

Response to Request for Public Comment
from The Federal Energy Regulatory Commission (FERC)
Regarding Scoping of an Environmental Assessment
of the Texas Eastern TEAM 2014 Project
under Docket # PF12-19-000

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On October 4, 2012, the Staff of FERC announced scoping for an Environmental Assessment under the terms of the National Environmental Policy Act (NEPA) of the Texas Eastern TEAM 2014 Project, which is currently in Pre-Filing under FERC docket PF12-19-000, and requested public comment to inform it in this matter. I would like to thank the Commission for consulting the public on this issue, and wish to direct the commission staff to the following specific subject:

Dispersion modeling of potential acute exposures to toxic substance diseases from compressor station air emissions.

1. Included in the TEAM 2014 Project is added compression equipment to boost the horsepower of the Texas Eastern Uniontown Compressor Station.

2. Compressor stations are known sources of air pollution. As such they are regulated under the United States Clean Air Act and the Pennsylvania Air Pollution Control Act. In implementing the Clean Air Act, the Pennsylvania Department of Environmental Protection (DEP) acts as the “agent” of the Environmental Protection Agency (EPA) under the terms of the Pennsylvania State Implementation Plan (SIP).

3. Uniontown Compressor Station is known to the DEP as Site ID 245027¹. Its currently issued DEP air quality permit number is 26-00413A. In assessing air quality permit applications, DEP’s primary consideration is a facility’s “Potential to Emit” (PTE). PTE for this facility under its existing permit was published by the DEP in the Pennsylvania Bulletin 40 Pa.B. 633, Saturday, January 30, 2010, as:

“Facility-wide emissions are limited by plan approval condition to 154 tons of NO_x, 83 tons of CO and 49 tons of VOCs per year. Potential emissions for other air contaminants include 3.59 tons of SO_x, 7.07 tons of PM/PM₁₀, 2.74 tons of Formaldehyde and 8.97 tons of HAPs per year. The project will result in net decreases of 33.53 tons of NO_x, 42.64 tons of CO, 1.34 tons of PM/PM₁₀, and 2.42 tons of Formaldehyde and an increase of 5.65 tons of VOCs per year.”²

4. It is customary for DEP to measure PTE as above as tons per year. However, federal agencies which publish exposure limits to toxic emissions, such as the Agency for Toxic Substance Disease Registry (ATSDR) and the Occupational Safety and Health Administration (OSHA), measure differently, as a given concentration (e.g. parts per million (ppm)) for a given amount of time. For instance, the ATSDR recommendation for exposure to benzene states:

“The Occupational Safety and Health Administration (OSHA) has set limits of 1 part benzene per million parts of workplace air (1 ppm) for 8 hour shifts and 40 hour work weeks.”³

1 http://www.ahs2.dep.state.pa.us/eFACTSWeb/searchResults_singleAuth.aspx?AuthID=891008

2 <http://www.pabulletin.com/secure/data/vol40/40-5/189a.html>

3 <http://www.atsdr.cdc.gov/toxfaqs/tf.asp?id=38&tid=14>

5. There is a **significant missing link** translating a PTE measured as tons per year into the probability of exposure of a nearby resident to toxic substance disease from air emissions as measured by ATSDR/OSHA. That missing link is dispersion modeling. In evaluating PTE as tons per year, DEP is ignoring completely:

- Meteorological Conditions, such as temperature inversion, which can concentrate air toxics.
- Wind patterns, which affect dispersion of air toxics
- Abnormal operating circumstances, such as blowdown, which can release a large amount of emissions in a short period of time.

6. DEP is aware of this problem, but continues to ignore it. Appendix A provides a public comment to DEP on the air quality permit for Shamrock Compressor Station concerning exactly this same subject, and DEP's response. Shamrock is a similar facility to the Uniontown Compressor Station (from a different operator) which is only a few miles away. Appendix B provides a second public comment concerning the same subject on the Welling Compressor Station, in Washington County, PA, and DEP's response. In both of these cases where this matter has been brought to DEP's attention, the response has been to dredge up a non-peer-reviewed study from the landfill industry which does not really consider the question at hand: probability of acute (short-term) exposure to air toxics from compressor station emissions.

7. There is ample testimony on the public record of actual exposures of residents who live near compressor stations to toxic emission clouds. Appendix C gives the complete testimony of Pam Judy before the House Democratic Policy Committee on August 2, 2011, in Waynesburg, PA⁴, where she describes acute health effects from living next to a compressor station (which is smaller than Uniontown Compressor Station). Similar experiences have been reported by the family of Phyllis Carr⁵.

8. FERC has shown in the recent past that it is (unlike DEP) responsive on this issue. In its order Issuing Certificate and Granting Abandonment to National Fuel Gas Supply Corporation under Docket No. CP11-512-000, Issued March 29, 2012, FERC stipulated:

12. Prior to placing into service the new compressors at the Buffalo Compressor Station, National Fuel shall submit a refined air quality dispersion modeling analysis demonstrating that the total emissions from the Buffalo Compressor Station **would not result in exceedance of the 1-hour NO₂** (nitrogen dioxide) and annual PM_{2.5} (particles with an aerodynamic diameter less than or equal to 2.5 micrometers) National Ambient Air Quality Standards at both near and far field receptors. National Fuel shall provide information on all input parameters, emission controls and mitigation measures, and justify the basis for any assumptions. [Emphasis added.]

Accordingly, I appeal to FERC to place this issue, probability of acute exposure to toxic substance disease from compressor station air emissions, within the scoping of the forthcoming Environmental Assessment of the TEAM 2014 project under FERC Docket # PF12-19-000.

Thank you for your attention.

⁴ <http://www.pahouse.com/policycommittee/documents/2011/hdpc080211.PDF>

⁵ Application of Peregrine Keystone Gas Pipeline, LLC, before the Pennsylvania Public Utility Commission for a Certificate of Public Convenience, Docket No. A-2010-2200201, Transcript pp 132-137.

Appendix A

Objection to proposed Plan Approval for Permit PA-26-00588, Public Comment to Alan Binder, Pennsylvania Department of Environmental Protection, James E. Rosenberg, December 5, 2010 [excerpt]:

5. Projected emissions levels are not commensurable with toxicity safety standards.

Safety levels for air exposure to toxic chemicals are usually measured as a concentration (e.g. measured in ppm) in a given amount of time. Projected amounts of pollutants are being measured in this permit (and in the summary published in the PA Bulletin) as tons per year. There is no projection of the number of toxic exposures per year for a neighboring resident. There are several residents living in close proximity to compressor stations in Fayette County, including a family with three young children within 950 feet of the Shamrock Compressor Station. It is worth noting that “safety standards” for toxic substances are often published assuming a potential exposure victim is an adult; safety standards for the exposure of children may not be available. The DEP should be using the best available science to estimate projected toxic exposures wherever possible. For specifically identifiable toxic emissions, such as formaldehyde, where there is reasonable suspicion projected emission amounts may cause exposures in toxic amounts to nearby residents — especially to children — DEP should not be granting a permit at all without strong provisions in the permit to prevent such exposures.

What on earth does “clean air” even mean if it allows children to be exposed to dangerous levels of toxic substances? Surely the Air Quality Program of the DEP can have no higher mission than preventing children from breathing dangerous levels of toxic substances. This permit provides no such assurances.

Response:

Response #5: Shamrock is classified as a natural minor facility and as such Laurel Mountain Midstream, LLC (“LMM”) is not required to perform modeling as part of their plan approval application.

Southwestern Pennsylvania Marcellus Shale Short-Term Ambient Air Sampling Report (referenced earlier in this comment and response document) includes findings of the short-term, screening-level air quality sampling initiative in the southwest region of PA conducted between April and August 2010. Air sampling surveys were conducted around several natural gas facilities including natural gas compressor stations. Short-term sampling did detect concentrations of natural gas constituents including methane, ethane, and propane, and associated compounds such as benzene, in the air near Marcellus Shale drilling operations. Most of the compounds were detected in the air near two compressor stations, but no compound concentrations were identified that would likely trigger air-related health issues associated with Marcellus Shale drilling activities.

Formaldehyde is a known carcinogen and the primary hazardous air pollutant (“HAP”) expected to be emitted from air contamination sources at Shamrock. The Department has recently received air quality screening data on behalf of Pennsylvania Waste Industries Association for a model landfill scenario in which multiple landfill gas-fired engines emit formaldehyde. The PTE for formaldehyde in this scenario is approximately 12.17 tons per year compared to the worst case 7.68 tons per year to be emitted from Shamrock. The nearest resident in this scenario was modeled at 374 feet from the point source of emissions. Cumulative cancer and non-cancer risks from the model scenario were found to be below the Department’s human health risks benchmarks. Shamrock’s formaldehyde PTE is 63% of the model landfill scenario and the nearest neighbor is located 831 feet from the proposed facility site. The comparison is not absolute due to possible differences in local terrain and meteorological data but the modeling produces conservative results and the differences would not be expected to overcome the lower PTE and greater distance at Shamrock.

Additionally, LMM has voluntarily submitted the results of SCREEN3 modeling. Results of the modeling include a cancer risk assessment and a chronic non-cancer risk assessment. Results of the cancer risk assessment demonstrate a formaldehyde cancer risk of less than one in eighty-

four million compared to the reference risk level of one in a million. Annual average concentrations of formaldehyde, 2.2 $\mu\text{g}/\text{m}^3$ and 1.6 $\mu\text{g}/\text{m}^3$ at the property line and nearest residence, respectively, are below the chronic non-cancer reference concentration of 9.8 $\mu\text{g}/\text{m}^3$.

The Department has also received screen modeling data in the recent past for a larger facility with a PTE for formaldehyde of 56.6 tons per year, greater than Shamrock’s PTE of 7.68 tons per year. Results of the larger facility’s screening model found cancer risk at the nearest neighbor’s property line to be less than one in thirty-six million, and the annual average formaldehyde concentration at the nearest neighbor’s property line to be approximately 5.0 $\mu\text{g}/\text{m}^3$. The nearest neighbor of the previously modeled facility is approximately 37% farther than the distance from Shamrock to its nearest neighbor. Results of the modeling at the larger facility may also be used as an indicator that this natural minor facility would not exceed the referenced health risk thresholds.

Appendix B

Public comment on Proposed Plan Approval 63-00958A to MarkWest Liberty Midstream and Resources, LLC for the Welling Compressor Station, James E. Rosenberg, June 24, 2012 [excerpt]:

DEP’s assessment of the potential of Welling to cause adverse health effects is severely flawed by failure to consider an industry-relevant dispersion study that takes into account acute effects.

It is unfortunately necessary at this point to remind DEP what the definition of air pollution actually states. From 25 PA Code § 121.1:

Air pollution—The presence in the outdoor atmosphere of any form of contaminant, including, but not limited to, the discharging from stacks, chimneys, openings, buildings, structures, open fires, vehicles, processes or any other source of any smoke, soot, fly ash, dust, cinders, dirt, noxious or obnoxious acids, fumes, oxides, gases, vapors, odors, toxic, hazardous or radioactive substances, waste or other matter 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.

This language is exceptionally clear and free of jargon. It has been argued that Article 1 Section 27 of the Constitution of the Commonwealth of Pennsylvania is not “self executing”. However that may be, this clause in 25 PA Code § 121.1 *provides the execution* of Article 1 Section 27. Every plan approval — and even every individual permit granted as an instance of GP-5 — is granted to the permittee with the stipulation that the permittee **may not cause air pollution**. The definition of air pollution is given above. It clearly establishes that DEP has an obligation under Pennsylvania law to evaluate whether a plan approval has the potential to cause adverse health effects, **including acute effects**. Standards for unsafe exposure levels have been promulgated by both ATSDR (Agency for Toxic Substance Disease Registry) and OSHA (Occupational Safety and Health Administration). Such standards give exposure levels in units such as a specified ppm (parts per million) over a specified number of minutes or hours. Meanwhile, PTE (Potential To Emit) is calculated — both by DEP and permit applicants — in units such as tons per year. What is the probability that a nearby resident will sustain an event that — **in the statutory language!** — “unreasonably interferes with the comfortable enjoyment of life or property”? How can such a probability be calculated based on a PTE measured in tons per year? There is a “missing link” to get from PTE measured in tons per year to the probability of exposure to a 25 PA Code § 121.1 violation. That missing link is a *dispersion study*.

So, what are we provided with in the way of a dispersion study to evaluate Plan? It is correct that Review Memo does discuss a dispersion study (Health Effects section, p. 8). The use of this dispersion study to evaluate probability of a 25 PA Code § 121.1 violation is massively flawed, on the following grounds:

- The study was not peer-reviewed. It was funded by an applicant.
- The study is not industry-relevant.

The dispersion study cited by DEP in its Review Memo is for a *landfill*. Using such a study to evaluate a compressor station is questionable at best. While parts of such a study may be relevant in evaluating chronic effects of *some* pollutants, it is completely useless in evaluating many kinds of event specific to compressor stations. Landfills do not suffer anything remotely similar to e.g. blowdown events. A blowdown is *designed* to emit a significant amount of gas in a very short period of time. How could a dispersion study from a landfill shed light on the probability for a nearby resident to suffer a 25 PA Code § 121.1 violation from a blowdown event? The dispersion study cited by DEP in Review Memo was clearly not designed to answer such a question.

- The study was not designed to cover acute effects.

The implications of these dimensions of failure of the dispersion study cited by DEP are clear: DEP must **withhold** approval of Plan, require MarkWest to submit a proper relevant dispersion study that includes calculation of probability of acute effects, and must reevaluate the Health Effects section of Review Memo.

DEP does not have to travel far from Welling to gain some insight on this point. Not far from Welling is another compressor station in the same township: Buffalo Compressor Station, operated by National Fuel Gas Supply Corporation, DEP permit # 63-00955B, eFACTS Site ID 732051. Although the technology for compression is not the same, the two compressor stations have similar aggregate horsepower. One key difference between the two compressor stations is that Buffalo Compressor Station is part of a pipeline regulated by the Federal Energy Regulatory Commission (FERC). On March 29, 2012, in FERC docket # CP11-512-000, ORDER ISSUING CERTIFICATE AND GRANTING ABANDONMENT, <http://www.ferc.gov/EventCalendar/Files/20120329141202-CP11-512-000.pdf> , FERC stipulated the following requirement in granting a federal Certificate of Convenience (CPC) to National Fuel Gas Supply:

12. Prior to placing into service the new compressors at the Buffalo Compressor Station, National Fuel shall submit a refined air quality dispersion modeling analysis demonstrating that the total emissions from the Buffalo Compressor Station would not result in exceedance of the 1-hour NO₂ (nitrogen dioxide) and annual PM_{2.5} (particles with an aerodynamic diameter less than or equal to 2.5 micrometers) National Ambient Air Quality Standards at both near and far field receptors. National Fuel shall provide information on all input parameters, emission controls and mitigation measures, and justify the basis for any assumptions.

Whatever dispersion study DEP may or may not have assessed in evaluating Plan Approval 63-00955B, it clearly did meet the standards of FERC. Now of course DEP is free to argue in this case that FERC has no jurisdiction, so the condition placed by FERC on National Fuel Gas Supply's CPC has no relevance to the Welling case. I would argue differently. The statutory requirement to assess a proper dispersion study for the probability of acute health effects comes from 25 PA Code § 121.1. DEP should consider paragraph 12 of FERC's order granting National Fuel Gas Supply's CPC as a clear caution that FERC is not satisfied with the type of material provided by Review Memo. Pennsylvania law is not the only level of law that applies here. DEP is acting in the Welling matter as the agent of the federal government in administering the Clean Air Act under the terms of the Pennsylvania SIP (State Implementation Plan). If FERC is not happy with how DEP is implementing its obligations under the Pennsylvania SIP, then surely residents nearby to Welling are entitled to even more dissatisfaction.

Response:

27. Comment:

“DEP’s assessment of the potential of Welling to cause adverse health effects is severely flawed by failure to consider an industry-relevant dispersion study that takes into account acute effects.

“The dispersion study cited by DEP in its Review Memo is for a *landfill*. Using such a study to evaluate a compressor station is questionable at best.”

Response:

The two dispersion studies that were referenced by the Department were for two different facilities having multiple *landfill gas-fired engines*, not for a *landfill* as asserted by the commenter. Both studies modeled a group engines from which formaldehyde emissions were greater than that of Welling. Since, in the first case, cancer and non-cancer risks were found to be below the Department’s human health risk benchmarks, and in the second case, ambient formaldehyde concentrations were found to be less than the Department’s acute (1-hour average) and chronic (5-year average) toxicity benchmarks and the long-term hazard quotient and calculated cancer risk thresholds, the Department is confident that cancer and non-cancer risks and acute (1-hour average) and chronic formaldehyde concentrations associated with formaldehyde emissions from Welling will be even lower than that of the referenced projects.

Appendix C

Hearing Testimony
House Democratic Policy Committee
August 2, 2010

My name is Pam Judy. I'm a resident of Carmichaels. I may not be able to provide you with the scientific or statistical data that these gentlemen can but what I can provide you is a first-hand account of how the Marcellus Industry has impacted mine and my family's lives. And why I believe our local municipalities and county government must begin regulating the industry.

In the spring of 2006 we built a new home on property given to me by my father. I'm the fourth generation to live on the family farm.

For three years we enjoyed the solitude of living in the country. Until the spring of 2009 when a compressor station was built on an adjoining landowners property 780 from our home. Our house sits in a valley downwind of the site.

When operations began we immediately noticed the noise and vibration which rattled the windows in our home. Shortly thereafter we started to notice fumes that would settle in our yard that had a kerosene or a sweet diesel/petroleum odor that continue to this day.

When we inhale the fumes our nasal passages and throats burn. We are experiencing headaches, runny noses, sore/scratchy throats, muscle aches and fatigue. Our daughter has commented that she feels as though she has cement in her bones. Both of our children experience nose bleeds. I've had dizziness, vomiting and vertigo to the point that I couldn't stand and was taken to an emergency room. Last fall, in preparing for deer season, our son was scouting for deer in areas of our property that are in close proximity to the compressor site. Within one day he developed blisters in his mouth and throat, had difficulty swallowing and on Thanksgiving morning was in an emergency room.

I'm sure you are aware of the DEP Ambient Air Quality Study conducted last June.

The results of the 24 hour canister sampling taken in our yard for that study revealed 16 chemicals including benzene, styrene, toluene, xylene, n-hexane, and heptane to name a few. In addition, methane concentrations at the Cumberland Compressor Site were detected at a level as high as 44.7 parts per million.

Many of the compounds found are known carcinogens and, if exposed, carry with them the very symptoms my family and I are experiencing. Benzene has been directly linked to blood cancers such as leukemia and non-hodgkins lymphoma.

Yet the final report from this study states that no emission levels were found that constitute a concern to the health of residents living near Marcellus operations. It further says that the sampling results were used to characterize *the acute non-cancer health risks associated with industry emissions and that the cumulative or long-term impact of air emissions or the lifetime cancer risks were not addressed.*

Hearing Testimony
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I would like to point out the inaccuracy of this report relative to testing at this site and our increased risk of exposure.

There are, in fact, four compressors on this particular hilltop and not three as sampled and recorded in this report.

In October 2010, prior to the release of this report, I filed with the DEP a Right-To-Know Request asking for all documentation with regard to the site. Based on the information I received it is quite apparent that the DEP is either turning a blind eye with regard to the industry or are simply inept at fulfilling their responsibilities.

In August 2005 Energy Corporation of America submitted for approval a permit application for one compressor at a site called Energy Corp/Henderson Compressor Station.

On August 13, 2008 the Department received an application which was approved on September 20th for the installation of one engine at the Energy Corp/Cumberland Compressor Station. Two subsequent applications were filed by ECA seeking approval for a second and third engine.

The Henderson and Cumberland sites are located less than 100 yards apart on property leased from the same individual.

Therefore, there are four engines on this property instead of the three sampled and reported in this study. Thus, the numbers do not accurately reflect the total emissions from all compressors.

Following my receipt of the file and my many conversations with the DEP, the department conducted an inspection and concurred with me that the two sites should be permitted as one. On July 15, 2011 Energy Corporation of America submitted for approval a Single General Plan and General Permit Application including all four engines as one site. In addition emissions control technology was proposed. Previously the only form of emissions control was a catalytic converter on the third engine at the Cumberland Site. This was a condition of permit approval because formaldehyde emissions would have reached or exceeded EPA guidelines.

Since September 2008 the DEP has allowed these facilities to operate simultaneously as separate facilities in violation of DEP regulations. This lack of oversight is just one example of the many reasons why our local government must be more active in regulating the oil and gas industry.

Local officials, especially those to the north of Greene County have begun to challenge the Oil & Gas Act to identify the practical effect of the Act's pre-emption. These officials are finding that as long as they stay away from regulation of the "same features" or "same purposes" additional forms of local protection can be provided.

Operators, however, have attempted to take the position, and have managed to convince smaller municipalities, that the Act pre-empted in totality any local regulation. This simply is not true.

Everyone is familiar with the court's decisions in *Huntley vs. Borough Council of Oakmont* and *Penneco Oil Co. vs. County of Fayette*. These cases clearly established the "how" vs. "where" associated with the oil and gas industry. Both decisions were based primarily on the fact that the Borough Council and County of Fayette regulated primarily where drilling could take place as opposed to how. These cases demonstrated that the Act's pre-emptive language was not all-encompassing; thereby allowing municipalities to retain their traditional zoning powers with regard to oil and gas drilling despite the Act's pre-emptive language. They also provided that municipalities could identify the nature of oil and gas drilling as a "use".

With regard to emissions the Purdon's Pennsylvania Statute permits municipalities to enact ordinances regulating air quality so long as those ordinances are at least as stringent as the Clean Air Act and the Pennsylvania Air Pollution Control Act. Therefore, municipalities may require vapor destruction or vapor recovery units, updated condensation tanks, or the best technology available in order to capture or eliminate possible harmful emissions.

In Greene County we have failed for some reason to develop meaningful ordinances that will protect the health, welfare and safety of our residents. Local government plays a vital role with regard to neighborhoods, businesses and development. They are left to balance drilling versus public health. Therefore, not addressing zoning to establish setbacks for compressor sites or to determine the area where drilling can take place simply is not an option. My family and others are becoming an accepted form of collateral damage because of their lack of due diligence.

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