

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
BUREAU OF AIR, PERMIT SECTION
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PROJECT SUMMARY
FOR A CONSTRUCTION PERMIT APPLICATION
FROM
PANHANDLE EASTERN PIPELINE CO, – TUSCOLA STATION
FOR TWO NEW
NATURAL GAS FIRED TURBINES
TUSCOLA, ILLINOIS

Site Identification No.: 041804AAC
Application No.: 08040053
Date Received: April 21, 2008

Schedule

Public Comment Period Begins: January 20, 2009
Public Comment Period Closes: February 19, 2009

Illinois EPA Contacts

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I. INTRODUCTION

Panhandle Eastern Pipeline Company has submitted a construction permit application for two new natural gas fired turbines at its pipeline compressor Station located in Tuscola. This station is used to move natural gas through associated interstate transmission pipelines. The new turbines would replace existing engines at the station. The construction of the proposed new turbines requires a permit from the Illinois EPA because of their emissions.

The Illinois EPA has reviewed Panhandle's application and made a preliminary determination that the application for the proposed project meets applicable requirements. Accordingly, the Illinois EPA has prepared a draft of the air pollution control construction permit that it would propose to issue for this project. The permit is intended to identify the emission control requirements that apply to the proposed project. However, before issuing this permit, the Illinois EPA is holding a public comment period to receive comments on the proposed issuance of this permit and the terms and conditions of the draft permit.

II. PROJECT DESCRIPTION

The proposed project will include construction of two new natural gas fired turbines equipped with Low-NO_x combustion technology (Turbines 1221 and 1222). These new turbines will replace eight existing engines (Engines 1208, 1209, 1212 through 1216, and 1220).

Emissions of carbon monoxide (CO), nitrogen oxide (NO_x), particulate matter (PM), sulfur dioxide (SO₂), and volatile organic material (VOM) would result from the combustion of natural gas in the turbines.

The principal air contaminants emitted from the proposed turbines would be NO_x and CO. NO_x can be formed thermally by combination of oxygen and nitrogen in the air at the temperatures at which fuel is burned. NO_x can also be formed from the combination of any nitrogen in the fuel with oxygen. This is not relevant for burning of natural gas, which contains minimal amounts of nitrogen. CO is formed by the incomplete combustion of fuel. CO is associated with most combustion processes and is found in measurable amounts in engine exhaust.

VOM and PM are also emitted as a result of incomplete combustion of fuel. SO₂ is also found from combustion of natural gas.

NO_x, CO, and VOM emissions from the new turbines will be controlled by good combustion practices and catalytic oxidation systems and firing of natural gas fuel, which has minimal PM and SO₂ emissions.

In conjunction with the proposed project, Panhandle has also requests adjustment to the permitted NO_x and CO emissions of existing Engines 1217, 1218, and 1219, which are equipped with low-NO_x combustion technology. This adjustment recognizes the operational flexibility for the engines that is available to the Permittee under an emissions averaging plan pursuant to 35 IAC Part 217, Subpart Q.

III. PROJECT EMISSIONS

The potential annual emissions from the new turbines will be approximately 82 tons of NO_x, 140 tons CO, 31 tons of VOM, 5 tons of PM, and 3 tons of SO₂. Panhandle has shown that the proposed project, including the increase in permitted NO_x emissions of three existing engines (Engines 1217, 1218, and 1219) will be accompanied by a net decrease in NO_x emissions. This is due to the lower emission rate of new turbines and shutdown of existing engines.

The net decrease in NO_x emissions would be approximately 787 tons per year of NO_x. The net increase in CO emissions would be approximately 99.4 tons per year. (See Attachment 1.)

IV. APPLICABLE EMISSION STANDARDS

All emission sources in Illinois must comply with the Illinois Pollution Control Board's emission standards. The Board's emission standards represent the basic requirements for sources in Illinois. The proposed project will readily comply with applicable state emission standards (35 Ill. Adm. Code: Subtitle B).

The new turbines are subject to the federal New Source Performance Standards (NSPS) for New Stationary Combustion Turbines, 40 CFR 60 Subpart KKKK. The Illinois EPA is administering NSPS in Illinois on behalf of the United States EPA under a delegation agreement

V. APPLICABLE REGULATORY PROGRAMS

This project is not considered a major modification under the federal rules for Prevention of Significant Deterioration of Air Quality (PSD), 40 CFR 52.21. For emissions of NO_x and CO, this is because it will be accompanied by contemporaneous decreases in emissions from the permanent shutdown of existing natural gas fired engines. The net change in NO_x (comparing the past actual and future potential emissions) from the installation of two new turbines, shutdown of existing engines, and increased emissions for three existing engines is a net decrease of 786.5 tons per year. (Even if the actual emissions of existing Engines 1209, 1212, and 1213, which are to be shutdown are assumed to be zero, because they are subject to 35 IAC Part 217, Subpart Q, the net change in NO_x emissions would be a net decrease of approximately 166 tons per year.) The net change in CO emissions is a net increase of 99.4 tons per year. (See Attachment 1.)

VI. DRAFT PERMIT

The conditions of the draft permit for the project contain limitations and requirements for the two new turbines and for the three existing engines whose emissions have been adjusted. The draft permit also identifies measures that must be used as good air pollution control practices to minimize emissions from the new turbines and existing engines.

The draft permit includes enforceable limits on emissions and operation of the turbines to assure that project remains below the levels at which it would be considered major for PSD. In addition to limiting annual emissions, the permit also includes limits on hourly emissions based on maximum amount of fuel that can be used in the new turbines. The permit also includes provisions addressing actions that must be taken to reduce emissions so that the project not becoming subject to the PSD rules, i.e., removal of existing engines.

The permit also establishes appropriate compliance procedures for the turbines, including requirements for emission testing, monitoring, recordkeeping, and reporting. Emission testing is required as part of the initial shakedown and operation of the new turbines after completion of construction.

These measures are being imposed to assure that the emissions of the turbines are accurately tracked to confirm compliance with both the short-term and annual emission limits established for them.

VII. REQUEST FOR COMMENTS

It is the Illinois EPA's preliminary determination that the application for the proposed project meets all applicable state and federal air pollution control requirements. The Illinois EPA is therefore proposing to issue this permit. Comments are requested on this proposed action by the Illinois EPA and the proposed conditions of the draft permit.

ATTACHMENT 1**Evaluation of Net Change in NO_x and CO Emissions (Tons/year)****Table 1** - Future NO_x and CO emissions from the new turbines (Turbine 1221 and 1222) and existing engines (Engines 1217, 1218, and 1219):

Unit	Emissions (Tons/year)	
	NO _x	CO
Turbines 1221 and 1222	82.8	139.3
Engines 1217, 1218, and 1219	788.1	343.7
Total	870.9	483

Table 2 - Past actual NO_x and CO emissions from the engines that will be removed after this project (Engines 1208, 1209, 1212, 1213, 1214, 1215, 1216, and 1220) and existing engines (Engines 1217, 1218, and 1219):

Unit	Emissions ¹ (Tons/year)	
	NO _x	CO
Engines 1208, 1209, 1212 through 1216, and 1220	1319.5	182.3
Engines 1217, 1218, and 1219	160.3	201.3
Total	1657.4	383.6

¹ Actual emissions are based on the 24-consecutive months within the 10-year period prior to commencing construction of Turbines 1221 and 1222. The baseline actual emissions are the average annual actual emissions for year 2006-2007. (Refer to Table B-2 of the application.)

Table 3 - Net Change in NO_x and CO Emissions:

Time Period	Emissions (tons/year)	
	NO _x	CO
Future (Table 1)	870.9	483
Past (Table 2)	1657.4	383.6
Change	-786.5	99.4
PSD Significant Threshold	40	100