

217/782-2113

CONSTRUCTION PERMIT

PERMITTEE

Panhandle Eastern Pipe Line Company - Waverly Compressor Station  
Attn: Marc N. Phillips, Principal Engineer  
5444 Westheimer Road  
Houston , Texas 77056-5306

Application No.: 06060016

I.D. No.: 137867AAA

Applicant's Designation:

Date Received: June 7, 2006

Subject: Increased Operation of Engines and Dehydration and Desulfurization Processes

Date Issued: November 6, 2006

Location: Waverly Compressor Station, 3302 State Highway 104, Waverly

This Permit is hereby granted to the above-designated Permittee to MODIFY emission source(s) and/or air pollution control equipment consisting of an increase in operating hours of the engines and dehydration and desulfurization processes, accompanied by increase in number of vapor blowdowns due to startups and shutdowns of the engines, as described in the above-referenced application. This Permit is subject to standard conditions attached hereto and the following special condition(s):

- 1a. This permit authorizes an increase in the hours of operation of the six existing, natural gas fired, compressor Engines W-3, W-4, W-5, W-6, W-8, and W-10 (affected engines), and existing dehydration and desulfurization processes (affected processes), at the Permittee's Waverly compressor Station, above the level addressed by the CAAPP application and CAAPP permit for the source (6,600 hours/year).
- b. This permit does not authorize any physical modifications to the affected engines or affected processes (affected units), which would increase design capacity of the units.
- 2a. This permit does not relax or otherwise revise any requirements or conditions that apply to the operations of affected units, including applicable emissions standards, testing, monitoring, recordkeeping, and reporting requirements established in the current Clean Air Act Permit Program (CAAPP) permit issued for the source.
- b. The emissions of smoke or other particulate matter from the affected units shall not have an opacity greater than 30 percent, pursuant to 35 IAC 212.123(a).
- 3a. i. This permit is issued based on change in operation addressed by this permit not constituting a major modification subject to the federal rules for Prevention of Significant Deterioration (PSD), 40 CFR 52.21. This is because operation of affected Unit(s) was not limited by federally enforceable permit conditions, pursuant to 40 CFR 52.21(b)(2)(iii)(f).

- b. This permit is issued based on the affected engines not being subject to National Emission Standards for Hazardous Air Pollutants (NESHAP) for Reciprocating Internal Combustion Engines, 40 CFR 63 Subpart ZZZZ. This is because the source is not a major source of emissions of hazardous air pollutants (HAPs).
- 4a. The affected engines shall only be fired with natural gas.
  - b. At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable, maintain and operate affected engines in a manner consistent with good air pollution control practice including practices to minimize emissions and opacity during startup. The Permittee shall operate in accordance with written operation and maintenance procedures, which may incorporate the manufacturer's written instructions for operation and maintenance of the engines. The Permittee shall enhance its operation and maintenance practices as necessary to be consistent with good air pollution control practice based on actual operating experience and performance of the engines.
  - c. The Permittee shall carry out detailed operational evaluations and inspections of the affected engines on a routine basis. These actions shall be taken on at least an annual basis for an engine that is in routine service and on at least an equivalent interval frequency in terms of actual engine operating hours for an affected engine that is not in routine service.
- 5a. The Permittee shall conduct observations of operation and opacity of the affected engines upon written request of the Illinois EPA. The Permittee may schedule these observations to take place during normal operation of the affected engines.
  - b. Within 90 days of a written request by the Illinois EPA, the Permittee shall have emissions tests for affected Unit(s) for opacity, NO<sub>x</sub>, CO, VOM and/or selected organic HAPs (e.g. formaldehyde) conducted by an approved testing service as specified by the request.
  - 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.

Carbon Monoxide	USEPA Method 10
Nitrogen Oxides	USEPA Method 7E
Volatile Organic Material	USEPA Methods 18 and 25A
Organic Hazardous Air Pollutants	USEPA Method 18
Opacity	USEPA Method 9
- 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, at 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 the engine will be tracked and recorded.
  - iii. The specific determinations of emissions that are intended to be made, including sampling and monitoring locations and expected operating load of the engines during testing. As part of this plan, the Permittee may set forth a proposal for approval by the Agency for performing representative emission testing on the engines, provided, however, that all engines are fitted for testing and a complete set of testing is performed for the Ingersoll Rand engine, one White Superior engine, and one Cooper Bessemer Engine. The Permittee may also propose testing for VOM and organic HAP emissions under alternative load scenarios, as generally provided for above, based upon a showing that the proposed testing will provide representative data for the maximum emissions of the pollutant from the engine.
  - iv. The specific organic HAPs for which testing is proposed to be performed, with an explanation why measurements of the selected HAPs should be sufficient to confirm the magnitude of emissions of any individual HAP and of total HAPs from the affected engines.
  - v. 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. Three copies of the Final Reports for these tests shall be forwarded to the Illinois EPA, within 60 days after the completion of testing. The Final Report from testing shall contain a minimum:
- i. A summary of 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 engine operating conditions during testing, including, including fuel consumption (standard ft<sup>3</sup> of natural gas) or firing rate (million Btu/hour), calculated load (brake horsepower), and key operating parameters of the LEC technology.
  - v. Data and calculations, including copies of all raw data sheets and records of laboratory analysis, sample calculations, and data on equipment calibration.
- 6a. 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 affected engine
  - ii. Records for each startup of the affected engine, including date and description of startup, e.g., startup following scheduled maintenance outage.
- b. The Permittee shall maintain records of the following items for each affected engine to address compliance with the requirements of this permit:
- i. A. An operating log, which shall include the operating hours for the engine (hours/month, hours/year).
  - B. Inspection, maintenance, and repair log, including date and nature of activity.
  - ii. A. Natural gas fuel usage, (scf/month and scf/year).
  - B. Number of startups and blowdowns totaled per month and per year.
  - iii. A. 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.
  - B. A file containing the hourly emission rate used by the Permittee to determine emissions of the engine, for each pollutant, with supporting documentation.
  - C. A file containing the Permittee's estimate(s) of VOM emissions associated with the blow down of the affected engine, with supporting documentation.

- D. Monthly and annual NO<sub>x</sub>, CO, PM, SO<sub>2</sub>, VOM, and HAPs emissions from the affected engine, with supporting documentation and calculations.
- c. The Permittee shall maintain records of the following items for each affected process to address compliance with the requirements of this permit:
    - i. An operating log, which shall include the operating hours for the affected process (hours/month, hours/year).
    - ii. A file, which shall be kept current, that contains the emission factors used to calculate emissions from affected process, with supporting documentation.
    - iii. Records of the emissions of NO<sub>x</sub>, CO, PM, SO<sub>2</sub>, VOM, and HAPs from affected process (tons/month and tons/year), with supporting calculations.
    - iv. Inspection and maintenance log or other records for the affected process and associated emission control measures.
  - d. The Permittee shall keep records for all opacity measurements made in accordance with USEPA Method 9 for the affected units 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 5, 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.
  - e. 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.
- 7. If there is a deviation of the requirements of this permit, not otherwise addressed pursuant to the reporting requirements of the CAAPP permit, 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.
  - 8. Two copies of all reports and notifications required by this permit shall be sent to the following address unless otherwise indicated:

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

and one copy shall be sent to:

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

Telephone: 309-693-5467 Facsimile: 309-693-5467

- 9a. It is expected that the operation of the affected units following this project will be accompanied by levels of NO<sub>x</sub>, CO, and PM emissions that are above the limits currently set by Condition 5.5.1 of the source's CAAPP permit for purposes of fees, as generally described below. This is because the current CAAPP permit is based on operation of the affected units for up to 6,600 hours per year, and revised CAAPP permit is expected to be based on operation of the engines and desulphurization processes for up to 8000 hours per year and the dehydration process for 7500 hours per year.

Expected Changes in Levels of Permitted Emissions (Tons/year)

Pollutant	Current	Future
Nitrogen Oxides (NO <sub>x</sub> )	965.49	1,175.89
Carbon Monoxide (CO)	176.71	214.64
Particulate Matter (PM)	1.77	4.37

- b. The Permittee may operate the affected units with modifications pursuant to this construction permit until the CAAPP permit for the source is revised to address them, provided that the Permittee submits a timely and complete application for a revision to its CAAPP permit, to address increased operation of affected units.

Please note that this permit does not make other changes requested by the Permittee, which would have acted to supersede provisions of the CAAPP permit for the source that specify that particular factors and procedures are to be used to determine emissions from certain units. This is because these provisions of the CAAPP permit can only be altered by revision of the CAAPP permit. However, the CAAPP permit also provides that credible evidence may be used to demonstrate compliance (or noncompliance) so alternative emission determination procedures, e.g., the GRI Cly-Calc Program, may be used along with required procedures, to demonstrate compliance.

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

Donald E. Sutton, P.E.  
Manager, Permit Section  
Division of Air Pollution Control

DES:CPR:KMP:psj

cc: Region 2