

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
BUREAU OF AIR, PERMIT SECTION
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PROJECT SUMMARY
FOR A CONSTRUCTION PERMIT APPLICATION
FROM
NATURAL GAS PIPELINE CO. OF AMERICA – STATION 310
FOR THREE NEW
NATURAL GAS FIRED ENGINES
CENTRALIA, ILLINOIS

Site Identification No.: 027807AAC
Application No.: 06120005
Date Received: December 4, 2006

Schedule

Public Comment Period Begins: March 21, 2007
Public Comment Period Closes: April 20, 2007

Illinois EPA Contacts

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I. INTRODUCTION

Natural Gas Pipeline Co. of America (NGPL) has submitted a construction permit application for three new natural gas fired engines at its pipeline compressor Station located in Centralia. This station is used to move natural gas through associated interstate transmission pipelines. The construction of the proposed new engines requires a permit from the Illinois EPA because of their emissions.

The Illinois EPA has reviewed NGPL'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 additional control requirements that apply to the proposed project and to set necessary limitations on those emissions. 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 three new natural gas fired engines equipped with catalytic oxidation systems (Engine 11, 12, and 13). These new engines will replace seven existing engines (Engine 1 through 7).

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 engines.

The principal air contaminants emitted from the proposed engines 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 engines will be controlled by the oxidation catalyst systems. NO_x and CO are also controlled by proper combustion control and firing of natural gas fuel, which has minimal PM and SO₂ emissions.

III. PROJECT EMISSIONS

The potential annual emissions from the new engines will be approximately 163 tons of NO_x, 376 tons CO, 76 tons of VOM, and 27 tons of PM. NGPL has shown that the proposed project will net a decrease in NO_x, CO, and VOM emissions due to added control for the new engines,

elimination of seven existing engines, and Engine 10 upgrade with improved combustion technology.

The net decrease in annual emissions would be approximately 2,430 tons of NO_x, 440 tons of CO, and 5 tons of VOM. The net increase in annual PM emissions would be approximately 5 tons. (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 engines are also subject to the federal National Emission Standards of Hazardous Air pollutants (NESHAP) for Stationary Reciprocating Internal Combustion Engines, 40 CFR 63 Subpart ZZZZ. The Illinois EPA is administering NESHAP in Illinois on behalf of the United States EPA under a delegation agreement. These standards requires either at least 93% control of CO emissions or formaldehyde concentration in the exhaust no more than 14 ppmv (parts per million by volume). The new engines should readily comply with these standards because of the catalytic oxidation system.

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. This is because the potential increase in emissions from the proposed project, as limited by the permit, would be less than the major source thresholds for PSD for all pollutants.

VI. DRAFT PERMIT

The conditions of the draft permit for the facility contain limitations and requirements for the new engines. The draft permit also identifies measures that must be used as good air pollution control practices to minimize emissions from the new engines.

The draft permit includes enforceable limits on emissions and operation of the project 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 engines. 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 7 engines when all new engines become operational.

The permit also establishes appropriate compliance procedures for the station, including requirements for emission testing, monitoring, recordkeeping, and reporting. Emission testing is

required as part of the initial shakedown and operation of the new engines after completion of construction.

These measures are being imposed to assure that the emissions of the engines 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 proposed permit 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

Table I – Future Emissions from the Proposed New Engines (Engine 11, 12, and 13) and Post-Retrofit Engine 10 with Improved Combustion Technology.

Emission Unit	Annual Emissions (tons)				
	NO _x	CO	VOM	PM/PM ₁₀	SO ₂
Engine 10	192.70	232.60	53.4	10.64	0.13
Engine 11	44.43	0.50	20.73	7.22	0.1
Engine 12 and 13 (Total)	118.48	1.33	55.29	19.17	0.23
Total	355.61	234.42	129.42	37.04	0.45

Table II – Actual Baseline Emissions from the Existing Engines (Engine 1 through 7) and Pre-Retrofit Engine 10 without Improved Combustion Technology

Emission Unit	Annual Emissions (tons)				
	NO _x	CO	VOM	PM/PM ₁₀	SO ₂
Engine 10	920.10	158.0	35.60	10.64	0.13
Engine 1 through 7 (Total)	1864.86	521.42	98.56	21.25	0.26
Total	2784.96	679.42	134.16	31.89	0.39

Table III – Net Emissions Changes

Time Period	Annual Emissions (tons)				
	NO _x	CO	VOM	PM/PM ₁₀	SO ₂
Future (Table I)	355.61	234.42	129.42	37.04	0.45
Past (Table II)	2784.96	679.42	134.16	31.89	0.39
Change	-2,429.35	-445.0	-4.74	5.15	00.06
PSD Significant Limit	40.0	100.0	15.00	40.0/15.0	40.00