



GROUP AGAINST SMOG & POLLUTION

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January 21, 2013

VIA EMAIL

Mr. John F. Guth
Air Quality Program Manager
Pennsylvania Department of Environmental Protection
Northwest Region
230 Chestnut Street
Meadville, PA 16335

**Re: Group Against Smog and Pollution (GASP) Comments Regarding the Peoples
Natural Gas Company, LLC Truittsburg Compressor Station (TV 16-00124)**

Dear Mr. Guth,

Please accept these comments regarding the Title V Operating Permit Renewal for the Peoples Natural Gas Company, LLC Truittsburg Compressor Station located in Redbank Township, Clarion County on behalf of the Group Against Smog and Pollution. The renewal of TV # 16-00124 was noticed in the *Pennsylvania Bulletin* on Saturday, December 22, 2012 at 42 Pa.B. 7697.

If you have any questions or require additional information, please do not hesitate to get in touch.

Sincerely,

A handwritten signature in black ink that reads "Lauren M. Burge". The signature is written in a cursive, flowing style.

Lauren M. Burge, Esq.
GASP Staff Attorney

**GROUP AGAINST SMOG AND POLLUTION (GASP) COMMENTS REGARDING
THE TITLE V OPERATING PERMIT RENEWAL FOR THE PEOPLES NATURAL
GAS, LLC TRUITTSBURG COMPRESSOR STATION (16-00124)**

I. Emissions from Compressor Engines at the Truittsburg Station are Drastically Higher than Emissions from Modern Natural Gas Compressor Engines.

There are currently four compressor engines operating at the Truittsburg station, three of which are quite old. Sources #101 and #102 were each installed in 1950, while Source #103 was installed in 1966. These engines produce significantly higher emissions on a grams per brake horsepower-hour (g/bhp-hr) basis than modern compressor engines. Table 1 below compares NO_x emissions from these Dresser-Clark HRA-6 engines at the Truittsburg facility to emissions from modern engines recently permitted at other compressor stations.

Table 1: Comparison of Truittsburg Compressor Engine NO_x Emissions with Recently Permitted Compressor Engines

	Truittsburg 101 (per engine)¹	Truittsburg 102, 103 (per engine)²	Laurel Mountain Midstream Shamrock Compressor Station (per lean burn engine)³	Proposed BAT emission rate for lean burn engines >637hp⁴
NO_x g/hp- hr	13.745	17.180	0.5	0.5

Table 1 illustrates the extreme difference in emissions rates between the roughly 60 year old engines at Truittsburg and the newer engines installed at the Laurel Mountain Midstream Shamrock Compressor Station in German Township, Fayette County. Truittsburg engines 102 and 103 have the potential to emit more than 34 times as much NO_x per horsepower-hour as the engines at the Shamrock facility. Additionally, the 0.5 g/bhp-hr emission rate applied at Shamrock is so well established that the Department considers it BAT in its proposed revisions to GP-5. Peoples Natural Gas should replace these engines, install additional pollution control

¹ See Pa. DEP, Review of Application for TV Operating Permit Renewal for TV-16-00124, RACT restrictions for Sources 101, 102, and 103 (Dec. 7, 2012), at 2-3; Draft Title V/State Operating Permit, Peoples Natural Gas Co LLC, Truittsburg Station, Section G: Emission Restriction Summary (Dec. 7, 2012), at 65.

² *Id.*

³ See Attachment A, Pa. DEP, Review of Plan Approval Application, Laurel Mountain Midstream Operating, LLC Shamrock Compressor Station (Revised Nov. 23, 2010), at 2.

⁴ Pa. DEP, *Proposed Substantive Amendments, General Plan Approval and/or General Operating Permit BAQ-GPA-GP-5 – Natural Gas Production and/or Processing Facilities* (Feb. 10, 2012), available at [http://www.elibrary.dep.state.pa.us/dsweb/Get/Document-87177/GP-5%20Substantive%20Revisions%20%202-10-2012%20final%20version%20\(2\).pdf](http://www.elibrary.dep.state.pa.us/dsweb/Get/Document-87177/GP-5%20Substantive%20Revisions%20%202-10-2012%20final%20version%20(2).pdf).

devices, or apply other modifications to these extremely old and highly polluting engines in order to reduce emissions from this facility.

II. The Truittsburg Station May Violate the 1-Hour NO₂ National Ambient Air Quality Standard.

Operation of the Truittsburg facility may result in exceedances of the 1-hour NO₂ standard of 100 parts per billion. The 1-hour standard was set in 2010 in order to protect human health from NO₂ emissions with an adequate margin of safety.⁵ It is based on “the 3-year average of the 98th percentile of the yearly distribution of 1-hour daily maximum concentrations.”⁶ This standard is relatively new, and likely has not yet been considered in relation to this facility. Because NO_x emissions from this facility may result in exceedances of the 1-hour standard, DEP cannot issue this plan approval until it is determined whether violations will occur and any violations have been addressed.

A. Truittsburg’s NO_x emissions may violate the 1-hour NO₂ NAAQS.

Truittsburg has a relatively large potential to emit NO_x, primarily due to emissions from aging compressor engines. As discussed in Section I above, the older engines at this facility emit significantly greater quantities of NO_x than newer engines. Truittsburg Source 101 may emit 87.6 TPY of NO_x, and Sources 102 and 103 may each emit 109.5 TPY.⁷

Modeling that has been performed at other similar older compressor stations have predicted violations of the 1-hour NO₂ standard.⁸ The 1-hour standard may be violated here as well. Modeling should be conducted, either by Peoples Natural Gas or by the Department, in order to confirm whether exceedances will occur, and any violations must be addressed before this plan approval can be issued.

B. The Department is forbidden to issue the permit renewal until it is shown that the Truittsburg station complies with the 1-hour NO₂ standard.

The Department cannot issue this Title V renewal unless it is first demonstrated that the source will not violate the 1-hour NO₂ NAAQS. 25 Pa. Code § 127.411(a)(5) requires that “[a]n application for an operating permit shall . . . [d]emonstrate that the source is complying with applicable requirements of this article and requirements promulgated by the Administrator of the EPA under the Clean Air Act.” Pursuant to 25 Pa. Code § 127.422(1), “[t]he Department *will deny or refuse to revise or renew* an operating permit to a source . . .” when “[t]he Department

⁵ 75 Fed. Reg. 6,474 (Feb. 9, 2010).

⁶ *Id.*

⁷ Pa. DEP, Review of Application for TV Operating Permit Renewal for TV-16-00124 (Dec. 7, 2012), at 2-3.

⁸ See Attachment B – GASP Comments on the Texas Eastern Transmission Holbrook Compressor Station; Attachment C – Letter from Francis J. Milfeit, Peoples Natural Gas Company, LLC, to Ronald Huffman, Allegheny County Health Department Air Quality Program, Re: Dice Compressor Station Letter of Intent (June 25, 2012).

has determined it is likely to cause air pollution or to violate the act, the Clean Air Act or the regulations thereunder applicable to the source.”⁹ (emphasis added).

Peoples Natural Gas has not demonstrated in its application that Truittsburg will operate in compliance with the 1-hour NO₂ standard. The Department has the duty to either request that the company show that it will be able to comply, or make its own determination as to whether compliance with the standard will occur. If it is not first demonstrated that the 1-hour standard will be met, the Department cannot issue this plan approval because this would clearly cause “air pollution” and would violate the Clean Air Act.

III. Peoples Natural Gas Must Employ Additional Control Strategies in Order to Reduce NO_x Emissions.

A number of options are available to decrease emissions from the Truittsburg station. In addition to replacing these engines with modern equivalents, a number of technically and economically feasible modifications are available to drastically reduce emissions from the existing engines.

One facility that has faced similar problems is the Peoples Natural Gas Dice Compressor Station located in Allegheny County. Like Truittsburg, Dice has aging compressor engines on site, and modeling showed that the facility was violating the 100 ppb hourly standard for NO₂. After considering a number of options, Peoples Natural Gas has committed to making changes to the Dice facility in order to meet the standard, including:

- Decommissioning Engine #1 and/or replacing it with an electric drive unit, and
- Modifying Engines #2 and #3 by adding turbochargers, precombustion chambers, precombustion chamber fuel pressure controls, and medium pressure injection valves; and modifying the air/fuel ratio controls and ignition timing.¹⁰

These changes will reduce NO_x emissions from the Dice station by 95%, from 62 lbs/hour to 3 lbs/hour.¹¹ This significant emissions decrease will allow Dice to meet the 1-hour standard, while also being technically and economically feasible to implement.

Peoples Natural Gas could employ controls similar to those it agreed to make at the Dice station, or could altogether replace the existing engines in order to ensure that the hourly NO₂ standard is

⁹ While 25 Pa. Code §§ 127.411 and 127.422 relate to operating permits, these sections also apply to the Title V permitting program as per 25 Pa. Code § 127.501 (stating that Subchapter G relating to Title V Operating Permits “describes the additional operating permit requirements applicable to Title V facilities which are in addition to the requirements in Subchapter F (relating to operating permit requirements).”)

¹⁰ Attachment C at 28-29.

¹¹ *Id.*

met. One study indicated that a new internal combustion (IC) engine would cost approximately \$750 per horsepower, so a 660hp IC engine would cost approximately \$370,000.¹² Electric motors cost less up-front, at approximately \$700/kW and approximately \$260,000 for a 500hp electric compression engine.¹³ Electric engines also have lower operation and maintenance costs than internal combustion engines.¹⁴ The installation of engine catalysts is another option that will serve to reduce emissions. In any case, these emissions can be greatly reduced to meet the standard before this permit renewal can be issued, and there are a number of technically and economically feasible options that could drastically reduce NO_x emissions from this facility.

IV. Peoples Natural Gas Must Quantify Greenhouse Gas Emissions for the Truittsburg Station.

Peoples Natural Gas' Title V Renewal Application for the Truittsburg station did not quantify greenhouse gas emissions from the facility. Carbon dioxide equivalent (CO₂e) emissions must be fully quantified before this permit is issued.

A. Greenhouse Gas Quantification and Notice Requirements

First, various provisions of the Pennsylvania Code require the quantification of these emissions. Pursuant to 25 Pa. Code § 127.503, “[t]he owner or operator shall include the following in the Title V permit application . . . emissions of air contaminants for which the facility is a Title V facility, . . . emissions of regulated air pollutants,”¹⁵ and “[e]missions rates in tons per year and in terms necessary to establish compliance consistent with the applicable emission limit and standard reference test method.”¹⁶ Additionally, 25 Pa. Code § 127.425(3) requires that when DEP publishes public notice of a permitting action, that notice “shall include . . . the type and quantity of air contaminants being emitted.” Peoples Natural Gas has not included an emission rate for greenhouse gases in its application, and the public has not seen any quantification of these emissions as part of the public notice. As such, the requirements in the Pennsylvania Code have not been met, and Peoples Natural Gas must accurately quantify Truittsburg’s greenhouse gas emissions before the permit can be renewed. Additionally, the permit must be re-noticed, and the notice must include greenhouse gas emission information as required by 25 Pa. Code § 127.425(3).

¹² Al Armendariz, *Emissions from Natural Gas Production in the Barnett Shale Area and Opportunities for Cost-Effective Improvements* (Jan. 26, 2009), at 31, available at http://www.edf.org/sites/default/files/9235_Barnett_Shale_Report.pdf.

¹³ *Id.*

¹⁴ *Id.*

¹⁵ 25 Pa. Code § 127.503(3)(i).

¹⁶ 25 Pa. Code § 127.503(3)(iii).

B. Greenhouse Gas Title V and PSD Applicability

Having an accurate quantification of greenhouse gas emissions from this facility is also necessary to determine the applicability of the Greenhouse Gas Tailoring Rule. Step 1 of the Tailoring Rule took effect on January 2, 2011. This rule applies to sources that are already required to obtain Title V or PSD permits due to emissions of other pollutants, and requires those sources to address greenhouse gas emissions in permits issued after the effective date. As such, all modifications at the Truittsburg facility from that date forward must include PSD and Title V applicability analyses for greenhouse gas emissions. These analyses are not possible unless the Department knows the potential to emit greenhouse gases of the existing Truittsburg facility and proposed modifications to the facility. For these reasons, Peoples Natural Gas must submit calculations and accurate figures quantifying greenhouse gas emissions for the Truittsburg station.

V. **Public Notice Information in the Review Memorandum Needs to be Updated.**

The bottom of page 10 of the Department's review memorandum needs to be updated to include current public notice information. This section currently reads:

The newspaper notice of Intent to Issue was published in the XXXXX, a newspaper of general circulation in Clarion County on XXXXX, XX, and XX, 2012. The drafter of the renewal was submitted to the USEPA (Himanshu Vyas) on December 7, 2012. The EPA comment period expired XXXXX. List any EPA comments here.

The record indicates that the notice was indeed published in a newspaper. The Department simply needs to update this section of the review memo with dates and newspaper information, and include any comments received from U.S. EPA.

VI. **The Department Must Ensure Adequate Controls for the Additional Rich Burn NSCR Equipped Engine at Truittsburg.**

Peoples Natural Gas received a Plan Approval in 2012 to add a rich burn engine controlled via nonselective catalytic reduction (NSCR).¹⁷ Although this engine has not yet been incorporated into Truittsburg's Title V permit, when it is incorporated via administrative amendment the Department must ensure that adequate requirements are included to sufficiently control NO_x and CO emissions from this engine.

In 2008, the South Coast Air Quality Management District (SCAQMD) amended its stationary engine emission regulations, replacing periodic stack tests with NO_x continuous

¹⁷ Truittsburg Review Memo at 10.

emission monitoring (CEM) requirements for facilities with cumulative stationary engine horsepower ratings of 1500 bhp or more, requiring CO CEMs for rich burn engines, and establishing inspection and monitoring requirements for NO_x, CO, and O₂.¹⁸ These amendments were made after SCAQMD conducted unannounced emission tests and discovered “that rich-burn ICEs, have very high non-compliance rates and very high excess emissions.”¹⁹ SCAQMD conducted 215 unannounced emissions tests on rich burn engines; in just over half of these tests, rich burn engines exceeded their emission limits for NO_x, CO, or both pollutants.²⁰ Average NO_x and CO exceedances were 946% and 1,830% over the respective emission limits.²¹

Given the frequency and magnitude of noncompliance, SCAQMD concluded that periodic stack tests were inadequate to assure stationary engines were in compliance with their NO_x and CO emission limits. As explained by SCAQMD:

With an ICE used 24/7, it is typical to require an oil change once a month, and tune-ups every two months, including new spark plugs and oxygen sensors. Many things can cause excess emissions including ignition system faults, a deteriorating catalyst, oxygen sensor failures, and simply falling out of adjustment.²²

The frequency and magnitude of emissions exceedances are particularly pronounced for NSCR-equipped rich burn engines due to the narrow air-to-fuel ratio range where NSCR effectively reduced both NO_x and CO and oxygen sensors’ tendency to drift as they age.²³ Nevertheless, engine stack tests “almost always results in a compliant source test because the operator will typically: schedule when the test will occur; service the engine and pre-test it to assure it is operating properly; test the engine at one load under steady-state conditions.”²⁴

Given SCAQMD’s experience, it is clear that periodic stack tests are insufficient to ensure that rich burn, NSCR-equipped stationary engines comply with permitted NO_x and CO emission rates. Thus, when this additional engine is included in Truittsburg’s Title V permit, the

¹⁸ SCAQMD, *Compliance Guide to Rule 1110.2 Amendments Adopted February 1, 2008* (May 8, 2008), at 9-11, available at <http://www.aqmd.gov/rules/doc/r1110-2/ComplianceGuide.pdf>.

¹⁹ SCAQMD, *Draft Final Staff Report for Proposed Amended Rule 1110.2* (Dec. 2007), at 4, available at <http://www.aqmd.gov/hb/2008/February/080233a.html>.

²⁰ *Id.* at 5.

²¹ *Id.* at 5 (these figures included noncompliance information from 3 lean burn engine tests).

²² *Id.* at 4.

²³ *Id.* at 29; Southern California Gas Co., *Operating Catalytic Emission Reduction Systems*, Gas/Electric Partnership 2008 Workshop, Houston, Texas (Jan. 30-31, 2008), at Slides 27-46, available at <http://www.gaselectricpartnership.com/08CatEmission.pdf>; SCAQMD, *Emissions from In-Use IC Engine DG & Lessons Learned*, First Electricity and Air Quality Conference (Oct. 3-4, 2006), at Slides 14-26, available at http://www.energy.ca.gov/pier/conferences%2Bseminars/2006-10-3%2B4_electricity_air-quality_conference/presentations/session_02?12Kay.ppt.

²⁴ SCAQMD Final Staff Report, *supra* note 19, at 3.

permit must include requirements beyond periodic stack tests to ensure compliance with these limits. SCAQMD's amended engine rule provides two additional possible requirements: (1) the rule requires NO_x and CO CEMs for most rich burn NSCR-equipped stationary engines;²⁵ and (2) operators of CEM-exempt engines must conduct weekly NO_x, CO, and O₂ checks by portable analyzer and adjust oxygen sensor set points as necessary.²⁶

²⁵ SCAQMD Rule 1110.2(f)(1)(A), available at <http://www.aqmd.gov/rules/reg/reg11/r1110-2.pdf>.

²⁶ SCAQMD Rule 1110.2(f)(1)(D), available at <http://www.admd.gov/rules/reg/reg11/r1110-2.pdf>.