

**AIR EMISSION PERMIT NO. 11100016- 005**

**IS ISSUED TO**

Viking Gas Transmission Co

**VIKING GAS TRANSMISSION - FRAZEE**

37497 State Highway 228

Frazee, Becker County, MN 56544

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):

<b>Permit Type</b>	<b>Application Date</b>	<b>Issuance Date</b>	<b>Expiration Date</b>
Total Facility Operating - PER 001	09/15/1995	10/08/1997	10/08/2002
Major Amendment – PER 002	09/15/1995	10/08/1997	10/08/2002
Administrative Amendment - PER 003	Not listed	08/28/1999	10/08/2002
Total Facility Operating - PER 004	10/02/2002	08/13/2003	08/13/2008
Major Amendment - PER 005	05/02/2006	See below	See below

This permit supersedes Permit No. 111100016-004 and 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; Pt 70/Major for NSR

**Issue Date:** May 23, 2007

**Expiration:** 08/13/2008  
All Title I Conditions do not expire.

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

for Brad Moore  
Commissioner  
Minnesota Pollution Control Agency

## **TABLE OF CONTENTS**

**Notice to the Permittee**

**Permit Shield**

**Facility Description**

**Table A: Limits and Other Requirements**

**Table B: Submittals**

**Table C: Compliance Schedule (not used in this permit action)**

**Appendices: Attached and Referenced in Table A**

**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:**

This facility is located on a natural gas pipeline with compressor stations located from north to south, at Humboldt, Angus, Ada, Frazee, Cushing, and Milaca.

The Frazee facility is a natural gas compressor station consisting of three 2-stroke lean burn reciprocating internal combustion compressor engines (Emission Unit – EU 001, EU 002, and EU 003), one lean pre-mix combustion turbine compressor engine (EU 006), one 4-stroke rich burn reciprocating internal combustion engine emergency generator (EU 004), and one water jacket heater (EU 005). All units combust only pipeline natural gas obtained from the pipeline. The four compressors pressurize the natural gas in the pipeline causing it to flow to the next compressor station. The water jacket heater provides heat when the compressor engines and turbine are not operating.

**MAJOR AMENDMENT DESCRIPTION:**

Permit action 005 (PER 005) is a major amendment to remove sulfur monitoring requirements that currently applies to combustion turbine compressor engine (Emission Unit - EU 006) at Viking Gas Transmission Company – Frazee facility. This is due to recent EPA's revision to 40 CFR Part 60, subpart GG at 40 CFR § 60.334(h)(3) which states that the owner or operator may elect not to monitor the total sulfur content of the gaseous fuel combusted in the turbine if the gaseous fuel meets the definition of natural gas in 40 CFR § 60.331(u). The revised rule allows the use of the current tariff sheet specifying the maximum total sulfur content of the fuel is 20.0 grains per 100 standard cubic feet (scf) or less.

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

A-1

05/23/07

Facility Name: Viking Gas Transmission - Frazee

Permit Number: 11100016 - 005

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

**Subject Item: Total Facility**

<b>What to do</b>	<b>Why to do it</b>
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
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
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
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
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.	Minn. Stat. Section 116.07, subd. 4a; Minn. R. 7007.0100; Minn. R. 7007.0800, subp.2; Minn. R. 7011.0150; Minn. R. 7009.0020
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)
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)

**TABLE A: LIMITS AND OTHER REQUIREMENTS****A-2**

05/23/07

Facility Name: Viking Gas Transmission - Frazee

Permit Number: 11100016 - 005

Recordkeeping: Retain all records at the stationary source, or a designated site, for a period of five (5) years from the date of monitoring, sample, measurement, or report. Records which must be retained at the stationary source, or a designated site, 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 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. 7019.3010
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****A-3**

05/23/07

Facility Name: Viking Gas Transmission - Frazee

Permit Number: 11100016 - 005

**Subject Item: GP 001 Reciprocating Internal Combustion Engines (RICE)**

**Associated Items:** EU 001 RICE #1A 2SLB Worthington 13 mmBtu/hr  
 EU 002 RICE #2A 2SLB Worthington 13 mmBtu/hr  
 EU 003 RICE #3A 2SLB Worthington 13 mmBtu/hr  
 EU 004 RICE-Emergency Generator 4SRB 3 mmBtu/hr  
 EU 006 Turbine Engine #1 lean pre-mix Solar 45 mmBtu/hr

What to do	Why to do it
Sulfur Dioxide: less than or equal to 0.5 lbs/million Btu heat input (applies individually to each emission unit in GP 001).	Minn. R. 7011.2300, subp. 2
Opacity: less than or equal to 20 percent opacity once operating temperatures have been attained (applies individually to each emission unit in GP 001).	Minn. R. 7011.2300, subp. 1
Fuel Type Restriction: Pipeline natural gas only	Minn. R. 7007.0800, subp. 2
<p>Temporary Reciprocating Internal Combustion Engines (TRICE): The Permittee may operate a pipeline natural gas-fired two-stroke lean burn TRICE at the facility in place of EU 001, 002, or 003 for up to 12 consecutive months.</p> <p>TRICE shall:</p> <ol style="list-style-type: none"> <li>1. meet requirements of 40 CFR part 63, subp. ZZZZ when and if applicable;</li> <li>2. meet all applicable requirements in this subject item;</li> <li>3. exhaust through a stack with a height no less, a diameter no greater, and an exhaust temperature no less than the stack for the RICE it replaces;</li> <li>4. not operate at the same time as the engine it replaces, except for up to eight hours during startup and shutdown transitions;</li> <li>5. have potential emission rates (in lb/hr) for all pollutants equal to or less than permit emission limits and potential emission rates of the engine it replaces.</li> </ol> <p>For each TRICE record start &amp; stop dates, manufacturer, model &amp; serial numbers, and the lb/hr potential emission rates for all pollutants.</p>	Minn. R. 7007.0800, subp. 2
Refer to Subject Item EU 004 and EU 006 for additional requirements that apply to EU 004 and EU 006	hdr

**TABLE A: LIMITS AND OTHER REQUIREMENTS****A-4**

05/23/07

Facility Name: Viking Gas Transmission - Frazee

Permit Number: 11100016 - 005

**Subject Item:** EU 004 RICE-Emergency Generator 4SRB 3 mmBtu/hr**Associated Items:** GP 001 Reciprocating Internal Combustion Engines (RICE)

SV 004 Reciprocating Engine Emergency Generator

What to do	Why to do it
Operating Hours: less than or equal to 720 hours/year for EU004 when EU001, EU002, EU003, or EU006 are in operation. This is a state only requirement and is not enforceable by the EPA Administrator and citizens under the Clean Air Act. In this requirement, hours/year means hours/calendar year.	Minn. R. 7009.0020; Minn. R. 7009.0080
Recordkeeping: By the end of each month, calculate and record the EU004 operating hours for the previous month, for all periods when EU001, EU002, EU003, or EU006 were also operating. By January 30th of each calendar year, calculate and record the EU004 operating hours for the previous year, for all periods when EU001, EU002, EU003, or EU006 were also operating.	Minn. R. 7007.0800, subp. 5(C)



**TABLE A: LIMITS AND OTHER REQUIREMENTS****A-5**

05/23/07

Facility Name: Viking Gas Transmission - Frazee

Permit Number: 11100016 - 005

**Subject Item:** EU 005 Water Jacket Heater (Insignificant Activity)**Associated Items:** SV 005 Water Jacket Heater

What to do	Why to do it
Total Particulate Matter: less than or equal to 0.6 lbs/million Btu heat input	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.	Minn. R. 7011.0510, subp. 2
Operating Hours: less than or equal to 2150 hours/year for EU 005 when EU 001, EU 002, EU 003, or EU 006 are in operation, on a calendar year basis. This is a state only requirement and is not enforceable by the EPA Administrator and citizens under the Clean Air Act. In this requirement, hours/year means hours/calendar year.	Minn. R. 7009.0020; Minn. R. 7009.0080
Recordkeeping: By the end of each month, calculate and record the EU 005 operating hours for the previous month, for all periods when EU 001, EU 002, EU 003, or EU 006 were also operating. By January 30th of each calendar year, calculate and record the EU 005 operating hours for the previous year, for all periods when EU 001, EU 002, EU 003, or EU 006 are operating.	Minn. R. 7007.0800, subp. 5(C)
Fuel Type Restriction: Natural Gas Only	Minn. R. 7007.0800, subp. 2

**TABLE A: LIMITS AND OTHER REQUIREMENTS****A-6**

05/23/07

Facility Name: Viking Gas Transmission - Frazee

Permit Number: 11100016 - 005

**Subject Item:** EU 006 Turbine Engine #1 lean pre-mix Solar 45 mmBtu/hr**Associated Items:** CE 001 Other

GP 001 Reciprocating Internal Combustion Engines (RICE)

SV 006 Turbine Engine #1

What to do	Why to do it
<p>Turbine Compressor Engine Replacement and Reconstruction:</p> <p>The Permittee is authorized to replace any or all of the components for maintenance purposes at manufacturer's specified time intervals. Replacement of components meeting the definition of 'reconstruction' as defined at 40 CFR Section 60.15, triggers requirements of 40 CFR part 60, subpart KKKK for reconstructed affected facilities.</p> <p>Requirements specific to subpart GG are listed under headings containing the phrase 'NO RECONSTRUCTION'. Requirements specific to subpart KKKK are listed under headings containing the phrase 'RECONSTRUCTION'.</p> <p>Requirements listed under headers that are silent regarding reconstruction, apply regardless if there is reconstruction.</p> <p>(continued below)</p>	Minn. R. 7007.0800, subp. 2
<p>Turbine Replacement and Reconstruction (continued from above):</p> <p>If subpart KKKK requirements are triggered due to reconstruction, the Permittee is no longer subject to subpart GG, and shall meet the subpart KKKK requirements in this subject item.</p> <p>This authorization is not for installation of an additional turbines or engines, does not permit operation of more than one turbine at the facility, does not allow an increase in the emission rate (lb/hr, tpy, lb/hp-hr, lb/mmBtu, etc.) of any pollutant, and does not permit a complete replacement of the entire stationary turbine engine as defined at 40 CFR Section 60.4420.</p> <p>This replacement shall not trigger any new applicable requirements not contained in this permit. The Permittee shall comply with all existing applicable permit conditions.</p>	Minn. R. 7007.0800, subp. 2
EMISSION LIMITS	hdr
Opacity: less than or equal to 20% 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
RECORDKEEPING	hdr
Any owner or operator subject to the provisions of this part shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility; 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)
Retain Records: Any owner or operator subject to the provisions of this part shall maintain records of the occurrence and duration of any malfunction in the operation of an affected facility, any malfunction in the operation 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)
EMISSION LIMITS - NO RECONSTRUCTION	hdr
Sulfur Dioxide: less than or equal to 0.015 percent by volume at 15 percent oxygen and on a dry basis. Or, the Permittee can choose to comply with limit for Sulfur Content of Fuel (see below).	40 CFR Section 60.333(a); Minn. R. 7011.2350
Sulfur Content of Fuel: less than or equal to 0.8 percent by weight .	40 CFR Section 60.333(b); Minn. R. 7011.2350
MONITORING - NO RECONSTRUCTION	hdr

**TABLE A: LIMITS AND OTHER REQUIREMENTS**
**A-7**

05/23/07

Facility Name: Viking Gas Transmission - Frazee

Permit Number: 11100016 - 005

<p>Fuel Monitoring: The Permittee shall follow the applicable fuel sulfur and nitrogen content monitoring requirements in Section 60.334(h) and shall monitor at the frequency specified in 60.334(i).</p> <p>40 CFR Section 60.334(h)(3) allows the owner or operator to not monitor total sulfur content of gaseous fuel if the fuel is shown to meet the definition of natural gas as defined in Section 60.331(u), regardless of whether an existing custom schedule approved by the administrator for subpart GG requires such monitoring.</p> <p>The Permittee has shown the gas quality characteristics in a current tariff sheet for the gaseous fuel, specifying that the maximum total sulfur content of the fuel is 20.0 grains/100 scf or less.</p> <p>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 of zero is claimed in the applicable equation in Section 60.332.</p>	40 CFR Sections 60.334(h) and (i); Minn. R. 7011.2350
<b>TURBINE COMPRESSOR ENGINE - NO RECONSTRUCTION</b>	hdr
<p>Temporary Combustion Turbine Compressor Engine (TCT): The Permittee may install and operate a pipeline natural gas-fired TCT in place of EU 006 for up to 12 consecutive months. The TCT shall:</p> <ol style="list-style-type: none"> <li>1. meet all applicable requirements in this subject item;</li> <li>2. 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 TCT commenced on or after October 3, 1982;</li> <li>3. conduct NOx testing as required by 40 CFR Sections 60.335 and 60.8, if initial construction or reconstruction of the TCT commenced on or after October 3, 1982, and NOx testing has not been conducted after the construction or reconstruction;</li> <li>4. exhaust through a stack with dispersion characteristics equal to or better than SV 006;</li> </ol> <p>(continued)</p>	Minn. R. 7007.0800, subp. 2
<p>Temporary Combustion Turbine Compressor Engine (TCT) - continued:</p> <ol style="list-style-type: none"> <li>5. restrict simultaneous operation with EU 006 to eight hours during startup and shutdown transitions;</li> <li>6. have potential emission rates (in lb/hr) for all pollutants equal to or less than permit emission limits and potential emission rates of EU 006.</li> </ol> <p>For each TCT notify the MPCA and U.S. EPA Chicago prior to installation, and record start and stop dates, manufacturer, model and serial numbers, lb/hr potential emission rates for all pollutants, and 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 TCT.</p>	Minn. R. 7007.0800, subp. 2
<p>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 006 (the RCT becomes EU 006 upon replacement). The RCT shall:</p> <ol style="list-style-type: none"> <li>1. only be a Solar model 40-T4700S lean pre-mix unit;</li> <li>2. meet applicable emission limits and fuel requirements in this subject item;</li> <li>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, or the NOx limit in 40 CFR subpart KKKK if initial construction or reconstruction occurs after February 18, 2005;</li> <li>4. 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;</li> </ol> <p>(continued)</p>	Minn. R. 7007.0800, subp. 2
<p>Replacement Combustion Turbine Compressor Engine (RCT) - continued:</p> <ol style="list-style-type: none"> <li>5. exhaust through a stack with dispersion characteristics equal to or better than SV 006;</li> <li>6. have potential emission rates (in lb/hr) for all pollutants equal to or less than permit emission limits and potential emission rates of EU 006.</li> </ol> <p>The Permittee shall notify the MPCA and the US. 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.</p>	Minn. R. 7007.0800, subp. 2
<b>EMISSION LIMITS - RECONSTRUCTION</b>	hdr

**TABLE A: LIMITS AND OTHER REQUIREMENTS****A-8**

05/23/07

Facility Name: Viking Gas Transmission - Frazee

Permit Number: 11100016 - 005

Nitrogen Oxides: less than or equal to 42 parts per million dry by volume at 15% oxygen.	40 CFR Section 60.4320(a) and Part 60, subpart KKKK Table 1
Sulfur Dioxide: less than or equal to 0.06 lbs/million Btu heat input or 0.90 lb/megawatt-hour gross output.	40 CFR Section 60.4330(a)
MONITORING - RECONSTRUCTION	hdr
Perform annual performance tests in accordance with Section 60.4440 to demonstrate continuous compliance. If the NOx emission result from the performance test is less than or equal to 75% of the NOx emission limit for the turbine, you may reduce the frequency of subsequent performance tests to once every 2 years (no more than 26 calendar months following the previous performance test). If the results of any subsequent test exceed 75% of the NOx emission limit for the turbine, you must resume annual performance tests.	40 CFR Section 60.4340(a)
As an alternative to Section 60.4340(a) performance testing requirements, the facility may install, calibrate, maintain and operate one of the following continuous monitoring systems: (1) Continuous emission monitoring as described in Sections 60.4335(b) and 60.4345, or (2) Continuous parameter monitoring as follows: For any lean premix stationary combustion turbine, the facility must continuously monitor the appropriate parameters to determine whether the unit is operating in low-NOx mode.	40 CFR Section 60.4340(b)
PERFORMANCE TESTING - RECONSTRUCTION	hdr
Performance Test: due 180 days after Initial Startup and reconstruction of EU 006.	40 CFR Sections 60.8(a) and 60.4440; Minn. R. 7017.2020, subp. 1
Performance Test: due 365 days after Initial Performance Test or most recent Performance Test.	40 CFR Sections 60.8(a) and 60.4440; Minn. R. 7017.2020, subp. 1
REPORTING - RECONSTRUCTION	hdr
TURBINE COMPRESSOR ENGINE - RECONSTRUCTION	hdr
EU 006 Turbine Replacement Authorization:  If replacement of components qualifies EU 006 as a reconstructed facility for purposes of Part 60, subpart KKKK, the Permittee shall follow the applicable subp. KKKK requirements in this subject item instead of the subp. GG requirements.  The Permittee will furnish notifications and reports and conduct a NOx test in the required timeframe according to Part 60 subp. A, subparts GG or KKKK (whichever is applicable), and Minn. R. chapter 7017.  (continued below)	Minn. R. 7007.0800, subp. 2
EU 006 Turbine Replacement Authorization (continued):  The turbine engine will continue to be designated as EU 006 regardless if these components have been replaced, and the turbine engine shall continue to be subject to all applicable requirements listed under subject item EU 006.	Minn. R. 7007.0800, subp. 2
Turbine Component Replacement Recordkeeping:  The Permittee shall record the date and nature of each component replacement no later than the day after completion of each replacement. Records shall include the total cost of the component replacement compared to the cost of an entire new turbine as defined at 40 CFR Section 60.4420.	Minn. R. 7007.0800, subp. 5

**TABLE B: SUBMITTALS****B-1** 05/23/07

Facility Name: Viking Gas Transmission - Frazee

Permit Number: 11100016 - 005

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.

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

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

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.

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

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

TABLE B: ONE TIME SUBMITTALS OR NOTIFICATIONS

Facility Name: Viking Gas Transmission - Frazee  
Permit Number: 11100016 - 005

What to send	When to send	Portion of Facility Affected
Application for Permit Reissuance	due 180 days before expiration of Existing Permit	Total Facility
Performance Test Report	due 60 days after Performance Test or most recent Performance Tests.	EU006

**TABLE B: RECURRENT SUBMITTALS****B-3** 05/23/07

Facility Name: Viking Gas Transmission - Frazee

Permit Number: 11100016 - 005

<b>What to send</b>	<b>When to send</b>	<b>Portion of Facility Affected</b>
Semiannual Deviations Report	due 30 days after end of each calendar half-year starting 10/08/1997 . 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 starting 10/08/1997 (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

**APPENDIX MATERIAL**

Facility Name: Viking Gas Transmission - Frazee

Permit Number: 11100016-005

**INSIGNIFICANT ACTIVITIES REQUIRED TO BE LISTED:**

**A.** Minn. R. 7007.1300, subp. 3A - Space Heaters subject to Minn. R. 7011.0515 opacity and PM limits:

3 @ 160,000 Btu/hr each in shop building

2 @ 170,000 Btu/hr each in warehouse

1 @ 324,000 Btu/hr in turbine building

1 @ 50,000 Btu/hr in office

1 @ 36,000 Btu/hr in restroom

1 @ 42,000 Btu/hr in control room

**B.** Minn. R. 7007.1300, subp. 3H(1) - less than 200 gal/yr usage of VOC-containing material

**C.** Minn. R. 7007.1300, subp. 3H(4) - welder and acetylene torch

**D.** Minn. R. 7007.1300, subp. 4 - EU 005 water jacket heater subject to Minn. R. 7011.0515 opacity and Pm limits



**TECHNICAL SUPPORT DOCUMENT**  
**For**  
**AIR EMISSION PERMIT NO. 11100016-005**

This Technical Support Document (TSD) 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 determination to issue the permit.

**1. General Information**

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

Applicant/Address	Stationary Source/Address (SIC Code: <b>4922</b> )
Owner: Viking Gas Transmission Company 13710 FNB Parkway Omaha, NE 68154 Mr. Michel E. Nelson, VP Operations Phone: (402) 492-7455	37497 State Highway 228 Frazee Becker County
Contact: Kyle Jantzen Phone: (918) 732-1388 Fax: (918) 588-7620	

**1.2. Description of the facility:**

The Frazee facility is located on a natural gas pipeline with compressor stations located from north to south, at Humboldt, Angus, Ada, Frazee, Cushing, and Milaca.

The Frazee facility is a natural gas compressor station consisting of three 2-stroke lean burn reciprocating internal combustion compressor engines (Emission Unit – EU 001, EU 002, and EU 003), one lean pre-mix combustion turbine compressor engine (EU 006), one 4-stroke rich burn reciprocating internal combustion engine emergency generator (EU 004), and one water jacket heater (EU 005). All units combust only pipeline natural gas obtained from the pipeline. The four compressors pressurize the natural gas in the pipeline causing it to flow to the next compressor station. The water jacket heater provides heat when the compressor engines and turbine are not operating.

### **1.3 Description of the Activities Allowed by this Permit Action:**

This major permit amendment changes the sulfur content monitoring requirements for compressor turbine engine emission unit 006 (EU 006) at Frazee facility of Viking Gas Transmission Company. This is due to recent U.S. Environmental Protection Agency's (EPA) revision to 40 CFR § 60.334(h)(3) which states that the owner or operator may elect not to monitor the total sulfur content of the gaseous fuel combusted in the turbine if the gaseous fuel meets the definition of natural gas in 40 CFR § 60.331(u). The revised rule allows the use of the current tariff sheet specifying the maximum total sulfur content of the fuel is 20.0 grains per 100 standard cubic feet (scf) or less. The current tariff sheet of the Frazee facility shows the natural gas content meets the requirement for the sulfur content; therefore, the Permittee is not required to monitor the total sulfur content of the natural gas.

A requirement authorizing the use of temporary reciprocating internal combustion compressor engines and a temporary combustion turbine compressor engine had been added to previous permit (Permit # 11100016-004). The Permittee will use a temporary engine in place of a permanent engine when repairs are being made to a permanent engine.

### **1.4. Facility Emissions:**

**Table 1. Total Facility Potential to Emit Summary:**

	PM	PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>x</sub>	CO	VOC	Pb	Formalde- hyde	Total HAPs
	tpy	tpy	tpy	tpy	tpy	tpy	tpy	tpy	tpy
Total Facility Limited Potential Emissions	7.9	7.9	0.8	427.0	127.9	27.4	0	9.59	15.1
Total Facility Actual Emissions*	6.64	6.64	0.39	404.29	49.42	15.2	0	NR	NR

\*2005 Emission Inventory Data

**Table 2. Total Facility (TF) and Permit Classification**

Classification	Major/Affected Source	Synthetic Minor	Minor
PSD	NO <sub>x</sub>		PM, PM <sub>10</sub> , SO <sub>2</sub> , CO, VOC, Pb
NAAR	NA	NA	NA
Part 70 Permit Program	NO <sub>x</sub> , CO		PM <sub>10</sub> , SO <sub>2</sub> , VOC, Pb Single HAP, Total HAP

## 2. Regulatory and/or Statutory Basis:

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

**Table 3. Regulatory Overview of Facility**

EU, GRP, or SV #	Applicable Regulations	Comments:
GP 001	Minn. R. 7007.0800, subp. 2  Minn. R 7011.2300	Provision for temporary reciprocating internal combustion compressor engines  Fuel restricted to pipeline natural gas  Standards of performance for stationary internal combustion engines
EU 004	Minn. R. 7009.0020	Operating hours limit to avoid NOx NAAQS violation
EU 005	Minn. R. 7009.0020  Minn. R. 7011.0510  40 CFR pt. 63, subp. DDDDD	Operating hours limit to avoid NOx NAAQS violation  Standards of performance for existing indirect heating equipment  National emission standards for Hazardous Air Pollutants (HAPs) for industrial, commercial, and institutional boilers & process heaters.
EU 006	Minn. R. 7007.0800, subp. 2  40 CFR pt. 60, subp. GG  40 CFR pt. 60, subp. KKKK	Provision for temporary combustion turbine compressor engine  Fuel restricted to pipeline natural gas  National emission standards of performance for stationary gas turbines.  Standards of Performance for Reconstructed Natural Gas Combustion Turbines.

### **3. Technical Information:**

#### **New Source Review (NSR):**

The Frazee facility is an existing major source under the NSR permitting program, but this permitting action does not trigger any NSR permitting requirements. Although EU 006 was installed in 1997, oxides of nitrogen (NO<sub>x</sub>) testing in 2005 demonstrated that NO<sub>x</sub> emissions were not significant (NO<sub>x</sub> was measured at 2.12 pounds per hour (lb/hr)).

#### **New Source Performance Standards (NSPS):**

EU 006 is subject to 40 CFR pt. 60 subp. GG for gas turbines. However, it was determined to be exempt from the NO<sub>x</sub> requirement in 40 CFR § 60.332 during a previous permitting action (Air Emission Permit No. 11100016-001) because the original date of manufacture is before October 3, 1982.

Requirements to ensure compliance with the NO<sub>x</sub> limit and performance testing requirements in 40 CFR subp. GG are included, in case the temporary or replacement gas turbine was manufactured or reconstructed after October 3, 1982.

Standard industry practice with gas turbine maintenance is the scheduled overhaul of components as recommended by the turbine manufacturer after a given number of operating hours. This permit authorizes the replacement of turbine components (i.e. the compressor, gas generator, and power turbine) with similar components. The authorization does not extend to replacement that would increase the hourly emission rate, trigger new applicable requirements, or result in noncompliance with existing permit conditions. Among other things, these restrictions ensure that a replacement does not constitute a modification or reconstruction under 40 CFR Part 60. These restrictions also ensure that the Frazee facility's potential to emit NO<sub>x</sub> does not increase and continues to remain below the NSR major source thresholds.

**Part 63 NESHAP and HAPs:** Based on AP-42 formaldehyde emission factors, the Frazee facility's potential emissions of formaldehyde are slightly less than 10 tons per year (9.59 tpy). The Permittee has indicated that it will conduct formaldehyde testing to verify the emission factors, and the facility status pertaining to the part 63 major source level after the effective date but before the first compliance date of part 63 subp. YYYY (combustion turbine Maximum Achievable Technology (MACT)).

Note that EU 006 (Solar gas turbine compressor) is an existing lean pre-mix combustion turbine which would be an affected facility if it is a major HAP source or is located at a major HAP source. According to the Permittee, the rated power output is 4,719 horse power (hp) which is approximately 3.5 MW based on the Permittee's conversion factor of 0.746 kilowatt-hour per 1 hp-hour; therefore EU 006 will be an affected facility as defined in Part 63 subp. YYYY. However, the existing turbine at Frazee facility is not subject to any requirements and no initial notification is required.

None of the existing three 2-stroke lean burn spark ignition reciprocating engines at the Frazee facility will be subject to the subp. ZZZZ Reciprocating Internal Combustion Engine (RICE) MACT. This is because the RICE are existing units and the rule at 40 CFR § 63.6590(b)(2)(i) exempts these units. In addition, the water jacket heater is not subject to the industrial boiler MACT at part 63 subp. DDDDD because it is an existing process heater and the rule at 40 CFR § 63.7506(c)(3) exempts this unit.

For RICE total HAP emission data in Delta, total HAP emissions were calculated using a total HAP emission factor (8.6712 E-02 lb/mmBtu) for the 2-stroke lean burn engines (EU 001 - 003). This factor is a sum of the HAP factors in AP-42 Table 3.2-1, and includes formaldehyde (5.52 E-02 pounds per million British thermal unit (lb/mmBtu)).

For combustion turbine total HAP emissions data in Delta, total HAP emission were calculated using a total HAP emission factor (1.0273 E-03 lb/mmBtu) for EU 006 pipeline natural gas-fired gas turbine. This factor is a sum of the HAP factors in AP-42 Table 3.1-3, and includes formaldehyde (7.1 E-04 lb/mmBtu).

Environmental Review: This permitting action does not require environmental review.

Minn. R. ch. 7007 and NAAQS: EU 004 and EU 005 operating hours limits are necessary to ensure that the Frazee facility does not cause or contribute to a violation of the annual NO<sub>x</sub> national ambient air quality standard. These limits were incorporated into the original title V permit by a major amendment in 1999, based on the results of NO<sub>x</sub> modeling required by Air Emission Permit No.11100016-001.

Minnesota Standards of Performance: The engines are subject to the Internal Combustion Rule at 7011.2300, and the water jacket heater is subject to the Minn. Indirect Heating Equipment Rule at 7011.0500.

Part 64 Compliance Assurance Monitoring (CAM): The Frazee facility is a major source under part 70, but does not use control equipment to comply with an applicable standard. Therefore, CAM does not apply to the Frazee facility.

#### **4. Comments Received:**

Public Notice Period: 3/9/2007 – 4/9/2007

EPA 45-day Review Period: 3/9/2007 – 4/23/2007

Comments were not received from the public during the public notice period. Changes to the permit were not made as a result of the comments.

The permit was sent to EPA for their 45-day review on 3/9/2007. Comments were not received from EPA during their review period. Changes to the permit were not made as a result of the comments.

#### **5. Conclusion:**

Based on the information provided by Viking Gas Transmission Company, the MPCA has reasonable assurance that the proposed operation of the emission facility, as described in the Air Emission Permit No. 11100016-005, and this TSD, will not cause or contribute to a violation of applicable federal regulations and Minnesota Rules.

Staff Members on Permit Team:    Hien Le (permit writer/engineer)  
    Cary Hernandez (enforcement)  
    Andrew Place (stack testing)  
    Marshall Cole (peer reviewer)

AQ File No. 366D; DQ 1036, Permit # 11100016-005

Attachments: Facility Description and CD-01 Forms