

Are Natural Gas Compressor Stations Good Neighbors? We don't think so!

Compressor Stations – The Good, the Bad, and the Very Ugly

By Wil and Angela Stanton
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After the meeting in Giles County with EQT/NextEra on 21 November, Tina Badger posted a message that stated, “The residents of Montgomery County may find it interesting that Sherman [Executive from NextEra representing the Mountain Valley Pipeline] speculated that the compressor station would likely be located about 25 miles from the state line”. Given that it was reported in the Roanoke Times that there would be approximately 19 miles of the proposed MVP in Giles County¹ then that would put the compressor station “smack in the middle of Montgomery County territory”.² But then came the Mountain Valley Pipeline, LLC (MVP) Draft Resource Report #1 And Summary of Alternatives which placed the compressor station at mile marker 224 in Roanoke County. So as with all things associated with EQT/NextEra and the MVP, things change.

According to Duncan Adams of the Roanoke Times³

“That location would put the above-ground compressor station about 2,000 feet from the Spring Hollow Reservoir, a key source of drinking water for the Roanoke Valley, according to Natalie Cox, a spokeswoman for Mountain Valley Pipeline.

In filings on Dec. 1 and Dec. 5, Mountain Valley reported that it had identified three possible sites in West Virginia for compressor stations and one site in Virginia — the so-called Swann Station in Roanoke County.

Spaced along buried transmission pipelines, above-ground compressor stations maintain the pressure and velocity of natural gas moving through pipelines. The pressure boost is necessary because friction and elevation changes in the pipeline slow the flow of gas. In the case of the Mountain Valley Pipeline, the compressor station's site in Roanoke County would precede the pipeline's ascent of Poor Mountain and crossing of Bent Mountain.

Compressor stations can be a source of air and noise pollution.

Bill Hayden, a spokesman for the Virginia Department of Environmental Quality, said a compressor station in the state likely would need a permit from DEQ “to cover air emissions such as volatile organic compounds and nitrous oxides that result from combustion of natural gas to run the compressors.”

Cox said land required for a compressor station typically is less than 10 acres but said the actual land acquired “will vary based on its geographic location.” Pipeline companies often obtain additional acreage to serve as a noise buffer.

¹ Anger, defiance mark Mountain Valley Pipeline meeting in Giles County Posted: Friday, November 21, 2014 7:07 am by Duncan Adams http://www.roanoke.com/news/local/giles_county/anger-defiance-mark-mountain-valley-pipeline-meeting-in-giles-county/article_1fe8c9f3-dc38-5847-a8e5-2bc1a6d3d40b.html?mode=story

² Tina Badger, Post to *Preserve the NRV* Facebook page, November 21 at 7:29am

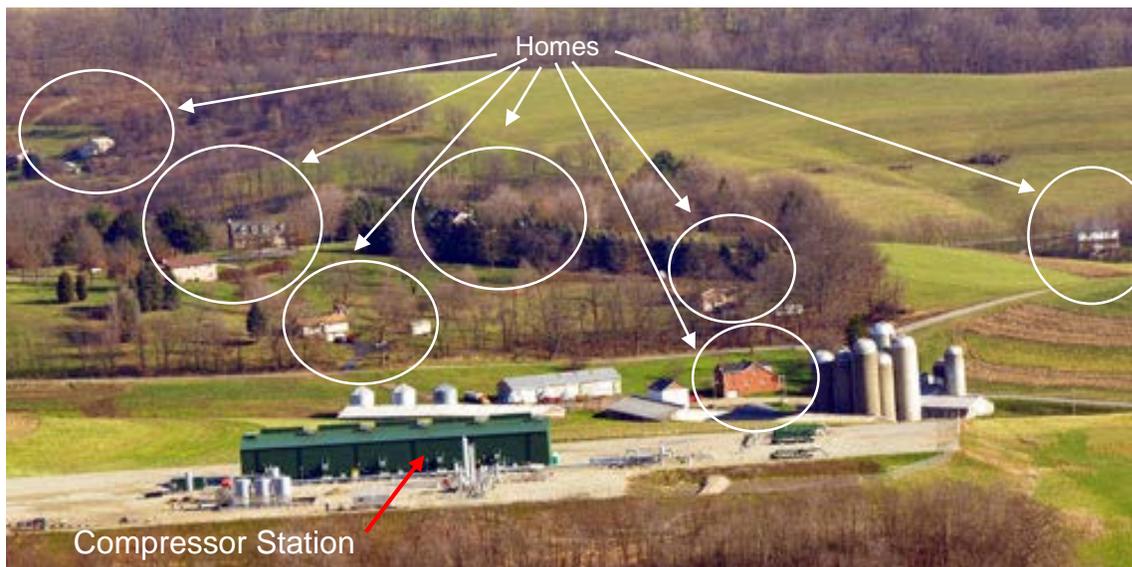
³ Mountain Valley Pipeline eyes Roanoke County as site for compressor station, by Duncan Adams, Roanoke Times, Roanoke.com, December 8, 2014, Accessed 10 December 2014 http://www.roanoke.com/news/local/roanoke_county/mountain-valley-pipeline-eyes-roanoke-county-as-site-for-compressor/article_e99a1ecf-b563-52cd-8be5-d8236174a99d.html

Tamara Young-Allen, a spokeswoman for FERC, said that noise from an interstate natural gas compressor station cannot exceed 55 decibels — comparable to a home air conditioner or a quiet office — at the nearest “noise-sensitive area,” which could be a residence, school or similar property. [Note: either Ms. Young-Allen or Mr. Adams got it wrong because FERC reports that the “Average will be 55 decibels” which could mean a period of 75 dBs and another of 35 dBs. More on this later.]

Regardless of which county or the exact location within a county where a compressor station may be proposed to go, you need to know about natural gas compressor stations – the good, the bad, and the downright ugly.⁴

What Are Compressor Stations?⁵ (See photographs⁶)

Compressor stations boost the pressure that is lost through friction as the gas moves through the steel pipes.⁷ They are necessary to the operation of a pipeline, although they are not necessarily good for the operation of humans, pets, livestock, and the fragile ecosystem of our earth.



⁴ Compressor stations not good neighbors, published Feb 19, 2013, in Observer-reporter.com, Accessed 10 December 2014 http://www.observer-reporter.com/article/20130219/OPINION02/130219134#.VljGJzHF_xQ Also, When Energy Companies are Bad Neighbors, by Stephanie Paige Ogbum Accessed 10 December 2014 <http://www.kunc.org/post/when-energy-companies-are-bad-neighbors>

⁵ Compressor Stations: What They Do, How They Work, and Why They Are Important - <http://setxind.com/midstream/compressor-stations-what-how-why/> In STI Group, 21 Jan 2014

⁶ (Photograph accessed 10 December 2014 <http://cecfairfieldtexas.blogspot.com/>)

⁷ EPA 2000 EPA (U.S. Environmental Protection Agency), 2000, Profile of the Oil and Gas Extraction Industry, EPA/310-R-99-006, Office of Compliance, October. Accessed 10 December 2014 <http://www.epa.gov/compliance/resources/publications/assistance/sectors/notebooks/oilgas.pdf> Accessed 10 December 2014)

According to MPV:

“There will be four compressor stations, including an initial station designed to provide suppliers immediate access to the pipeline at its northern–most point, and three relay stations designed to boost the pipeline pressure periodically to allow for the intended capacity.”⁸

“The compressor stations are still in the initial design phase and therefore the discussion of the compressor stations is only conceptual at this time. The precise location, horsepower, and design information will be provided in a subsequent Resource Report 1.”⁹

The total number of compressor stations required to move the fracked gas produced by EQT/NextEra in the Marcellus shale region will depend on many variables including final capacity of the pipeline and terrain traversed. But according to MVP,

“The proposed pipeline will extend from the existing Equitrans, L.P. transmission system in Wetzel County, West Virginia to Transcontinental Gas Pipe Line Company, LLC’s (Transco) Zone 5 compressor station 165 in Pittsylvania County, Virginia. In addition to the pipeline, the Project will require approximately 217,000 horsepower (hp) of compression at approximately four compressor stations along the route as well as measurement, regulation, and other ancillary facilities required for the safe operation of the pipeline.”¹⁰

“The Project will require four compressor stations along the pipeline. As currently contemplated, Bradshaw Station will be at approximate MP 5.0, Harris Station at approximate MP 75.0, Stallworth Station at approximate MP 150.0, and Swann Station at approximate MP 224.0. MVP is in the process of evaluating potential sites for each station, and will identify the preferred locations of the compressor stations that result from that analysis in a subsequent draft of Resource Report 1. The pre-filing draft of Resource Report 10 will include a description of alternative sites that are identified during this evaluation, and a quantitative comparison of environmental and engineering features between the proposed and alternative sites.”¹¹

The proposed compressor station in Roanoke County is referred to as the *Swann Station*.

“Swann Station will be constructed at approximately MP 224.0 in Roanoke County, Virginia and will pull gas from the Stallworth Station, for delivery to the Transco Interconnect. The approximately 31,800 hp station is designed to raise the pressure from 800 psig to 1,480 psig, [pounds per square inch] with an expected operating range from 989 psig to 1,250 psig. The compressor station capacity is not fully determined, but the target capacity at this time is 2,000 MMcfd [2,000 million cubic feet equivalent to 2 billion cubic feet] with a potential of flowing up to 2,500 MMcfd [2 ½ billion cubic feet] via a mix of centrifugal turbine units. The station is not expected to require dehydration, but typical filtration and separation equipment will be installed. A plot plan of the station will be provided in a subsequent Appendix 1-C.”¹² [Hopefully more information will be coming sooner rather than later].

⁸ MVP Resource Report 1, General Project Description, 1.2.2 Aboveground Facilities, p. 146, http://preservethenv.com/MVP_draft_resource_report1_alternative_summary_FERC_filing_dec2014.pdf

⁹ MVP Resource Report 1, General Project Description, 1.2.2.1 Compressor Stations, p. 146

¹⁰ Draft Resource Report #1 and Summary of Alternatives, Section 10.1, Introduction, p. 5 of PDF

¹¹ Summary of Alternatives, Section 10.6, Compressor Station Site Alternatives, p. 24 of PDF

¹² Resource Report 1, General Project Description, 1.2.2.1 Compressor Stations, p. 146 of PDF

Natural gas transmission compressor stations utilize gas turbines to drive gas compressors. The industrial scale or aero-derivative turbines used in pipeline applications range in size from approximately 1,000 horsepower (hp) to 40,000 hp (0.75 to 30 megawatt (MW)). Over 75% of the turbines in interstate natural gas transmission service are rated at less than 10,000 hp (7.5 MW), with an average size of 6900 hp and a median size of 4800 hp.¹³ The Swan Station with a combined compressor horsepower rating of 31,800 hp will likely have six or seven very large compressors.



Constructing the Compressor Stations

The process for the construction of the compressor station is provided in the MVP prefiling Resource Report 1, general Project Description, Docket No. PF15-3.¹⁴

“Construction activities and storage of construction materials and equipment will be confined within the compressor station and interconnect site boundaries. Debris and wastes generated from the construction and retirement of existing facilities will be disposed of as appropriate. All surface areas disturbed will be restored in a timely manner. The facilities will be constructed in accordance with MVP construction standards and specifications.”

Usually the natural gas pipeline company, e.g., MVP, “purchases” or “acquires” through eminent domain ten to forty acres for a compressor station, of which about five to 20 acres are actually used for construction.¹⁵ The land for the compressor station will require an all-weather gravel access road, compressor building, cooling fans, a control building, and possibly two or three small auxiliary buildings.

“A typical compressor station houses the gas turbine compressor package as well as the instrumentation controls and equipment required to monitor and operate the engines and compressors. Compressor stations are typically enclosed by a chain-link fence, and most have some type of additional security equipment such as cameras and motion sensors [security lights surround the facility and are illuminated all night, every night].

Somewhat less than 100 workers and five inspectors are required to construct a typical compressor station. Initial site preparation typically takes approximately 16 to 20 weeks, while actual installation requires more than 6 months. The lead time needed to purchase some equipment, such as compressors, is more than 1 year.¹⁶

¹³ The Routine Overhaul of Natural Gas-Fired Combustion Turbines in Interstate Natural Gas Transmission Service, December 2004, Interstate Natural Gas Association of America, Accessed 10 December 2014

¹⁴ Resource Report 1, General Project Description, 1.4.2 Above Ground Facilities Construction, p. 168 of PDF

¹⁵ An Interstate Natural Gas Facility on My Land, Key Issues Involving Location of the Project, Federal Energy Regulatory Commission, Office of Energy Projects, Accessed 10 December 2014, <http://www.ferc.gov/for-citizens/citizen-guides/citz-guide-gas.pdf>

¹⁶ Natural Gas Pipeline Technology Overview, Argonne National Laboratory, by S. M. Folga, Environmental Science Division, ANL/EVS/TM/08-5, November 2007, Accessed 10 December 2014 http://corridoreis.anl.gov/documents/docs/technical/APT_61034_EVS_TM_08_5.pdf

Foundations

“Excavation will be performed as necessary to accommodate the new reinforced concrete foundations for the new compressors, launching and receiving facilities, metering equipment, and buildings. Subsurface friction piles may be required to support the foundations, depending upon the bearing capacity of the existing soils and the equipment loads. Forms will be set, rebar installed, and the concrete poured and cured in accordance with applicable industry standards. Concrete pours will be randomly sampled to verify compliance with minimum strength requirements. Backfill will be compacted in place, and excess soil will be used elsewhere or distributed around the site to improve grade. Additional information pertaining to foundations will be included in the typical design drawings included in a subsequent Appendix 1-C.”¹⁷ [Hopefully more to come].

Access Road to Compressor Station

As noted above, compressor station construction and operation will require an access road. If there is not already a road to provide access, the pipeline company will “acquire” property to build one either through volunteer sale/purchase or through eminent domain. This is a photograph of a landowner “providing” access to the construction and future operation of a compressor station.¹⁸



¹⁷ Resource Report 1, General Project Description, 1.4.2 Above Ground Facilities Construction, p. 168 of PDF

¹⁸ Early excavation of access road to the Buffalo Compressor Station, Marcellus-shale.us Buffalo Compressor Station, Buffalo Township, 165 Coffeys Crossing Road, Washington, PA 15301, accessed 10 December 2014 http://www.marcellus-shale.us/Marcellus-gas-facilities.htm#BUFFALO_COMPRESSOR_STATION

Equipment

“The compression, piping and other equipment will be shipped to the site by truck. The equipment will be offloaded using cranes or front-end loaders, or both. The equipment will then be positioned on the foundations, leveled, grouted where necessary, and secured with anchor bolts.

All non-screwed piping associated with the aboveground facilities will be welded, except where connected to flanged components. All welders and welding procedures will be qualified in accordance with API standards. All welds in large diameter gas piping systems will be examined using radiography, ultrasound, or other approved NDE methods to ensure compliance with code requirements.

All aboveground piping surfaces will be cleaned and painted in accordance with MVP construction specifications. All paint inspection and cleanup will be conducted in accordance with regulatory requirements and best engineering practices.”¹⁹

Testing

All components in high-pressure natural gas service will be tested prior to placing in service. Hydrostatic testing will follow all applicable Federal, state, and local requirements. Before being placed in service, all controls and safety equipment and systems, including emergency shutdown, relief valves, gas and fire detection, and engine overspeed, and vibration protection will be calibrated and tested.”²⁰

Relatively small amounts of water (on the order of 300,000 gal) are needed to meet the hydrostatic testing requirements of the compressor station and associated piping.²¹ [Will MVP get that water from the Spring Hollow Reservoir?]

Operation and Maintenance

According to MVP,

“The compressor station crews will perform operation and maintenance of all equipment. Crews will perform routine checks of the facilities including calibration of equipment and instrumentation, inspection of critical components, and scheduled and routine maintenance of equipment. Safety equipment, such as pressure relief devices, fire detection and suppression systems, and gas detection systems will be tested for proper operation. Corrective actions will be taken for any identified problem.

The compressor stations will be equipped with combustible gas and fire detection alarm systems, and an emergency shutdown system. The gas detection system will alarm upon detection of 25 percent of the lower explosive limit of natural gas in air. Automatic emergency shutdown of the compressors, evacuation or venting of gas from the station piping, and isolation of the station from the main pipeline will occur following a fire detection alarm or the detection of a 50 percent lower explosive limit inside the station. The compressor stations will also be equipped with relief valves or pressure protection devices to protect the station

¹⁹ Resource Report 1, General Project Description, 1.4.2 Above Ground Facilities Construction, p. 168 of PDF

²⁰ Ebid.

²¹ (FERC 2005b FERC, 2005b, “Chapter 3: Environmental Analysis” in: FEIS for the Piceance Expansion Natural Gas Pipeline. Available at <http://www.ferc.gov/industries/gas/enviro/eis/2005/08-12-05.asp> . Accessed 10 December 2014)

pipng from overpressure if station or unit control systems fail. The stations will be unmanned with start/stop control capabilities controlled by the MVP's Gas Control headquarters, located in Pennsylvania at EQT Plaza. A telemetry system will notify personnel locally and at the gas control headquarters of the activation of safety systems and alarms as appropriate. Maintenance personnel may be dispatched to investigate and take proper corrective actions, if necessary."²²

IMPACTS

There will be necessary consequences of constructing, operation, and maintenance of a compressor station. According to MVP,

“At this phase in Project development the exact design of compressor station facilities are unknown and therefore it is not possible to predict potential cumulative impacts on air and noise. In addition, other projects in the region are also in the initial design phase which makes it impossible to predict cumulative impacts with any certainty.

A complete cumulative impacts analysis will be provided in a subsequent Resource Report 1. Projects in the vicinity of the Project will be identified and all potential cumulative impacts will be analyzed as they relate to the Project. Projects will be summarized in a table that will include the name of the project, scope, distance and direction from the Project, and resources that may experience cumulative impacts.”²³

Emissions

Not only will the compressor run on natural gas as stated by EQT/NextEra at a recent meeting with the Montgomery County Board of Supervisors at a working meeting held at the Blacksburg High school on 5 November with more than 1,100 concerned citizens in attendance,²⁴ the compressor stations will emit huge amounts of methane gas into the atmosphere. The Department of Energy is taking first steps to look into mandatory energy efficiency standards for natural gas compressors which are estimated to use up 7 percent of the gas consumed in the United States.^{25 & 26}

According to Rainer Kurz, Matt Lubomirsky, and Klaus Brun,

“Direct emissions would result from the construction of a natural gas compressor station, although construction impacts are expected to be temporary and transient, and the short-term exposure levels are considered minimal. These emissions include exhaust from the construction equipment and vehicle engines and fugitive dust from the disturbed areas along the ROW.

²² Resource Report 1, General Project Description, 1.5.2.1 Operations and Maintenance, Compressor Stations, p. 175 of PDF

²³ Resource Report 1, General Project Description, 1.10, Cumulative Impacts Compressor Stations, p. 180 of PDF

²⁴ Montgomery County Board of Supervisors Meeting with EQT/NextEra, November 6, 2014. https://www.youtube.com/watch?feature=player_embedded&v=0K8vp0RM7qU

²⁵ METHANE: DOE discloses first steps to curb leaks in natural gas systems, Gayathri Vaidyanathan, E&E reporter, ClimateWire: Wednesday, July 30, 2014, accessed 8 November 2014, <http://www.eenews.net/stories/1060003765>

²⁶ Energy Efficiency Criteria Coming for Compressors: U.S. Energy Department program directed at pipeline leaks, *Published: 07/30/2014 08:54 AM*, accessed 8 November 2014, <http://www.compressortech2.com/July-2014/Energy-Efficiency-Criteria-Coming-for-Compressors/#.VF66tvnF9v0>

Compressor stations emit air pollutants as a result of the combustion of natural gas that drives the compressor units and the periodic operation of an auxiliary generator.²⁷ Products of incomplete combustion include VOC's, CO, methane, and formaldehyde.

CO₂ is the product of burning any type of hydrocarbons. CO₂, and some other gases, such as methane, are considered greenhouse gases. Typically, all greenhouse gases are lumped together into a CO₂ equivalent. In this context, it must be noted that methane is considered about 20 times as potent a greenhouse gas as CO₂. Thus, the amount of CO₂ or methane that is released to the atmosphere has to be considered as a cost in the economic evaluation.

It further needs to be considered that the engine exhaust is not the only source of emissions in a compressor station related to the compression equipment. There are also sources of methane leaks in the compression equipment that may have to be considered. In this case, one has to distinguish leakage that is easily captured and can thus be fed to a flare and leakage that cannot be captured easily. Further, it may have to be evaluated how frequently the station has to be blown down. For example, whether the compression equipment can be maintained and started from a pressurized hold determines the amount of unwanted station methane emissions.

Lastly, other consumables may have to be considered. The frequency and cost of lube oil changes, as well as lube oil replacements due to lube oil consumption, generate costs on various levels: first, the replacement cost for lube oil, second, if the lube oil is used in the combustion process, the resulting emissions, and third, if the lube oil enters the pipeline, the cost due to the pipe contamination, including possibly the increased maintenance cost of downstream equipment.”²⁸

Most natural gas is referred to as "dry." "It generally consists of 95% methane, 3% ethane, propane, and butane, and 2% non-hydrocarbon gases such as carbon dioxide, nitrogen, or helium (EPA 2010). However, some forms of natural gas, called "wet", contain up to 20% of ethane, propane, and butane. These components have to be removed or converted to methane to produce dry natural gas that is piped to customers.”²⁹

The gas produced in the Marcellus shale region, the source of the gas proposed to go through the MVP, is generally referred to as "wet" gas and contains many contaminants. According to Sara Delgado, "Wet gas consists primarily of methane but also contains varying amounts of natural gas liquids such as ethane (C₂); propane (C₃); normal butane (NC₄); isobutane (IC₄); pentanes plus (C₅+) which are all hydrocarbons. Wet gas does need to be treated and processed to remove these natural gas liquids or NGLs".³⁰ EQT/NextEra may in fact remove all the contaminants before it enters the interstate transmission pipeline line, but compressor stations are often used along routes to continue to clean the fracked gas before it reaches its

²⁷ Natural Gas Pipeline Technology Overview, Argonne National Laboratory, by S. M. Folga, Environmental Science Division, ANL/EVS/TM/08-5, November 2007, Accessed 10 December 2014 http://corridoreis.anl.gov/documents/docs/technical/APT_61034_EVS_TM_08_5.pdf

²⁸ Gas Compressor Station Economic Optimization by Rainer Kurz, Matt Lubomirsky, and Klaus Brun. International Journal of Rotating Machinery, Volume 2012 (2012), Article ID 715017, 9 pages. <http://dx.doi.org/10.1155/2012/715017>

²⁹ The Institute for Energy & Environmental Research: For Northeastern Pennsylvania <http://energy.wilkes.edu/pages/148.asp> Marcellus Shale Information Clearinghouse.

³⁰ Sara Delgado, Sr. Communication Specialist, Communications & Strategic Outreach, Williams Partners. In response to an email inquiry. Response received on November 26, 2014.

final destination – in the case of the MVP that final destination will be the Transco station 165 in Pittsylvania County.

If contaminants are removed before the gas enters an interstate pipeline it will be considered “dry” but as it passes through the pipeline, water and other hydrocarbons may condense out of the gas. Thus, compressor stations will also remove these impurities from the gas so that they can be disposed of or sold as desired.³¹

Almost all compressor stations are equipped with filter separators and/or scrubbers that remove any natural gas liquids or solid particles that may have entered the pipeline from various interconnects and/or receipt points along the pipeline prior to the gas entering the gas compressors.^{32 & 33} It appears that the MVP considers some contaminants possible as filtration will be a component of the Swan Station.

The station is not expected to require dehydration, but typical filtration and separation equipment will be installed. A plot plan of the station will be provided in a subsequent Appendix 1-C³⁴

Other Emissions

It is estimated that 49.6 billion cubic feet of methane gas is lost each year due to fugitives (unplanned and unwanted emissions) and 7 billion cubic feet of methane is lost from compressor venting (also referred to as blowdowns). Natural gas compressors cycle on- and off-line to match fluctuating gas demand at the termination point, e.g., Transco compressor station 165 in Pittsylvania County. The standard practice is to blowdown (depressurize) off-line compressors. Based on a presentation at an industry association workshop,³⁵ on average one blowdown vents 15,000 cubic feet of methane gas into the atmosphere; and an additional 1.4 thousand cubic feet of methane on average is lost through open blowdown vents. Additionally, blowdowns or pressure releases are very loud and frighten children and animals. So, methane will be vented, the winds will move it, those in its path will suffer, and a greenhouse gas 20 times more potent than CO₂ will be released into the atmosphere. (See also Do Natural Gas Wells, Pipelines and Compressor Stations Leak, Potentially Endangering Our Water, Land, And Lives?³⁶)

As stated above, the U.S. Department of Energy has announced a series of initiatives aimed at curbing methane emissions from the nation’s natural gas infrastructure.³⁷

³¹ Compressor Stations: What They Do, How They Work, and Why They Are Important - <http://setxind.com/midstream/compressor-stations-what-how-why/> In STI Group, 21 Jan 2014

³² Inside a Natural Gas Compressor Station, Spectra Energy, accessed 20 December 2014 http://www.spectraenergy.com/content/documents/media_resources_pdfs/insidenatgascompressstn.pdf

³³ The Transportation of Natural Gas, NaturalGas.org, accessed 10 December 2014 <http://naturalgas.org/naturalgas/transport/>

³⁴ Resource Report 1, General Project Description, 1.2.2.1 Compressor Stations, p. 146 of PDF

³⁵ Reducing Emissions when Taking Compressors Off-line, Transmission Technology Transfer Workshop, prepared by Duke Energy, Interstate Natural Gas Association of America, and EPA’s Natural Gas STAR Program, September 2004, Accessed 10 December 2014, <http://www.oilandgasbmps.org/docs/GEN18-ReducingEmissionsTakingCompressorsOffline.pdf>

³⁶ Do Natural Gas Wells, Pipelines and Compressor Stations Leak, Potentially Endangering Our Water, Land, And Lives? <http://preservethenv.com/2014/11/do-natural-gas-wells-pipelines-and-compressor-stations-leak-potentially-endangering-our-water-land-and-lives/>

³⁷ U.S. Department of Energy seeks to curb methane emissions from gas infrastructure, JULY 29, 2014 | 5:15 PM By Marie Cusick, accessed on 8 November 2014, <http://stateimpact.npr.org/pennsylvania/2014/07/29/u-s-department-of-energy-seeks-to-curb-methane-emissions-from-gas-infrastructure/>

Compressor Noise

Major issues surrounding compressor stations involve air pollution (as noted above), noise that includes loud pressure releases, and sight pollution.³⁸

So how loud are interstate pipeline compressor stations?



Wendy Mimiaga
Ned Harper of Summit Ridge stands next to a natural-gas compressor station that neighbors say is obnoxiously loud.

FERC regulates interstate pipeline compressor stations and require that the station's noise levels do not exceed an average day-night sound level (Ldn) of 55 decibels³⁹ (dBA) at the nearest noise sensitive area (NSA), e.g., residences, schools, hospitals, churches, playgrounds and camping facilities, when operating at full load. Noise surveys are conducted before and after construction to verify these federal noise levels are not exceeded. As a point of reference, the average home dishwasher is 50 dBA.⁴⁰

The decibel level only measures loudness. But many other factors affect how noise is perceived—from its frequency, to the topography of the area, even the weather and wind speed on a particular day. One person lives about 3,000 feet away from a compressor station in Susquehanna County, PA and describes the noise as, "You lay in bed, you can hear this thing running. It sounds like a truck in the driveway, 30 feet away"⁴¹

In many rural areas, the sounds of nature are being drowned out by the operating noise of natural gas compression stations and impacting the quality of life for residents. The noise level near a compressor station can be up to 100 decibels whereas the usual nighttime noise level in many rural areas is around 35 decibels.^{42&43}

³⁸ Marcellus-shale.us, Lowry Compressor Station, accessed 10 December 2014, http://www.marcellus-shale.us/Lowry_Compressor-Sta.htm

³⁹ An Interstate Natural Gas Facility on My Land, Key Issues Involving Location of the Project, Federal Energy Regulatory Commission, Office of Energy Projects, Accessed 10 December 2014, <http://www.ferc.gov/for-citizens/citizen-guides/citz-guide-gas.pdf>

⁴⁰ Inside a Natural Gas Compressor Station, Spectra Energy, accessed 20 December 2014 http://www.spectraenergy.com/content/documents/media_resources_pdfs/insidenatgascompressstn.pdf

⁴¹ State Regulators take a closer listen to gas compressor stations, by Marie Cusick, August 25, 2014, accessed 10 December 2014, <http://stateimpact.npr.org/pennsylvania/2014/08/25/state-regulators-take-a-closer-listen-to-gas-compressor-stations/>

⁴² (Reducing the Impact of Natural Gas Compressor Noise, United States Department of Agriculture, USDA, March 2014, Accessed 10 December 2014.)

⁴³ Living near industry can have drawbacks, citizens say, by Gail Binkly, Four Corners Free Press, December 2009, Accessed 10 December 2014 <http://fourcornersfreepress.com/news/2009/120903.htm>

If you would like to see and hear the problems associated with interstate natural gas pipeline compressor stations then watch the video, "Compressor Station Noise and Odor Complaints by Nearby Residents" <https://www.youtube.com/watch?v=tA5cnJCyBA>.⁴⁴

Summary

Interstate natural gas pipelines require compressor stations to maintain sufficient pressure to efficiently transport the gas. The proposed MVP and its proposed Swan Station will present numerous issues during construction and then throughout the life of pipeline's operation. While a compressor station is a necessary evil for the successful operation of the MVP and required to transport the gas so EQT/NextEra can make huge profits, we have found no evidence of residence living near a compressor station thinking it added anything but harm to their land, lives, air, and environment.

Disclaimer: While every precaution has been taken to provide the most accurate information and honest analysis, please use your discretion before making any decision or taking any action based on the information in this post. The views and opinions expressed in this post are ours and ours alone. Those providing comments on this post are theirs and theirs alone. The owner of this post will not be liable for any errors or omissions in this information. The owner will not be liable for any losses, injuries, or damages from the display or use of this information.

⁴⁴ Compressor Station Noise and Odor Complaints by Nearby Residents - <https://www.youtube.com/watch?v=tA5cnJCyBA> Published on Oct 19, 2012, Taped 10-10-12. Residents living near the Lathrop Compressor Station in Springville, Pa., Susquehanna County, PA. This Gas Compressor has seven compressors and is the largest one in the county so far and now a new one is being built within two miles of this! The Residents complain of constant noise in the 53 to 73 decibel range or more and the odors. This is 24/7 impact. The homes are on Fitch Hill Rd., off Hunter Rd.