2 ≤ 0.015% by vol or Sulfur ≤ 0.8% by wt	NSPS monitoring requirements only	At this time, the Permittee does not have an EPA-approved custom fuel monitoring schedule and intends to follow the requirements in 40 CFR § 60.334(h), when applicable.
	various restrictions on replacement turbine (limits to avoid triggering NSR major source)	Notification plus NSPS monitoring	If the replacement is subject to the NSPS requirements, those monitoring provisions of the permit would apply. In addition, the permit requires a notification of the replacement be sent to the MPCA as well as EPA.
TK 001-003, 005	Requirement to have vapor recovery system, or other option as allowed by rule	None	All tanks are controlled by the flare and meet the requirements for having a vapor recovery system.
TK 004	PM: variable, depending on airflow Opacity: ≤ 20% (Minn. R. 7011.0715)	None	This rule applies as a default since no other standard applies. The tank is not reasonably expected to generate particulate matter or opacity.

3.3 Insignificant Activities

NNG has several operations which are classified as insignificant activities. These are listed in Appendix I to the permit.

The permit is required to include periodic monitoring for all emissions units, including insignificant activities, per EPA guidance. The insignificant activities at this Facility are

only subject to general applicable requirements. Using the criteria outlined earlier in this TSD, the following table documents the justification why no additional periodic monitoring is necessary for the current insignificant activities. See Attachment 2 of this TSD for PTE information for the insignificant activities.

Table 6. Insignificant Activities

Insignificant Activity	General Applicable Emission limit	Discussion
Fuel use: space heaters fueled by, kerosene, natural gas, or propane	PM $\leq$ 0.6 or 0.4, depending on year constructed Opacity $\leq$ 20% with exceptions (Minn. R. 7011.0510/515)	For this unit, based on the fuels used and EPA published emissions factors, it is highly unlikely that it could violate the applicable requirement. In addition, these types of units are typically operated and vented inside a building, so testing for PM or opacity is not feasible.
Equipment used for hydraulic or hydrostatic testing	PM, variable depending on airflow Opacity $\leq$ 20% (Minn. R. 7011.0710/715)	While no known emissions estimation method exists for these units, based on general knowledge of how they operate, it is highly unlikely that they could generate particulate matter. In addition, these units would be operated and vented directly into a building, so testing is not feasible.
Brazing, soldering or welding equipment	PM, variable depending on airflow Opacity $\leq$ 20% (Minn. R. 7011.0710/715)	For these units, based on EPA published emissions factors, it is highly unlikely that they could violate the applicable requirement. In addition, these units are typically operated and vented inside a building, so testing for PM or opacity is not feasible.
Individual units with actual emissions less than 2000 lb/year of certain pollutants	SO_2 < 0.5 lb/MMBtu Opacity $\leq$ 20% (Minn. R. 7011.2300)	For these units, based on the fuels used and EPA published emissions factors, it is highly unlikely that they could violate the applicable requirements.

3.4 Permit Organization

Generally, the permit meets the MPCA Delta Guidance for ordering and grouping of requirements. The permit does have one group, GP 001, which is used to list requirements that apply separately to each member of the group. The rule listed is a general applicable requirement and the margin of compliance is significant. It is highly unlikely that the MPCA would need to track a violation of any of one member of this group with the applicable limits.

3.5 Comments Received

Public Notice Period: August 25, 2005 – September 23, 2005
EPA 45-day Review Period: August 25, 2005 – October 10, 2005
Comments were not received either from the public during the public notice period or from EPA during their review period.

4. Conclusion

Based on the information provided by Northern Natural Gas Co, the MPCA has reasonable assurance that the proposed operation of the emission facility, as described in the Air Emission Permit No. 01700011-004 and this technical support document, will not cause or contribute to a violation of applicable federal regulations and Minnesota Rules.

Staff Members on Permit Team: Peggy Bartz (permit engineer)
Bob Beresford (enforcement)
Marshall Cole (peer reviewer)

Attachments:
1. PTE Summary and Calculation Spreadsheets
2. Facility Description and CD-01 Forms
3. Copies of Select Calculations from the Permittee's Submittals

ATTACHMENT 1
PTE SUMMARY AND EMISSIONS CALCULATIONS

ATTACHMENT 2
FACILITY DESCRIPTION AND COMPLIANCE PLAN
(CD-01 and Delta printouts, paper copy only)

ATTACHMENT 3
SELECT COPIES OF PERMITTEE'S CALCULATIONS
(paper copy only)