



GROUP AGAINST SMOG & POLLUTION

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July 30, 2012

VIA EMAIL

Barbara Hatch
Air Quality Environmental Engineer Manager
PA DEP Southwest Regional Office
400 Waterfront Drive
Pittsburgh, PA 15222

**Re: Group Against Smog and Pollution (GASP) Comments Regarding the Title V
Operating Permit Renewal for the Texas Eastern Transmission Holbrook Compressor
Station (TVOP-30-00077)**

Dear Ms. Hatch,

Please accept these comments regarding the Title V Operating Permit Renewal for Texas Eastern Transmission's Holbrook Compressor Station, Richhill Township, Greene County (noticed on Saturday, June 30, 2012 at 42 Pa.B. 3753) on behalf of the Group Against Smog and Pollution.

If you have any questions or require any 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

Joe Osborne, Esq.
GASP Legal Director

**GROUP AGAINST SMOG AND POLLUTION (GASP) COMMENTS REGARDING
THE TITLE V OPERATING PERMIT RENEWAL FOR THE TEXAS EASTERN
TRANSMISSION HOLBROOK COMPRESSOR STATION (TVOP-30-00077)**

I. Operation of the Holbrook Facility Will Result in Violations of the 1-Hour National Ambient Air Quality Standard for NO₂

Operation of the Holbrook station will 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.¹ AERSCREEN modeling indicates that the compressor engines alone at this facility will result in NO₂ concentrations that greatly exceed the 1-hour standard.² These elevated concentrations are predicted to exist a significant distance from the facility fenceline, including distances up to 2.8 kilometers from the facility. While AERSCREEN is designed to predict worst-case scenario 1-hour concentrations, screening runs with this program have indicated that exceedances of the 1-hour NO₂ standard will almost certainly occur near Holbrook, and as such further modeling must be conducted and emissions reductions below current levels will likely be necessary.

II. Formaldehyde Emissions from the Holbrook Facility Pose an Unacceptably High Cancer Risk to Residents

Formaldehyde (HCHO) emissions from Holbrook pose an unacceptably high cancer risk to those living, working, or engaging in recreational activities nearby. U.S. EPA's Integrated Risk Information System (IRIS) states that the lifetime cancer risk due to inhalation exposure to HCHO is 1 in 10,000 at concentrations at or above 8 µg/m³.³ AERSCREEN modeling indicates emissions from Holbrook resulting in HCHO concentrations well above 8 µg/m³ beyond the facility fenceline:

- An AERSCREEN run that only accounted for currently operating compressor engines and applied the "deciduous forest" surface profile predicted HCHO concentrations above 8 µg/m³ up to 1.75 kilometers from Holbrook.⁴
- In an AERSCREEN run which also only accounted for currently operating compressor engines but applied the "grassland" surface profile, HCHO concentrations above 8 µg/m³ were projected to exist over 4 kilometers from the facility.⁵

Inclusion of the turbines and other combustion sources at Holbrook in modeling would, of course, result in still higher concentrations. While the distances produced by the model vary somewhat based on terrain settings, it is clear that HCHO emissions pose an unacceptable risk a great distance from the facility. Satellite imagery shows that multiple residences are within 1

¹ 75 Fed. Reg. 6,474 (Feb. 9, 2010).

² See Attachment A – Holbrook AERSCREEN deciduous & Attachment B – Holbrook AERSCREEN grassland.

³ U.S. EPA Integrated Risk Information System, *Formaldehyde*, Section II.C. Quantitative Estimate of Carcinogenic Risk from Inhalation Exposure, available at <http://www.epa.gov/iris/subst/0419.htm#refinhal>.

⁴ Attachment C – Holbrook AERSCREEN HCHO deciduous.

⁵ Attachment D – Holbrook AERSCREEN HCHO grassland.

kilometer of the facility.⁶ Additionally, Holbrook is immediately adjacent to Ryerson Station State Park, which is frequented by many individuals on a regular basis. Texas Eastern must reduce formaldehyde emissions before the permit is renewed in order to adequately protect human health from the increased cancer risk associated with these emissions.

III. The Department Cannot Renew the Permit Until NO_x and Formaldehyde Emissions Satisfy Regulatory Requirements

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 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.”⁷ (emphasis added). In this case, exceedances of the hourly NO₂ NAAQS at this facility clearly violates the Act and causes “air pollution,” which is broadly defined as “[t]he presence in the outdoor atmosphere of any form of contaminant . . . in a place, manner or concentration inimical or which may be inimical to public health, safety or welfare or which is or may be injurious to human, plant or animal life or to property or which unreasonably interferes with the comfortable enjoyment of life or property.”⁸ High levels of HCHO emissions from this facility will also result in concentrations of an air pollutant that will be harmful to public health because emissions will create an unacceptably high cancer risk for individuals living, working, or engaging in recreational activities nearby. Thus the Department must refuse to renew Holbrook’s Title V permit until the facility’s NO₂ and HCHO emissions are reduced to a level sufficient to ensure the facility will not violate the NO₂ NAAQS or otherwise threaten human health.

IV. Emissions from Compressor Engines at the Holbrook Facility are Drastically Higher than Emissions from Modern Natural Gas Compressor Engines

There are currently 12 compressor engines in operation at the Holbrook Compressor Station. These engines were installed in the late 1950’s, and produce significantly higher emissions on a g/bhp-hr basis than modern engines. Table 1 below compares NO_x emissions from the three varieties of compressor engines at the Holbrook facility to emissions from modern engines at recently permitted compressor stations.

⁶ Google Maps - <https://maps.google.com/maps?ll=39.891991,-80.45258&spn=0.022753,0.045447&t=h&z=15>

⁷ 25 Pa. Code § 127.422 relates to operating permits, but also applies 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).”)

⁸ 25 Pa. Code § 121.1.

Table 1: Comparison of Holbrook Compressor Engine NOx and Formaldehyde Emissions with Recently Permitted Compressor Engines⁹

	Holbrook 101, 102, 106, 108 (per engine)	Holbrook 109, 110, 111, 112 (per engine)	Holbrook 114, 115, 116, 117 (per engine)	Welling Compressor Station (per rich burn engine)¹⁰	Proposed BAT emission rate for lean burn engines >637hp¹¹
HCHO g/hp-hr	0.3089	0.3089	0.2507	0.01	0.04
NOx g/hp-hr	11.730	4.523	3.362	0.2	0.5

Table 1 illustrates the extreme difference in emission rates between the more than 50 year old engines at Holbrook and the new engines to be installed at the MarkWest Liberty Welling Compressor Station in Buffalo Township, Washington County. Holbrook engines 101, 102, 106, and 108 each have the potential to emit more than 30 times as much NOx per horsepower-hour as the engines at the Welling facility. Texas Eastern should replace these engines, install additional pollution control devices, or apply other modifications to these extremely old and highly polluting engines in order to reduce emissions from this facility.

V. Texas Eastern Must Employ Additional Control Strategies in Order to Reduce NOx Emissions

A number of options are available to decrease emissions from the Holbrook facility. 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 Holbrook, 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, People’s Natural Gas has committed to making changes to the Dice facility in order to meet the standard, including:

⁹ Holbrook emission rates derived from Texas Eastern Transmission’s Title V Operating Permit Renewal Application for the Holbrook Compressor Station, Table A-2: Potential to Emit Emissions After Project (Nov. 2011).

¹⁰ Welling emission rates from Attachment E, Review Memo for Markwest Liberty Midstream and Resources, LLC Welling Compressor Station (PA-63-00968A), Table 1 – Proposed Waukesha P9390GSI engines (June 3, 2012), at 11.

¹¹ See Overview of the Proposed Modifications to the General Plan Approval and General Operating Permit for Natural Gas Production and Processing Facilities (GP-5), at 10, *available at* http://www.dep.state.pa.us/dep/subject/advoun/aqtac/2012/04-12-12/Overview_of_Proposed_GP-5_for_AQTAC-March_28_2012_Revised.pdf.

- Decommission Engine #1 and/or replace it with an electric drive unit, and
- Modify 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.¹²

These changes will reduce NO_x emissions from the Dice station by 95%, from 62 lbs/hr to 3 lbs/hr.¹³ This significant emissions decrease will allow Dice to meet the 1-hour standard, while also being technically and economically feasible to implement.

Texas Eastern could employ controls similar to those proposed for the Dice station, or could altogether replace the existing engines in order to meet the hourly NO₂ standard. One study indicated that a new internal combustion (IC) engine would cost approximately \$750 per horsepower, so a 500hp IC engine would cost approximately \$370,000.¹⁴ Electric motors cost less up-front, at approximately \$700/kW and approximately \$260,000 for a 500hp electric compression engine.¹⁵ Electric engines also have lower operation and maintenance costs than internal combustion engines.¹⁶ The installation of engine catalysts is another option that will serve to reduce emissions. In any case, these emissions must 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 and HCHO emissions from this facility.

VI. Reasonably Available Control Technology (RACT) is an Ongoing Requirement

The Reasonably Available Control Technology (RACT) for NO_x and VOCs at Holbrook was determined in 1994, nearly two decades ago.¹⁷ RACT is defined as “[t]he lowest emission limit for VOCs or NO_x that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility.”¹⁸ By its terms, RACT does not specify an emission limit, but is a dynamic test that must be updated to reflect current available controls and other conditions. Before renewing this permit, the Department must reevaluate the 1994 RACT determination based on modern control equipment and emission limits.

¹² Attachment F –Letter from Francis J. Milfeit, Peoples Natural Gas, to Ronald Huffman, Allegheny County Health Dept. Air Quality Program, Re: Dice Compressor Station Letter of Intent (June 25, 2012) at 28-29 – Manufacturer’s Warranty.

¹³ *Id.*

¹⁴ 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.

¹⁵ *Id.*

¹⁶ *Id.*

¹⁷ See PA DEP, Review of Application for Title V Operating Permit Renewal, Holbrook Compressor Station (June 19, 2012), at 1.

¹⁸ 25 Pa. Code § 121.1.

VII. Texas Eastern Must Quantify Greenhouse Gas Emissions for the Holbrook Facility

Texas Eastern's Title V Renewal Application for the Holbrook station did not quantify greenhouse gas emissions from the facility. The *Pennsylvania Bulletin* notice for the Holbrook station simply stated that it has the potential to emit "greater than 100,000 tons of carbon dioxide equivalents (greenhouse gases)."¹⁹ This is inadequate, and Texas Eastern must fully quantify CO₂e emissions before this permit may be issued.

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,"²⁰ 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."²¹ 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." Texas Eastern has not included an emission rate from greenhouse gases in its application, and the public has not seen a quantification of these emissions as part of the public notice. As such, the requirements in the Pennsylvania Code have not been met, and Texas Eastern must accurately quantify Holbrook's greenhouse gas emissions before the permit can be renewed.

Having an accurate quantification of greenhouse gas emissions from this facility is also necessary to determine applicability of the Greenhouse Gas Tailoring Rule. Under Step 2 of the Tailoring Rule, which took effect on July 1, 2011, "sources that emit or have the potential to emit at least 100,000 tpy CO₂e and that undertake a modification that increases net emissions of GHGs by at least 75,000 tpy CO₂e will . . . be subject to PSD requirements."²² In order to calculate the net emissions increase of a future modification, Texas Eastern must accurately quantifying existing CO₂e emissions. For these reasons, Texas Eastern must submit calculations and accurate figures quantifying greenhouse gas emissions from the Holbrook facility.

¹⁹ 42 Pa.B. 3753 (June 30, 2012).

²⁰ 25 Pa. Code § 127.503(3)(i).

²¹ 25 Pa. Code § 127.503(3)(iii).

²² 75 Fed. Reg. 31,514, 31,516 (June 3, 2010).