

217/782-2113

CONSTRUCTION PERMIT -- NESHAP SOURCE

PERMITTEE

Rockies Express Pipeline, LLC
Attn: Lisa Carty, Air Quality Engineer
370 Van Gordon Street
Lakewood, Colorado 80228

Application No.: 07060061 I.D. No.: 021809AAB
Applicant's Designation: Date Received: June 21, 2007
Subject: Natural Gas Compressor Station
Date Issued:
Location: Blue Mound Compressor Station, SE corner of N 1400 E Road and E
2500 N Roads, Blue Mound, Christian County

Permit is hereby granted to the above-designated Permittee to CONSTRUCT emission source(s) and/or air pollution control equipment consisting of a natural gas compressor station, including five natural gas fired reciprocating internal combustion engines (Engine E1 through E5) equipped with oxidation catalyst, an emergency engine generator, five small storage tanks, and several gas-fired heaters, as described in the above-referenced application. This Permit is subject to standard conditions attached hereto and the following special condition(s):

1.0 Internal Combustion Engines

1.1 Description

This permit authorizes construction of a new natural gas compressor station with of five natural gas fired compressor engines (affected compressor engines), which provide power to compressor units at the source that move natural gas through associated transmission pipelines. These engines will be of four stroke lean burn (4SLB) design and be equipped with oxidation catalyst system. This permit also authorizes construction of a natural gas fired emergency engine generator (affected emergency engine).

1.2 List of Emission Units and Pollution Control Equipment

Units	Description	Emission Control Equipment
Compressor Engines E1, E2, and E3	Natural Gas Fired Engines, Caterpillar Model G16CM34, Nominal Capacity 7,818 HP	Oxidation Catalyst
Compressor Engines E4 and E5	Natural Gas Fired Engines, Caterpillar Model G12CM34, Nominal Capacity 5,860 HP	Oxidation Catalyst
Emergency Engine EE	Natural Gas fired Engine generator, Waukesha Model L5774LT, Nominal Capacity 1,246 HP	None

1.3 Applicability Provisions and Applicable Regulations

- a. An "affected engine" for the purpose of these unit specific conditions is an engine described in Conditions 1.1 and 1.2.
- b.
 - i. This permit is issued based on the source being a major source of emissions of hazardous air pollutants (HAPs), so that affected compressor engines are subject to the applicable requirements of the National Emission Standards for Hazardous Air pollutants (NESHAP) for Stationary Reciprocating Internal Combustion Engines (RICE), 40 CFR 63 Subpart ZZZZ.
 - ii. Pursuant to 40 CFR 63.6600(b), the affected compressor engines shall comply with the applicable CO or formaldehyde emission limitation specified for 4SLB new stationary RICE, in Table 2a of 40 CFR 63 Subpart ZZZZ, at all times, except during startup, shutdown, and malfunction in accordance with 40 CFR 63.6605(a).
- c. The affected engines are subject to 35 IAC 212.123(a), which provides that the emissions of smoke or other particulate matter from each engine shall not have an opacity greater than 30 percent, except as allowed by 35 IAC 201.149, 212.123(b), or 212.124.b.

1.4 Non-Applicability of Regulations of Concern

- a. This permit is issued based on this project not being a major construction subject to the Prevention of Significant Deterioration (PSD) rules, 40 CFR 52.21 for emissions of PSD pollutants because the total emission from the source are below the PSD applicability threshold, i.e. 250 tons/year, for each PSD pollutant.
- b. This permit is issued based on the affected emergency engine operating exclusively as an emergency engine as defined under 40 CFR 63.6675, so that is not subject to any emission standards or compliance procedures under the NESHAP, except for the requirement to submit an initial notification pursuant to 40 CFR 63.6645(d).
- c. The affected engines are not subject to the NSPS, 40 CFR 60 Subpart IIII, because the engines are not compression ignition (CI) type engines.
- d. The affected engines are not subject to the requirements of 35 IAC 212.322 because they do not have a process weight rate as defined in 35 IAC 211.5250, as addressed by 35 IAC 212.323.

- e. The affected engines are not subject to the requirements of 35 IAC 215.143 because the blowdown emissions associated with engines are not considered to be vapor blowdown pursuant to 35 IAC 215.143.

1.5 Operational and Production Limits and Work Practices

- a.
 - i. The affected compressor engines (Engines E1 through E5) and affected emergency engine (Engine EE) shall only be fired with natural gas.
 - ii. The affected compressor engines shall be equipped, operated, and maintained with oxidation catalyst to control CO and VOM emissions.
 - iii.
 - A. The rated heat input capacity of the Engines E1, E2, and E3, each, shall not exceed 46.05 million Btu per hour.
 - B. The rated heat input capacity of the Engines E4 and E5, each, shall not exceed 34.52 million Btu per hour.
- b.
 - i. Pursuant to 40 CFR 63.6600(b), the Permittee shall, at all times, operate affected compressor engines in accordance with the applicable operating limitations specified in Table 2b of 40 CFR 63 Subpart ZZZZ for new four stroke lean burn stationary RICE controlled with oxidation catalyst.
 - ii. Pursuant to 40 CFR 63.6605(b), the Permittee shall, maintain and operate affected compressor engines, including air pollution control and monitoring equipment, in a manner consistent with good air pollution control practice for minimizing emissions at all times, including periods of startup, shutdown, and malfunction.
- c. The Permittee shall carry out detailed operational evaluations and inspections of the affected compressor engines on a routine basis. These actions shall be taken at least on an annual basis for the engine that is in routine service or at least on an equivalent interval frequency in terms of actual engine operating hours for the affected engine that is not in routine service.

1.6 Emission Limitations

- a.
 - i. The emissions of the each affected compressor engine shall not exceed the following limits:

Pollutant	Engines E1, E2, and E3		Engines E4 and E5	
	Lbs/hour	Tons/year	Lbs/hour	Tons/year
NO _x	12.4	54.4	9.3	40.7
CO	3.6	15.8	2.7	11.9
VOM	6.7	29.4	5.1	22.1
PM	0.5	2.0	0.35	1.5

- ii. The emissions of the affected emergency engine shall not exceed the following limits:

Pollutant	Emissions*	
	Lbs/hour	Tons/year
NO _x	7.14	1.8
CO	5.49	1.4
VOM	1.65	0.4
PM	0.1	0.2

- iii. The above limits are based on information provided in the application, including maximum heat input, manufacturers or standard AP-42 emission factors, and continuous operation (compressor engines) and restricted operation (emergency engine). Compliance with annual limits shall be determined from a running total of 12 months of data.

1.7-1 Emission Testing Requirements

- a. i. Pursuant to 40 CFR 63.6610(a), Within 180 days of initial startup of each affected compressor engine, the Permittee shall conduct initial performance test for the engine in accordance with applicable provisions in 40 CFR 63.7(e) and Table 4 of 40 CFR 63 Subpart ZZZZ.
- ii. The Permittee shall conduct subsequent performance test for each affected compressor engine, in accordance with the applicable testing requirements of 40 CFR 63 Subpart ZZZZ.
- b. Within 180 days after operating the affected compressor engines at the greatest load at which they will normally be operated but not later than 300 days after their initial startup, the Permittee shall have tests conducted for each model of engine by an approved testing service as follows.

- i. Emissions of NO_x, CO, and VOM shall be measured at maximum load. Emissions of NO_x and CO shall be measured at the minimum load and intermediate load level. The minimum load and intermediate load testing may be achieved through 20 minute test runs.
- c. USEPA methods and procedures shall be used for testing, including the following methods, unless other USEPA supported methods are approved by the Illinois EPA as part of the its review of the test plan:

Location of Sample Points	USEPA Method 1 or 19
Gas Flow and Velocity	USEPA Method 2 or 19
Flue Gas Weight	USEPA Method 3 or 3A or 19
Moisture	USEPA Method 4 or 19
Nitrogen Oxides	USEPA Method 7E
Carbon Monoxide	USEPA Method 10
Volatile Organic Material	USEPA Methods 18 and 25A
- d. At least 60 days prior to the actual date of testing, a written test plan shall be submitted to the Illinois EPA for review. This plan shall describe the specific procedures for testing and shall include as a minimum:
 - i. The person(s) who will be performing sampling and analysis and their experience with similar tests.
 - ii. The specific conditions under which testing shall be performed including a discussion of why these conditions will be representative of maximum emissions and the means by which the operating parameters for each engine will be tracked and recorded.
 - iii. The specific determinations of emissions that are intended to be made, including sampling and monitoring locations.
 - iv. The test method(s), which will be used, with the specific analysis method, if the method can be used with different analysis methods.
- e. The Illinois EPA shall be notified prior to these tests to enable it to observe these tests. Notification for the expected date of testing shall be submitted a minimum of 30 days prior to the expected date. Notification of the actual date and expected time of testing shall be submitted a minimum of 5 working days prior to the actual date of the test. The Illinois EPA may at its discretion accept notifications with shorter advance notice provided that the Illinois EPA will not accept such notifications if it interferes with the Illinois EPA's ability to observe testing.
- f. Copies of the Final Reports for these tests shall be forwarded to the Illinois EPA within 60 days after the test

results are compiled and finalized. The Final Report from testing shall contain a minimum:

- i. A summary of test results;
- ii. General information;
- iii. Description of test method(s), including a description of sampling points, sampling train, analysis equipment, and test schedule;
- iv. Detailed description of test conditions, including:
 - A. Fuel consumption (standard ft³); or; firing rate (million Btu/hour); and
 - B. Engine output rate (hp);
- v. Data and calculations, including copies of all raw data sheets and records of laboratory analysis, sample calculations, and data on equipment calibration.
- vi. Opacity observed during the period of testing.

1.7-2 Opacity Observation Requirements

- a. The Permittee shall have the opacity of the emissions from the affected compressor engines during representative weather and operating conditions determined by a qualified observer in accordance with USEPA Test Method 9, as further specified below.
 - i. Following the initial emission measurements, periodic observations of opacity shall be conducted at least every year for the affected compressor engines, if any visible emissions, as determined by USEPA Method 22, are normally present when the engine is operating.
 - ii. Upon written request by the Illinois EPA, observations of the opacity of the affected engines shall be conducted within 60 calendar days of the request or on the date agreed upon by the Illinois EPA, whichever is later.
- b. The duration of opacity observations shall be at least 30 minutes (five 6-minute averages) unless the average opacities for the first 12 minutes of observations (two six-minute averages) are both less than 10.0 percent.
- c. The Permittee shall submit a written report for this testing within 15 days of the date of testing. This report shall include:
 - i. Date and time of testing.

- ii. Name and employer of qualified observer.
- iii. Copy of current certification.
- iv. Description of observation condition, including recent weather.
- v. Description of the operating conditions of the affected engine.
- vi. Raw data.
- vii. Opacity determinations.
- viii. Conclusions.

1.8 Monitoring and Instrumentation Requirements

- a. For the affected compressor engines, the Permittee shall comply with the applicable monitoring requirements of 40 CFR 63 Subpart ZZZZ.
- b. In addition to retaining the records of monitored operating parameter(s) in accordance with the monitoring requirements of 40 CFR 63 subpart ZZZZ for each affected engine, the Permittee shall maintain the following records for required instrumentation:
 - i. A file for each instrument that contains: 1) The manufacturer's specifications for the unit; and 2) The written instructions provided by manufacturer for operation, calibration, maintenance and repair of the unit.
 - ii. A log of other records for the instruments, which at a minimum identifies any outage of the instrument, with explanation, and calibration, maintenance and repair activities performed on the system, with date and description.

1.9 Recordkeeping Requirements

- a. The Permittee shall fulfill the applicable recordkeeping requirements of 40 CFR 63 Subpart ZZZZ for each affected compressor engine.
- b. The Permittee shall maintain files containing the following information
 - i. Manufacturer's data for the engine including emissions guarantees, horsepower or rated heat input capacity (mmBtu/hr), and operating and maintenance procedures suggested by the manufacturer.

- ii. The hourly emission rate used by the Permittee to determine emissions of the engine, for each pollutant, with supporting documentation.
 - iii. The Permittee's estimate of VOM emissions associated with the blowdown of the affected compressor engines, with supporting documentation.
 - c. The Permittee shall maintain records of the following items for each affected engine:
 - i. Records of operating hours for the engine (hours/month, hours/year).
 - ii. Number of blowdown totaled per month and per year.
 - d. The Permittee shall maintain the records of the following items related to startup of each affected engine:
 - i. Records of the source's established startup procedures for the engine.
 - ii. Records for each startup of the engine, including date and description of startup, e.g. startup following scheduled maintenance outage.
 - e. The Permittee shall maintain an inspection, maintenance, and repair log, including date and nature of activity.
 - f. The Permittee shall maintain records of the following for each incident when an affected compressor engine operated without the control measures:
 - i. The date of the incident and identification of the engine that was involved.
 - ii. A description of the incident and the magnitude of the NO_x, CO, VOM and HAP emissions during the incident.
 - iii. The time at and means by which the incident was identified, e.g., scheduled inspection or observation by operating personnel.
 - iv. The length of time after the incident was identified that the engine continued to operate before the engine was shutdown (to resume operation only after repairs were complete) and, if this time was more than one hour, an explanation why this time was not shorter, including a description of any mitigation measures that were implemented during the incident.
 - v. The estimated total duration of the incident, i.e., the total length of time that the engine ran without proper control of emissions by the oxidation catalyst.

- vi. A discussion of the probable cause of the incident and any preventative measures taken.
- vii. A discussion whether an applicable limitation in Conditions 1.4 or 1.6 may have been violated during the incident, with an estimate of the amount of any additional or excess emissions (pounds) from the incident, with supporting explanation.
- g. The Permittee shall maintain records of the monthly and annual NO_x, CO, PM, SO₂, VOM, and HAPs emissions from the affected compressor engines and the affected emergency engine, with supporting documentation and calculations.
- h. The Permittee shall keep records for all opacity measurements made in accordance with USEPA Method 9 for the affected engines that it conducts or that are conducted at its behest by individuals who are qualified to make such observations. For each occasion on which such measurements are made, these records shall include the formal report for the measurements if conducted pursuant to Condition 1.7-2, or otherwise the identity of the observer, a description of the measurements that were made, the operating condition of the affected engine, the observed opacity, and copies of the raw data sheets for the measurements.
- i. All records and logs required by this permit shall be retained at a readily accessible location at the source for at least five years from the date of entry and shall be made available for inspection and copying by the Illinois EPA or USEPA upon request. Any records retained in an electronic format (e.g., computer) shall be capable of being retrieved and printed on paper during normal source office hours so as to be able to respond to an Illinois EPA or USEPA request for records during the course of a source inspection.

1.10 Reporting Requirements

- a. The Permittee shall comply with the applicable notification and reporting requirements of the NESHAP, 40 CFR 63 Subpart ZZZZ for affected engines.
- b. If there is a deviation of the requirements of this permit, not otherwise addressed pursuant to the reporting requirements of the NESHAP, the Permittee shall submit a report to the Illinois EPA within 30 days after deviation. The report shall include a description of the deviation, the emissions released in accordance with the recordkeeping requirements, a copy of the relevant records, and a description of steps taken to reduce emissions and future occurrences.
- c. Two copies of all reports, notifications, etc required by this permit shall be sent to:

Illinois Environmental Protection Agency
Division of Air Pollution Control
Compliance Section (#40)
P.O. Box 19276
Springfield, Illinois 62794-9276

Telephone: 217/782-5811 Fax: 217/782-6348

and one copy shall be sent to the Illinois EPA's regional office at the following address unless otherwise indicated:

Illinois Environmental Protection Agency
Division of Air Pollution Control/ Regional Office
5415 North University
Peoria, Illinois 61614

Telephone: 309/693-5461 Facsimile: 309/693-5467

1.11 Additional Provisions for Maintenance, Repair, and Replacement

- a. This permit authorizes installation of manufacturer supplied replacement engine or engine components for the affected engines that takes place either as part of scheduled maintenance of the engines or in the event of malfunction or unscheduled outage and subsequent repairs. This authorization does not address activities for which a construction permit is not required, such as routine preventive maintenance, minor replacement of engine components or assemblies, or activities that do not involve, either directly or indirectly, emission-related components or activities that do not involve, either directly or indirectly, emission-related components or assemblies of the engines.
- b. This authorization is limited to activities that can be accommodated by the original installation of the affected engines and that are performed in conjunction with an ongoing program of maintenance, repair, and replacement, so as to not constitute a modification with respect to PSD. This authorization does not extend to installation of a replacement engine that is a different make and model than the original engine or to activities that are intended to, or would have the result of, increasing the design capacity of an engine.
- c. This authorization also does not excuse the Permittee from any new regulatory requirements that are adopted and applicable to the engines.
- d. The Permittee shall expeditiously have performance testing conducted on an engine following replacement of engine or engine components, if requested by the Illinois EPA.

- e. i. The Permittee shall maintain following records at the source for the replacement activities authorized by this permit:
 - A. A file containing the paperwork for original and replacement engine or engine components, including documentation for engine model numbers and serial numbers and copies of the specifications for the engines.
 - B. Details of activities performed pursuant to this permit including the date that the engine is removed from the service and the date the engine is returned to service.
- ii. The records required by Condition 1.11(e)(i) shall be retained for at least five years after the date that the engine is permanently removed from the service.
- f. The Permittee shall notify the Illinois EPA prior to carrying out activities pursuant to this Condition 1.11. This notification shall be submitted at least 15 days in advance or as soon as it is practicable to do so, e.g., in the event of engine failure. This notification shall include:
 - i. The source's determination whether the activities involve installation of a new or reconstructed engine, and identification of the current status of the source with respect to emissions of HAPs, i.e., major or non-major, with explanation.
 - ii. A description of the activities that are to be performed and the expected schedule for the activities.
 - iii. A confirmation that the activities fall within the authorization provided by this permit, the replacement is or will be in good operating conditions, and the outage of a engine will not prevent or interfere with compliance with applicable requirements for control of emissions, with supporting information.
 - iv. The source's determination whether the activities involve installation of a new or reconstructed engine, and identification of the current status of the source with respect to emissions of HAPs, i.e., major or non-major, with explanation.
- g. The authorization provided by Condition 1.11 for the affected engines will terminate when the engine is permanently removed from service or 30 days after notification from the Illinois EPA that this authorization is being terminated, whichever occurs first. As related to

the replacement activities authorized by this permit, this condition supersedes Standard Condition 1.

2.0 Other Emission Units

- 2.1
 - a. The only fuel fired in the fuel heater and space heaters at the station shall be natural gas.
 - b. The total rated heat input of the fuel gas heater and space heaters shall not exceed 2.0 million Btu per hour.
- 2.2
 - a. The VOM emissions from the storage tanks (TK001 - TK005) shall not exceed 1.7 tons/year.
 - b. This permit is issued based on minimal emissions from the fuel gas heater and space heaters. For this purpose emission of each PSD pollutant shall not exceed 1.0 tons/year, total.
 - c. This permit is issued based on minimal VOM emissions from the other units at the station, e.g., VOM emissions from equipment leaks and sumps. For this purpose emissions shall not exceed 1.0 tons/year.
- 2.3
 - a. The Permittee shall maintain a file containing following information:
 - i. Manufacturer's data for the fuel heater and space heaters including hourly emission rate (lbs/hour) of each pollutant and rated heat input capacity (million Btu per hour).
 - ii. Storage capacity of each tank with type of material stored and estimated VOM emissions (tons/year), with supporting documentation.
 - iii. Estimated VOM emissions (tons/year) associated with equipment leaks and sumps, with supporting documentation.

3.0 Authorization for Operation

- a. Under this permit, each affected compressor engine may be operated for a period of up to one year (365 days) from initial startup to allow for equipment shakedown and emission testing as required. This period may be extended by the Illinois EPA upon request of the Permittee if additional time is needed to complete shakedown or perform emission testing.
- b.
 - i. Upon successful completion of emission testing of affected engines demonstrating compliance with applicable short-term limitations, the Permittee may continue to operate, provided, however, that as provided by Section 39.5(5) of the Environmental Protection Act a complete application for the CAAPP permit for the source is submitted to the

Illinois EPA within 12 months of initial startup of affected engines.

- ii. As part of this application, the Permittee shall include detailed information on the potential emissions of CO from each affected compressor engine in the absence of the catalytic oxidation system to determine whether these systems must be operated under a Compliance Assurance Monitoring Plan.
- c. following submittal of a CAAPP application as provided above, the Permittee may operate the source under this construction permit until the Illinois EPA takes final action on a CAAPP permit for the source.

4.0 Effect Of This Permit

This permit does not relieve the Permittee of the responsibility to comply with all local, state and federal regulations that are part of the applicable Illinois' State Implementation Plan, as well as all other applicable federal, state and local requirements.

If you have any questions on this, please call Kunj Patel at 217/782-2113.

Edwin C. Bakowski, P.E.
Acting Manager, Permit Section
Division of Air Pollution Control

Date Signed: _____

ECB:CPR:KMP:

cc: Region 2