

STATE OF MISSOURI



DEPARTMENT OF NATURAL RESOURCES

MISSOURI AIR CONSERVATION COMMISSION

PERMIT TO CONSTRUCT

Under the authority of RSMo 643 and the Federal Clean Air Act the applicant is authorized to construct the air contaminant source(s) described below, in accordance with the laws, rules and conditions as set forth herein.

Permit Number: **102008-005** Project Number: 2007-06-085

Parent Company: **Rockies Express Pipeline, LLC**

Parent Company Address: **370 Van Gordon Street, Lakewood, CO 80228**

Installation Name: **Mexico Compressor Station**

Installation Address: **7676 Audrain Road 441, Mexico, MO 65280**

Location Information: **Audrain County, S2, T51N, R8W**

Application for Authority to Construct was made for:
The construction of a new gas pipeline compressor station. This review was conducted in accordance with Section (6), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

-
- Standard Conditions (on reverse) are applicable to this permit.
 - Standard Conditions (on reverse) and Special Conditions are applicable to this permit.

OCT 22 2008

EFFECTIVE DATE

DIRECTOR OR DESIGNEE
DEPARTMENT OF NATURAL RESOURCES

2001 11/17

STANDARD CONDITIONS:

Permission to construct may be revoked if you fail to begin construction or modification within two years from the effective date of this permit. Permittee should notify the Air Pollution Control Program if construction or modification is not started within two years after the effective date of this permit, or if construction or modification is suspended for one year or more.

You will be in violation of 10 CSR 10-6.060 if you fail to adhere to the specifications and conditions listed in your application, this permit and the project review. In the event that there is a discrepancy between the permit application and this permit, the conditions of this permit shall take precedence. Specifically, all air contaminant control devices shall be operated and maintained as specified in the application, associated plans and specifications.

You must notify the departments' Air Pollution Control Program of the anticipated date of start up of this (these) air contaminant source(s). The information must be made available not more than 60 days but at least 30 days in advance of this date. Also, you must notify the Department of Natural Resources Regional office responsible for the area within which you are located within 15 days after the actual start up of this (these) air contaminant source(s).

A copy of this permit and permit review shall be kept at the installation address and shall be made available to Department of Natural Resources' personnel upon request.

You may appeal this permit or any of the listed special conditions to the Administrative Hearing Commission (AHC), P.O. Box 1557, Jefferson City, MO 65102, as provided in RSMo 643.075.6 and 621.250.3. If you choose to appeal, you must file a petition with the AHC within 30 days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed. If it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC.

If you choose not to appeal, this certificate, the project review and your application and associated correspondence constitutes your permit to construct. The permit allows you to construct and operate your air contaminant source(s), but in no way relieves you of your obligation to comply with all applicable provisions of the Missouri Air Conservation Law, regulations of the Missouri Department of Natural Resources and other applicable federal, state and local laws and ordinances.

The Air Pollution Control Program invites your questions regarding this air pollution permit. Please contact the Construction Permit Unit at (573) 751-4817. If you prefer to write, please address your correspondence to the Missouri Department of Natural Resources, Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176, attention: Construction Permit Unit.

STATE OF MISSOURI



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Permit No.	
Project No.	2007-06-085

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

The special conditions listed in this permit were included based on the authority granted the Missouri Air Pollution Control Program by the Missouri Air Conservation Law (specifically 643.075) and by the Missouri Rules listed in Title 10, Division 10 of the Code of State Regulations (specifically 10 CSR 10-6.060). For specific details regarding conditions, see 10 CSR 10-6.060 paragraph (12)(A)10. "Conditions required by permitting authority."

Mexico Compressor Station
Audrain County, S2, T51N, R8W

1. Standby Generator
Mexico Compressor Station shall not operate the standby generator (EP-3) for more than 500 hours annually. The generator (EP-3) shall be equipped with a non-resettable meter and a record of the annual hours of operation should be kept to demonstrate compliance.

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE
SECTION (6) REVIEW

Project Number: 2007-06-085
Installation ID Number: 007-0060
Permit Number:

Mexico Compressor Station
7676 Audrain Road 441
Mexico, MO 65280

Complete: June 21, 2007

Parent Company:
Rockies Express Pipeline, LLC
370 Van Gordon Street
Lakewood, CO 80228

Audrain County, S2, T51N, R8W

REVIEW SUMMARY

- Rockies Express Pipeline, LLC has applied for authority to construct a new gas pipeline compressor station which will be known as the Mexico Compressor Station.
- Hazardous Air Pollutant (HAP) emissions are expected from the proposed equipment due to the combustion of natural gas. HAPs of concern from this process are formaldehyde.
- 40 CFR Part 60 Subpart KKKK, *New Source Performance Standards (NSPS) for Stationary Combustion Turbines*, of the New Source Performance Standards (NSPS), applies to the combustion turbines (EP-1) and (EP-2). 40 CFR Part 60 Subpart JJJJ, *Standards of Performance for Stationary Spark Ignition Internal Combustion Engines*, does not apply to the emergency generator engine (EP-3) because it was ordered prior to the applicability date of January 1, 2009.
- The Maximum Achievable Control Technology (MACT) standards, 40 CFR Part 63, Subpart ZZZZ, *National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Stationary Reciprocating Internal Combustion Engines*, applies to the emergency generator (EP-3), however there are currently no requirements. The Maximum Achievable Control Technology (MACT) standards, 40 CFR Part 63, Subpart YYYY, *National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines*, does not apply to the combustion turbines, because the facility is not a major source of HAPs. None of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) apply to the proposed equipment.
- The combustion turbines (EP-1) and (EP-2) are designed with Solar's dry, two stage low-NO_x combustion technology (SoLoNO_x) to reduce oxides of nitrogen (NO_x) emissions.

- This review was conducted in accordance with Section (6) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of particulate matter less than 10 microns (PM₁₀) and NO_x are above de minimis levels. Potential emissions of HAPs are less than major levels.
- This installation is located in Audrain County, an attainment area for all criteria air pollutants.
- This installation is not on the List of Named Installations [10 CSR 10-6.020(3)(B), Table 2].
- Ambient air quality modeling was performed to determine the ambient impact of PM₁₀, NO_x, and formaldehyde.
- Emissions testing is not required for the equipment.
- A Basic Operating Permit application is required for this installation within 30 days of equipment startup.
- Approval of this permit is recommended with special conditions.

INSTALLATION/ PROJECT DESCRIPTION

Rockies Express Pipeline, LLC has proposed to build a natural gas compressor station in Audrain County, Missouri which will be known as the Mexico Compressor Station. The facility will be located at 7676 Audrain Road 441 in Mexico, Missouri. The new compressor station will be equipped with two gas turbines (EP-1) and (EP-2), an emergency generator (EP-3), a process gas heater (EP-4), two small liquid storage tanks (EP-5) and (EP-6), and 16 small space heaters (EP-7). As this is a new facility, no prior construction permits have been issued to the Mexico Compressor Station from the Air Pollution Control Program.

Natural gas will enter the station through a 5,040 gallon condensate tank (EP-5), where water that has been entrained in the gas can be condensed out. The condensate water in the tank will be drained into a tanker truck for disposal on an as needed basis.

The gas will then be separated and directed to two compression turbines (EP-1) and (EP-2) where the gas will be pressurized. Two identical Solar Model Titan-130 natural gas combustion turbines will be installed with a rated horsepower of 20,500 hp each. They are designed with a dry, two stage, rich/lean combustion technology known as SoLoNO_x to reduce NO_x emissions. The pressurized gas will then be recombined and heated with a 0.75 MMBtu fuel gas heater (EP-4) to further increase the pressure for transmission to the next station.

A Caterpillar Model G3412 TA - 350 kW (566 hp) natural gas fired emergency generator (EP-3) will be used in the event of a loss of power. The natural gas fired engine for the

generator is a 4-cycle, rich burn, reciprocating internal combustion engine (RICE). It has no emission control devices but is limited to 500 hours operation per year.

Another 5,040 gallon tank (EP-6) will be installed to hold waste water collected from a waste water sump located below the turbines. The waste water sump will be set below the turbines to collect any drain water used during cleaning and maintenance of the turbines. Emissions from the sump are assumed to be negligible. The waste water collected in the sump will be pumped to a waste water holding tank (EP-6) for storage until the tank is drained by a tanker truck on an as needed basis.

In addition to the previously listed equipment, sixteen 60,000 btu/hr natural gas fired space heaters (EP-7) will be installed to provide heat to the station buildings during cold weather.

Table 1: Emission Unit Summary

Emission Point	Description	Make	Model	Maximum Design Rate	Number of Emission Units
EP-1	Combustion Turbine	Solar	Titan - 130	20,500 hp	1
EP-2	Combustion Turbine	Solar	Titan - 130	20,500 hp	1
EP-3	Emergency Generator	Caterpillar	G3412 TA	566 hp	1
EP-4	Gas Heater	N/D	N/D	750,000 btu/hr	1
EP-5	Condensate Tank	N/D	N/D	5,040 gallon	1
EP-6	Waste Water Tank	N/D	N/D	5,040 gallon	1
EP-7	Space Heaters	N/D	N/D	60,000 btu/hr	16

N/D = Not Determined

EMISSIONS/CONTROLS EVALUATION

For the combustion turbines (EP-1) and (EP-2), the emission rates for criteria pollutants and formaldehyde were obtained from the emission test results provided by the manufacturer. Emission rates were provided for temperature conditions ranging from -20°F up to 100°F. According to University of Missouri weather station data, the minimum annual average temperature for Audrain County is 42°F. Therefore, potential annual emissions were calculated with the emission rates for the 20°F and 100% load conditions which best represent the worst case annual emissions. However, the emission rates used for modeling required a worst case hourly emission rate, which were the emission rates for the -20°F and 100% load conditions. The following table provides a summary of the emission rates provided by the manufacturer of the combustion turbines. Emission factors for all other HAPs were obtained from the Environmental Protection Agency (EPA) document AP-42, Compilation of Air Pollutant Emission Factors, Fifth Edition, Section 3.1 *Stationary Gas Turbines* (April 2000).

Table 2: Manufacturer's Emission Rates for Combustion Turbines (EP-1) and (EP-2)

Pollutant	Ambient Air Quality Modeling Hourly Emission Rate (-20°F and 100% Load) (lb/hr)	Potential Annual Emissions Hourly Emission Rate (20°F and 100% Load) (lb/hr)
PM ₁₀	4.66	4.37
SO _x	0.54	0.50
NO _x	18.24	8.86
VOC	4.34	1.03
CO	43.43	8.99
HAP (Formaldehyde)	0.45	0.43

For the emergency generator (EP-3), the emission factors for NO_x, volatile organic compounds (VOCs), and carbon monoxide (CO) were provided by the manufacturer. Emission factors for all other pollutants were obtained from AP-42, Compilation of Air Pollutant Emission Factors, Fifth Edition, Section 3.2, *Natural Gas-fired Reciprocating Engines* (August 2000). The following table provides a summary of the emission factors provided by the manufacturer of the emergency generator.

Table 3: Manufacturer's Emission Factors for the Emergency Generator (EP-3)

Pollutant	Emission Factor (g/bhp-hr)
NO _x	21.3
VOC	0.29
CO	1.5

The emission factors used to calculate the potential emissions of the other equipment were obtained from AP-42, Compilation of Air Pollutant Emission Factors, Fifth Edition, Section 1.4 *Natural Gas Combustion* (July 1998) and from the 1995 Protocol for Equipment Leak Emission Estimates, EPA 453/R-95-017, Table 2.4 (November 1995).

Potential emissions of the application represent the potential of the new equipment, assuming continuous operation (8760 hours per year) for all proposed equipment except the emergency generator (EP-3). Potential emissions from the emergency generator (EP-3) were calculated assuming the maximum hours of operation to be 500 hours per year. The following table provides an emissions summary for this project.

Table 4: Emissions Summary (tons per year)

Pollutant	Regulatory <i>De Minimis</i> Levels	Existing Potential Emissions	Existing Actual Emissions	Potential Emissions of the Application	New Installation Conditioned Potential
PM ₁₀	15.0	N/A	N/A	38.357	N/A
SO _x	40.0	N/A	N/A	4.385	N/A
NO _x	40.0	N/A	N/A	84.968	N/A
VOC	40.0	N/A	N/A	11.653	N/A
CO	100.0	N/A	N/A	79.656	N/A
HAP (Formaldehyde)	10.0	N/A	N/A	3.788	N/A
Total HAPs	10.0/25.0	N/A	N/A	4.221	N/A

N/A = Not Applicable

PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (6) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of PM₁₀ and NO_x are above de minimis levels.

APPLICABLE REQUIREMENTS

Mexico Compressor Station shall comply with the following applicable requirements. The Missouri Air Conservation Laws and Regulations should be consulted for specific record keeping, monitoring, and reporting requirements. Compliance with these emission standards, based on information submitted in the application, has been verified at the time this application was approved. For a complete list of applicable requirements for your installation, please consult your operating permit.

GENERAL REQUIREMENTS

- *Submission of Emission Data, Emission Fees and Process Information*, 10 CSR 10-6.110
The emission fee is the amount established by the Missouri Air Conservation Commission annually under Missouri Air Law 643.079(1). Submission of an Emissions Inventory Questionnaire (EIQ) is required June 1 for the previous year's emissions.
- *Operating Permits*, 10 CSR 10-6.065
- *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*, 10 CSR 10-6.170

- *Restriction of Emission of Visible Air Contaminants, 10 CSR 10-6.220*
- *Restriction of Emission of Odors, 10 CSR 10-3.090*

SPECIFIC REQUIREMENTS

- *Restriction of Emission of Particulate Matter From Industrial Processes, 10 CSR 10-6.400*
- *New Source Performance Regulations, 10 CSR 10-6.070 – New Source Performance Standards (NSPS) for Stationary Combustion Turbines, 40 CFR Part 60, Subpart KKKK*
- *Maximum Achievable Control Technology (MACT) Regulations, 10 CSR 10-6.075, National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Stationary Reciprocating Internal Combustion Engines, 40 CFR Part 63, Subpart ZZZZ*
- *Restriction of Emission of Sulfur Compounds, 10 CSR 10-6.260*
- *Maximum Allowable Emissions of Particulate Matter From Fuel Burning Equipment Used for Indirect Heating, 10 CSR 10-3.060*

AMBIENT AIR QUALITY IMPACT ANALYSIS

Ambient air quality modeling was performed to determine the ambient impact of PM₁₀, NO_x, and formaldehyde. The results show compliance with the annual National Ambient Air Quality Standards (NAAQS) for PM₁₀ and NO_x. The results also show compliance with the 24 hour and the annual Risk Assessment Levels (RAL) for formaldehyde. For the increment consumption analysis, the modeled impact exceeds the 24 hour PM₁₀ standard. However, the predicted concentration was determined to be caused by an interactive source rather than the proposed project. Therefore, no additional analysis is required. For further details on the modeling, please refer to the memo titled “Ambient Air Quality Impact Analysis for Rockies Express Pipeline, LLC – Mexico Compressor Station” (August 11, 2008).

Table 5: Compliance with the National Ambient Air Quality Standards (NAAQS)

Pollutant	Modeled Impact (µg/m ³)	NAAQS (µg/m ³)	Time Period
NO _x	7.711	100	Annual
PM ₁₀	19.631	50	Annual

Table 6: Compliance with the Risk Assessment Levels (RAL)

Pollutant	Modeled Impact (µg/m ³)	RAL (µg/m ³)	Time Period
Formaldehyde	0.789	9.8	24 hour
Formaldehyde	0.053	0.08	Annual

Table 7: Compliance with the Increment Standards

Pollutant	Modeled Impact ($\mu\text{g}/\text{m}^3$)	Increment Standard ($\mu\text{g}/\text{m}^3$)	Time Period
NO _x	2.077	25	Annual
PM ₁₀	43.943	30	24 hour
PM ₁₀	2.184	17	Annual

STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (6), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*, I recommend this permit be granted with special conditions.

Kathi Jantz
Environmental Engineer

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated June 19, 2007, received June 21, 2007, designating Rockies Express Pipeline, LLC as the owner and operator of the installation.
- U.S. EPA document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition.
- Northeast Regional Office Regional Office Site Survey, dated July 13, 2007.

Ms. Karen Nielsen
Air Quality Engineer
Rockies Express Pipeline, LLC
500 Dallas Street, Suite 1000
Houston, TX 77578

RE: New Source Review Permit - Project Number: 2007-06-085

Dear Ms. Nielsen:

Enclosed with this letter is your permit to construct. Please study it carefully. Also, note the special conditions, if any, on the accompanying pages. The document entitled, "Review of Application for Authority to Construct," is part of the permit and should be kept with this permit in your files.

Operation in accordance with these conditions, your new source review permit application and with your operating permit is necessary for continued compliance.

The reverse side of your permit certificate has important information concerning standard permit conditions and your rights and obligations under the laws and regulations of the State of Missouri.

If you have any questions regarding this permit, please do not hesitate to contact Kathi Jantz, at the departments' Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102 or at (573) 751-4817. Thank you for your attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Kendall B. Hale
New Source Review Unit Chief

KBH:kjl

Enclosures

c: Northeast Regional Office
PAMS File: 2007-06-085
Permit Number: