



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: 102007-011

Project Number: 2007-06-059

Parent Company: Panhandle Eastern Pipe Line Company

Parent Company Address: P.O. Box 4967, Houston, TX 77251-4967

Installation Name: Centralia Compressor Station

Installation Address: 16151 North Route Z, Centralia, MO 65240

Location Information: Boone County, S3, T50N, R11W

Application for Authority to Construct was made for:

Replacement of eight reciprocating internal combustion engine driven gas compressors with two Solar Taurus-70 turbines. This review was conducted in accordance with Section (5), 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 17 2007

EFFECTIVE DATE


DIRECTOR OR DESIGNEE
DEPARTMENT OF NATURAL RESOURCES

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 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 department's 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 with 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, 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 Administrative Hearing Commission 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 Administrative Hearing Commission.

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



DEPARTMENT OF NATURAL RESOURCES

MISSOURI AIR CONSERVATION COMMISSION

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DEPARTMENT OF NATURAL RESOURCES

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Permit No.	
Project No.	2007-06-059

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."

Panhandle Eastern Pipe Line Company - Centralia Compressor Station
Boone County, S3, T50N, R11W

1. Stack Testing Requirements
 - A. Centralia Compressor Station shall conduct performance testing on one of the two new Solar Taurus-70 turbines to quantify the emission rates of the following criteria pollutants.
 - 1) Nitrogen oxides (NO_x), and
 - 2) Carbon monoxide (CO).These tests shall be done in accordance with the procedures outlined below.
 - B. A completed Proposed Test Plan (form enclosed) must be submitted to the Air Pollution Control Program at least 30 days prior to the proposed test date of any such performance tests so that a pretest meeting may be arranged, if necessary, and to assure that the test date is acceptable for an observer to be present. The Proposed Test Plan must include specification of test methods to be used and be approved by the director prior to conducting the required emissions testing.
 - C. Within 60 days of achieving the maximum design rate of the new turbines, the owner/operator shall have conducted the required performance tests.
 - D. Any required performance testing shall be conducted during periods of representative conditions and should be conducted within 10% of the maximum design heat input rate for the ambient conditions during testing, not to include periods of startup, shutdown or malfunction. If the performance test is conducted at a heat input rate which is less than 90% of the maximum design heat input rate for the ambient conditions during testing, then this heat input rate plus 10% shall become the allowable heat input limit which shall be adjusted for ambient conditions as per manufacturer's curves. If the heat input is limited as described, a subsequent performance test can be conducted for purposes of eliminating the heat input limitation or for determining a new heat input limit as per this permit provision.

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Project No.	2007-06-059

SPECIAL CONDITIONS:

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

- E. Two copies of a written report of the performance test results must be submitted to the director within 90 days of completion of the performance testing. The report must include legible copies of the raw data sheets, analytical instrument laboratory data, and complete sample calculations from the required Environmental Protection Agency (EPA) Method for at least one sample run for each air pollutant tested.
 - F. No later than 30 days after the performance test results are submitted, Centralia Compressor Station shall provide the director with a report that establishes the emission rate of each air pollutant tested in Special Conditions No. 1.A. This report shall report the emission rates in pounds per hour, tons per year, and pounds per million British thermal unit (MMBtu) from the turbines in order that the Air Pollution Control Program may verify the potential emissions from this project.
 - G. If the results of the performance testing shows that the emission rates for NO_x and CO are greater than those used in the emissions analysis herein, then Centralia Compressor Station shall evaluate what effects these higher emission rates would have had on the permit applicability of this project. Centralia Compressor Station shall submit the results of any such evaluation within 30 days of submitting the Performance Test Results report required in Special Conditions 1.E. of this permit.
 - H. The above time frames associated with this performance testing condition may be extended upon request of Centralia Compressor Station and approval by the director.
2. Control Device Requirement – SoLoNO_x Technology
- A. SoLoNO_x shall be used to control emissions from the new turbines (E00919 and E00920). The SoLoNO_x must be in use at all times when these turbines are in operation, except during the start-up or shutdown period and extreme ambient temperature (i.e., below zero degree Fahrenheit), and shall be operated and maintained in accordance with the manufacturer's specifications and recommendations.
 - B. Centralia Compressor Station shall maintain an operating and maintenance log for the each SoLoNO_x that shall include the following:
 - 1) Incidents of malfunction: with impact on emissions, duration of event, probable cause and corrective actions.
 - 2) Maintenance activities: with inspection schedule, repair actions and replacements, etc.
 - 3) Records may be kept in either written or electronic form.

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Project No.	2007-06-059

SPECIAL CONDITIONS:

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

3. Shut Down of Existing Engines

- A. Centralia Compressor Station shall render the following emission units (listed below) inoperable before the date all shake down related activities for the new turbines have been completed and the new turbines become operational. However, in no instance, may this shake down period for the new turbines exceed 180 days from the initial start-up date of the new turbines. The equipment listed below may not be operated after the new turbines become operational without first obtaining a New Source Review (NSR) permit from the Air Pollution Control Program (APCP).

<u>No.</u>	<u>Unit ID</u>	<u>Emission Unit Description</u>
1.	E00901	Worthington 24X36TC
2.	E00902	Worthington 24X36TC
3.	<u>E00903</u>	<u>Worthington 24X36TC</u>
4.	E00904	Worthington 24X36TC
5.	E00905	Worthington 24X36TC
6.	<u>E00906</u>	<u>Worthington 24X36TC</u>
7.	E00913	Cooper Bessemer GMW-10
8.	<u>E00914</u>	<u>Cooper Bessemer GMW-10</u>

- B. Centralia Compressor Station shall notify the APCP's Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than 15 days after the following events occur:
- 1) The date of initial start-up of the new turbines,
 - 2) The date the shake down period ends or 180 days after initial start-up of the new turbines, whichever is sooner,
 - 3) The date the equipment listed in Special Condition No. 3.A is rendered inoperable, and
 - 4) The date the new turbines (E00919 and E00920) become operational.

4. Shut Down of Existing Standby Generator

- A. Centralia Compressor Station shall render the existing standby generator (E00926) inoperable before the date all shake down related activities for the standby generators have been completed and generators become operational. However, in no instance, may this shake down period for the new generators exceed 180 days from the initial start-up date of the new generators.

- B. Centralia Compressor Station shall notify the APCP's Enforcement Section, P.O. Box 176, Jefferson City, MO 65102, no later than 15 days after the following events occur:

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Permit No.	
Project No.	2007-06-059

SPECIAL CONDITIONS:

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

- 1) The date of initial start-up of the new generators,
 - 2) The date the shake down period ends or 180 days after initial start-up of the new generators, whichever is sooner,
 - 3) The date the equipment is rendered inoperable, and
 - 4) The date the new standby generators become operational.
5. Standby Generators
- A. Centralia Compressor Station shall not operate each standby generator for more than 500 hours annually. The generator shall be equipped with a non-resettable meter to record the annual hours of operation for compliance.

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE
SECTION (5) REVIEW

Project Number: 2007-06-059
Installation ID Number: 019-0077
Permit Number:

Centralia Compressor Station
16151 North Route Z
Centralia, MO 65240

Complete: July 3rd, 2007

Parent Company:
Panhandle Eastern Pipe Line Company
P.O. Box 4967
Houston, TX 77251-4967

Boone County, S3, T50N, R11W

REVIEW SUMMARY

- Panhandle Eastern Pipe Line Company - Centralia Compressor Station has applied for authority to replace eight reciprocating internal combustion engine driven gas compressors with two Solar Taurus-70 turbines.
- Hazardous Air Pollutant (HAP) emissions are expected from the proposed equipment, but in insignificant amount.
- Subpart KKKK, *New Source Performance Standards (NSPS) for Stationary Combustion Turbines*, of the NSPS applies to the new turbines.
- The Maximum Achievable Control Technology (MACT) standards, 40 CFR Part 63, Subpart YYYY, *National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Stationary Combustion Turbines*, applies to the new turbines and Subpart ZZZZ, *National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Stationary Reciprocating Internal Combustion Engines*, applies to the standby generators.
- The new turbines will be equipped with Solar's dry low-NO_x combustion technology (SoLoNO_x) to reduce NO_x, CO, and VOC emissions.
- This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of NO_x and CO from the project are above de minimis level. Emissions of NO_x and CO are below de minimis levels based on the actual-to-potential test per 40 CFR 52.21.
- This installation is located in Boone 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 not performed for NO_x and CO since the actual-to-potential emissions of the application are below de minimis levels.
- Emissions testing is required for the equipment as outlined in Special Condition 1.
- A revision to Part 70 Operating Permit application is required for this installation within one year of equipment startup.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

Panhandle Eastern Pipe Line Company (PEPL) owns and operates the Centralia Compressor Station in Boone county. The station is located at 16151 North Route Z in Centralia, Missouri. The Centralia Compressor Station is one of several PEPL natural gas compressor stations in Missouri along a natural gas transmission pipeline. This facility is equipped with 12 reciprocating internal combustion engine (RICE) units and one RICE standby generator. The RICE compressor units provide 29,800 brake horsepower for compression of natural gas along transmission line. The Centralia Compressor Station is a major source and is currently operating under Part 70 Operating Permit OP2004-011. No construction permit has been issued to Centralia Compressor Station from the Air Pollution Control Program.

PROJECT DESCRIPTION

PEPL is proposing to install two new Solar Taurus-70 gas turbines to replace eight RICE units which will be permanently shutdown. PEPL will also shutdown an existing standby generator and install two Caterpillar G3412C LE standby generators. The new standby generator engines will be limited to 500-hours per year per unit. The units to be permanently shutdown are listed in Table 1.

Table 1: Existing Units to be Shutdown

Source ID.	Description	Engine Type	HP
E00901	Worthington 24X36TC	4CLB	1800
E00902	Worthington 24X36TC	4CLB	1800
E00903	Worthington 24X36TC	4CLB	1800
E00904	Worthington 24X36TC	4CLB	1800
E00905	Worthington 24X36TC	4CLB	1800
E00906	Worthington 24X36TC	4CLB	1800
E00913	Cooper Bessemer GMW-10	2CLB	2400
E00914	Cooper Bessemer GMW-10	2CLB	2400
E00926	Ingersoll Rand PSVG-8	4SRB	544

The two new turbines are identical units rated at 10,310-horsepower and equipped with SoLoNO_x technology. This emission control technology is not considered an add-on device. The new standby generators are rated at 4.73 MMBtu per hour each.

SIGNIFICANT EMISSIONS INCREASE DETERMINATION

Potential emissions of NO_x and CO from the project are above de minimis levels, which are also the major source threshold for major source. Since this project is a replacement of equivalent units, the emissions increase of NO_x and CO are determined by calculating the difference between the projected actual emissions and the baseline actual emissions. The facility has the option of using potential emissions in place of projected actual emission in order to avoid the recordkeeping requirements. PEPL has proposed to use the potential to actual applicability test for this project. The baseline actual emissions can be determined by using any consecutive 24-month period in the past ten years. PEPL has selected a 24-month period in which engine utilization was the highest as determined by total horsepower-hours. The highest 24-month engine utilization rate is from the period of March 2005 to February 2007. PEPL has requested to use the same 24-month period for both NO_x and CO emissions. Potential emissions of the application represent the potential of the proposed modified equipment, assuming continuous operation (8760 hours per year).

Table 2: Baseline Actual-to-Potential Evaluation

Pollutant(s)	Baseline Date	Baseline Fuel Rating (MMBtu/yr)	Baseline Emissions (tons/year)	Potential to Emit (tons/year)	Emissions Increase (tons/year)
NO _x	3/2005-2/2007	733,919	939.74	85.41	(854.33)*
CO	3/2005-2/2007	733,919	146.48	141.76	(4.73)*

*parentheses imply negative or reduction

This project is not considered to be a major modification, according to the actual-to-potential-test per 40 CFR 52.21.

EMISSIONS/CONTROLS EVALUATION

The emission factors NO_x and CO used in this analysis were developed based on the manufacturers' performance tests results. However, PEPL will determine the emission factors of NO_x and CO from new turbines through stack testing as outlined in Special Condition 1. The other emission factors are obtained from AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Chapter 3.1, *Stationary Gas Turbines* (04/2000), for new turbines and Chapter 3.2, *Natural Gas-fired Reciprocating Engines* (07/2000), for the existing units.

Existing potential emissions are evaluated in this project. Existing actual emissions are taken from PEPL's 2006 Emissions Inventory Questionnaire submittal. Potential emissions of the application represent the potential of the new equipment, assuming continuous operation (8760 hours per year) for the turbines and 500 hours annually for each standby generator. The following table provides an emissions summary for this project.

Table 3: Emissions Summary (tons per year)

Pollutant	Regulatory De Minimis Levels	Existing Potential Emissions	Existing Actual Emissions (2006 EIQ)	Potential Emissions of the Application	Project Increase: Potential – Baseline Actual
PM ₁₀	15.0	32.68	31.43	4.84	N/A
SO _x	40.0	0.60	0.43	2.45	N/A
NO _x	40.0	3,619.18	2,725.3	85.41	(854.33)
VOC	40.0	120.52	98.52	31.41	N/A
CO	100.0	426.12	301.32	141.76	(4.73)
HAPs	10.0/25.0	57.99	46.5	0.76	N/A

N/A = Not Applicable

PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (5) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of NO_x and CO from the project are above de minimis level. Emissions of NO_x and CO are below de minimis levels based on the actual-to-potential test per 40 CFR 52.21.

APPLICABLE REQUIREMENTS

Centralia 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 April 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 Combustion Turbines*, 40 CFR Part 61, Subpart YYYY
- *Maximum Achievable Control Technology (MACT) Regulations*, 10 CSR 10-6.075– *NESHAPs for Stationary Reciprocating Internal Combustion Engines*, 40 CFR Part 61, 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

STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (5), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*, I recommend this permit be granted with special conditions.

Fuad Wadud
Environmental Engineer

Date

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated June 20, 2007, received June 25, 2007, designating Panhandle Easter Pipe Line Company 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 Site Survey, dated July 13, 2007.

Mr. Dennis Odum
VP Operations
Centralia Compressor Station
P.O. Box 4967
Houston, TX 77251-4967

RE: New Source Review Permit - Project Number: 2007-06-059

Dear Mr. Odum:

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 amended 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 me at (573) 751-4817, or you may write to me at the department's Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102.

Thank you,

AIR POLLUTION CONTROL PROGRAM

Kendall B. Hale
New Source Review Unit Chief

KBH:fwn

Enclosure

c: Northeast Regional Office
PAMS File: 2007-06-059
Permit Number: