

# Buckingham County Planning Commission Packet



October 17, 2016

**Buckingham County Planning Commission**  
**Agenda**  
**Monday, October 17, 2016**  
**County Administration Building**  
**6:00 P.M.**

1. Reconvene from September 26<sup>th</sup> by Planning Commission Chairman
  - Invocation
  - Pledge of Allegiance
  - Establishment of Quorum
  
2. Adoption of Agenda
  
3. Old Business
  - A. Continued Public Hearing – 16SUP236 ACP Compressor Station  
(only those signed-up on September 26<sup>th</sup> will be allowed to speak)\*
  
4. Commission Matters / Concerns
  
5. Adjournment

**Items submitted during Public Hearing  
and since September 26<sup>th</sup>**

**No additional items from Dominion or ACP at this time.**

*I would like to save my place in  
line for Oct. 17. I must leave.  
Thank you  
Fillmer Hevener*

GOOD EVENING. I AM FILLMER HEVENER FROM DISTRICT 3.

THANK YOU FOR CONDUCTING THIS HEARING.

EMINENT DOMAIN IS A TIME-HONORED PRACTICE,  
ALLOWING FOR THE PUBLIC GOOD.

The Fifth Amendment to the U.S. Constitution says 'nor shall private property be taken for public use, without just compensation.' THE VIRGINIA CONSTITUTION PROVIDES THE SAME REQUIREMENT.

WHAT IS PUBLIC USE? IS THE TAKING FOR A GAS PIPELINE A PUBLIC USE?

**Article I, § 11 of the Virginia Constitution states: "A public service company, public service corporation, or railroad exercises the power of eminent domain for public use when such exercise is for the authorized provision of utility, common carrier, or railroad services.**

What is a public service corporation?

**Definition:** (LEGAL)

**A Privately or publicly held firm organized to provide a particular service such as communications, electricity, gas, transportation, or water.**

**THEREFORE, THE ECP DOES QUALITY AS A PUBLIC SERVICE.**

The entire Hampton Roads delegation to the Virginia General Assembly — 20 Republicans and 13 Democrats — has strongly endorsed the project. They are joined by Gov. Terry McAuliffe and thousands of businesses, labor organizations and individuals from every walk of life across our region.

**REASONS FOR SUPPORT:**

**1. TAX BENEFITS TO COUNTY: BRING IN APPROX. 1.25 MILLION DOLLARS ANNUALLY. THIS WOULD HELP COMPENSATE FOR THE 10% REAL ESTATE TAX INCREASE THAT WAS VOTED FOR THIS YEAR.**

**2. THE CONSTRUCTION WOULD SUPPORT SOME 17, 240 JOBS.**

**3. IN VIRGINIA SOME 1300 JOBS WOULD BE SUPPORTED ANNUALLY AFTER CONSTRUCTION.**

**4. NOISE LEVELS MUST MEET STRICT GOVERNMENT STANDARDS.**

**IN SUMMARY, I SUPPORT THIS GAS PIPELINE BECAUSE:**

- 1. IT IS LEGAL AS DEFINED BY BOTH THE FEDERAL AND STATE CONSTITUTIONS.**
- 2. IT WILL PROVIDE OUR COUNTY WITH BADLY NEEDED WELL-PAYING JOBS.**
- 3. IT WILL SIGNIFICANTLY ADD TO THE COUNTY'S TAX BASE.**
- 4. IT WILL PROVIDE CLEAN, ABUNDANT ENERGY FOR CONSUMERS.**
- 5. IT WILL PROVIDE SOME 377 MILLION DOLLARS IN SAVINGS FOR CONSUMERS.**
- 6. ACCORDING TO THE U.S. DEPARTMENT OF TRANSPORTATION, UNDERGROUND GAS PIPES ARE MUCH SAFER THAN ROADS, AIR, OR RAIL TRANSPORTATION FOR MOVING GAS.**

**THEREFORE, I URGE YOU TO VOTE FOR GOOD COUNTY JOBS AND A BROADENED TAX-BASE, NOT FOR COUNTY STAGNATION.**

**SIGNED: FILLMER HEVENER (435) 392-6255**

**224 MOHLE ROAD FARMVILLE VA 22041**

*Buckingham County*

**Buckingham Planning Commission**

**September 26, 2016**

Please deny the Compression Station application. If you do not, please place conditions on it as described below.

Irene Ellis Leech

Mt. Rush Farm

This would be an industrial use in the middle of an historic residential community. It does not fit and it is not a portion of the county in which it will ever make sense to place industrial facilities.

There is no compensation, much less benefit, to the immediate community for the loss of peace, quiet, clean air, and overall decreased environmental conditions due to this industrial application. Many in the county would experience problems even though they are not aware of that fact. In the US we have a long track record of inadequate local, state and federal resources to appropriately monitor and enforce reasonable standards for the environment and safety.

Congress has set lower standards and requires greater risk acceptance by people in rural areas – thinner pipe, greater distances between shut-off valves, less frequent inspections of infrastructure, lower air, etc. Comparatively fewer citizens may be affected but those affected are affected more severely than is allowed in populated areas. This is not acceptable. Buckingham is not a Sacrifice Zone.

As a condition of rezoning, Buckingham must require higher standards for inspections and levels of safety, emissions, water quality, noise, and light with regular reporting by an independent third party paid for by the company but supervised by the county and a commission of local citizens. Allowing methane, a more potent greenhouse gas than carbon, to escape from the infrastructure and regular “blowdowns” at Compression Stations that release methane are generally accepted practices. What will that mean for us? How will it be monitored? A third party, paid for by the company but responsible to the county, should be engaged to provide at least weekly reports to local officials concerning the quantity, concentration, and dispersion of emissions from the compression station and the pipeline(s) in the county.

**Primary Concerns: Safety and Pollution.** As conditions of rezoning the county must:

*1. Require baseline and regular reports*

Require baseline documentation of current conditions of air, water, and soil in all seasons and weather conditions. Include wind patterns.

Require regular detailed reports addressing air quality, water quality, soil quality, noise levels (average during routine operation, range during blowdowns. Frequency and duration of blowdowns.), night light levels. Details provided to the county and a community monitoring commission managed by the county, with arms-length relationship with the company.

2. *Require use of best available technology to:*

Capture and clean up emissions – Require updates as technology improves to assure best conditions across the lifespan of the infrastructure.

Monitor infrastructure and environment – e.g. At Buckingham Open House staff told citizens that a broadband fiber network would be used for monitoring the entire system. Now it has been replaced with less dependable wireless technology. Since this infrastructure will be monitored from a distant, out-of-state location the majority of the time (no 24 hour staff, just typical work hours covered), Buckingham must require use of the best technology available, fiber. The time to install fiber is during construction. Installing it will assure capability to adjust and update surveillance to the best available across the life cycle of the infrastructure

3. *Assure regular, unannounced, third party oversight on a frequent basis*

Government resources for oversight are limited. Emission levels in rural areas are allowed to be higher than in populated areas. Thinner pipe is allowed. Cut-off valves are farther apart. Inspections are conducted with less frequency than in more populated areas.

A pattern of budget cuts to oversight agencies, failure to provide necessary resources at the federal level for decades, acceptance of not meeting the extremely limited Congressional requirements for safety for decades.

When states are granted authority to participate in oversight, resources are not provided. States are not granted enforcement authority to quickly and effectively address failures and inadequacies. They can only report to the federal government and request action with no specific timetable for response. The county does not have resources or authority to provide oversight or enforce protection.

Industry standards accept only closing pipelines for inspection by Smart Pigs once in a decade or longer. Even though the system is designed to allow this, shutting the system down for safe inspection is expensive and is not regularly done. As a condition of rezoning, Buckingham must require annual inspections overseen by an independent third party, paid for by the company but supervised by the county.

**Business concerns:**

The projected increase in tax payments to the county from the company and projected increase in jobs may not materialize and if they do, may not provide as much economic benefit as anticipated. I do not believe company projections for only economic benefit, without accounting for costs to those living near the Compression Station or costs to the county, state and federal government.

We have operated this farm for over 100 years and seek to pass a productive business providing food to Virginians to future generations. Presence of the Compression Station within 3 miles of our property presents business risks and concerns:

1. Methane emissions – what are the wind patterns, seasonal variations, and other impacts on the air and water quality on our farm? Expect methane to be regulated in the future. Will we be forced to reduce or stop raising cattle or face limited options for productive use of our property to meet some future methane standard? As a business, we were here first, but once this industrial use is allowed, its contribution of methane will likely become the most important consideration, reducing the status of our business should there be conflict.
2. Other pollution – air, water, light, noise. Will reduction in air quality reduce production of our crops and animals? Will it reduce the health and productivity of the humans who live/work on our property? Will quality/quantity of water produced by our wells for human and animal use decline?
3. Property value reduction – why would anyone buy our property when they could access other property without the risks presented by this infrastructure
4. Business disruption – Beyond the disruption of building, there will always be a risk of evacuation due to potential or actual events at Compression Station. If forced to evacuate, how will animals and property be cared for and protected?
5. Reduction in options for what we can do with our property. Proximity of the Compression Station will influence acceptable actions on our property.
6. Stress of living/working in the shadow of the Compression Station – Risk of pollution, damage from explosion, mental/emotional stress.
7. Damage to and potential loss of cultural heritage. Loss of historic significance/value by placing the Compression Station on this property, in this community may negatively affect the interest others might have in our community, potential tourism and discourage new residents. Risk to us of damage to or loss of our early 1800's home, outbuildings and our family history.
8. Increase in taxes to us or reduction in "benefit" from taxes received to pay for initial and ongoing costs imposed on the county, state and federal government by the Compression Station: need for public safety plans, equipment and training, safety and environmental quality monitoring, damage to roads and bridges during construction/maintenance.
9. Risk of Compression Station ownership transfer to an unknown party, which might or might not consider our concerns. In this increasingly global economy, that owner could be from anywhere and might present risks we cannot identify or enumerate at this point.
10. Risk of truly becoming a "Sacrifice Zone" due to pressure or force to accept additional such industrial use in the area once this is in place. Many easements being used for these projects allow additional pipelines to be inserted into the right of way and many people believe it better to group these rather than disturb new areas. This could be the last opportunity to disturb new areas and could lead to our being forced to accept even more risky and negative infrastructure "for the good of society."

Good evening. My name is Michael James-Deramo and I work for the Blue Ridge Environmental Defense League. I have reviewed the air pollution permit submitted by the Atlantic Coast Pipeline on June 17, 2016 and I have the following comments:

**Pollutants:**

According to the permit application submitted by Dominion Transmission Inc. to the Virginia DEQ the updated 57,863 horsepower compressor station would emit huge levels of air pollution from the following pollutants:

**Nitrogen oxide (NOx)** at 100,400 pounds/year

**Carbon monoxide (CO)** at 190,400 pounds/year

**Sulfur dioxide (SO2)** at 14,600 pounds/year

**Volatile organic compounds (VOC)** at 65,400 pounds/year

**Particulate matter (PM)** at 87,800 pounds/year

**Hazardous air pollutants (HAP)** at 9,940 pounds/year

When the temperature is below freezing, emissions increase to 13 times as much Nitrogen oxide, 6 times as much Carbon monoxide, and 2 times as much Volatile organic compounds.

A study by the New York Department of Environmental Conservation (2015) found "more than 40% of the air samples from compressor stations exceeded federal regulations for certain chemicals like methane, benzene, and hydrogen sulfide."

**Greenhouse Gas Emission:**

The Buckingham Compressor Station would emit 647 million pounds of carbon dioxide and other global warming pollutants each year. This is equal to approximately 62,000 cars being added to the road or 3 cars for each resident of Buckingham county.

The Atlantic Coast Pipeline itself would increase our greenhouse gas emissions - not lower them due to methane emissions. Methane is 86 times as potent of a greenhouse gas as carbon.

**Carcinogenic Emissions:**

Volatile organic compounds include **Formaldehyde** and **Benzene** - which are considered unsafe at any level and are linked to childhood leukemia by the World Health Organization.

Two and a half tons (5,425 pounds) of Formaldehyde would be emitted on a yearly basis. Formaldehyde is classified by the EPA as a "probable human carcinogen" that can cause nausea, headaches, and aggravated asthma.

**Health Effects caused by compressor stations can include:**

Acute impacts: nosebleeds, visual impairment, respiratory impacts, severe headaches, decreased motor skills, irregular heartbeat, skin rashes, dizziness, allergic reactions, fatigue, joint and muscle pain, nausea, vomiting, confusion, depression, anxiety, sinus problems, skin, nose, eye, throat and lung irritation.

Chronic impacts: damage to liver, lungs, kidneys, cardiovascular system, nervous system, changes in blood cells and blood clotting ability, mutagenic and neurological impacts, aplastic anemia, leukemia, reproductive damage and damage to developing fetus.

A study by Environmental Health Perspectives (2014) found children whose mothers live within 10 miles of a natural gas compression station were more likely to be born with congenital heart defects and neural tube defects.

According to a study by Subra (2015) individuals living within 2 miles of compressor stations and metering stations experience respiratory impacts (71% of residents), sinus problems (58%), throat irritation (55%), eye irritation (52%), nasal irritation (48%), breathing difficulties (42%), vision impairment (42%), sleep disturbances (39%), and severe headaches (39%). In addition, some 90% of individuals living within 2 miles of these facilities also reported experiencing odor events. (Southwest Pennsylvania Environmental Health Project 2015)

Using similar statistics we could expect that in Buckingham of the 471 people living within 2 miles of the proposed station:

424 people experiencing odor events, 334 people experiencing respiratory impacts, 273 people experiencing sinus problems, and 184 people experiencing sleep disturbances and/or severe headaches.

Previous examples of compressor stations that are significantly smaller in size found health effects played a factor in the loss of property value. Several families in Hancock New York lost between 25%-50% property value after living near a 15,000hp compressor station. Similarly the Baum family of six were forced to leave their home after experiencing two years of repeated health effects when living in proximity to a 12,600hp compressor station. Unable to find a buyer for their home their house was left on the table in the care of their bank.

For the reasons I have outlined, the Planning Commission cannot approve this special use permit. Thank you

Chad Oba -Friends of Buckingham  
Re: Special Use Permit application by Dominion, LLC  
Public Hearing Comments Planning Commission  
September 26, 2016

Good evening. My name is Chad Oba and I reside in the Slate River district. For two years now I have worked very closely with my neighbors who are in the highly impacted evacuation zone of the proposed compressor station. We, as Friends of Buckingham, have sought out experts on compressor station emissions, health impacts, safety, constant noise and many other aspects of living near a very large industrial sized compressor station. We, have not in fact been able to identify a compressor station of this size anywhere. Tonight you will hear from many people, some more expert on their particular topic than others, some who are directly impacted and some who are simply good citizens who are concerned overall about this impact on our county and what it might mean for our future. Some of us have worked together and divided up our topics to avoid repetition so that you will have a well rounded picture of the concerns. Some will tell you stories from their hearts of how much living in our quiet rural area with good clean air means to them. We are the stake holders here. We care because it is us who would have to live with what you and the Board of Supervisors will recommend and decide. Zoning was made to protect us. I hope you will listen to everyone and carefully consider our concerns.

I am here tonight personally to speak to you about the mental health impacts of living near a compressor station. I speak on this as someone who has worked for 24 years in Buckingham and the surrounding counties with children and families as a mental health provider. When speaking to those who live near to the projected site of the compressor station I have noted that there is a high level of anxiety due to the anticipatory stress and sense of powerlessness to change the course of this massive corporate project that has many political and financial resources. Many people are feeling uncertainty over their own health and that of their families. Their future plans are put on pause. We all need to have some future reference for our lives. We need to know this in order to plan for our survival and to at least assume we will have a future. I have felt this myself due to my own proximity to the proposed compressor station site and what it might mean to the life I value here in Buckingham. I spend quite a lot of time outside gardening, taking daily walks in the morning, enjoying sitting on my porch swing listening to the birds in the mornings and the crickets in the evening. The calls of the hunting dogs ringing in the woods have become a familiar sound to my ears. These are natural sounds. We know them. They do not drone on endlessly from large turbines, they do not startle us and awaken a flight or fright response as they would during blowdowns, which we will hear more about later from other's comments. This type of constant 24/7 noise from a compressor station and from the noise, light and vibration which would accompany construction greatly contributes to stress.

Stress is more than just a bad feeling; stress causes physical changes in our bodies. Unfortunately, chronic or long-term stress can weaken the immune system and lead to serious health problems including: heart disease, stroke, cancer, depression and anxiety. You will learn more about this later from an international stress management consultant and trainer who resides here in Buckingham and will be speaking to you later this evening.

Children may feel the effects of environmental stressors, though the way they communicate about it may be different. In young children, these behavior changes may indicate stress: acting

Chad Oba -Friends of Buckingham  
Re: Special Use Permit application by Dominion, LLC  
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moody or irritable, not participating in activities that they use to enjoy, saying that they are worried, complaining more than usual and excessively clinging or needing comfort.

Symptoms that can occur at all ages are: Struggling to fall asleep or stay asleep, eating more or less than usual, feeling short tempered or irritable, feeling overwhelmed, chronic worrying, difficulty concentrating or remembering things, struggling to make decisions, feeling more tired than usual.

To provide for some sense of empowerment to protect ourselves Friends of Buckingham is currently purchasing and arranging to use air monitors in the homes of those who live very close to the high impact zone. This will provide us with a base line of the air we currently are breathing. The use of EPA approved air monitors- will further burden our communities to watch out for their own health caused by these toxic emitters.

## *Earthquakes* *SUP PH 9/26/2016*

Who here remembers the 5.8 earthquake we had 5 years ago that was centered near Mineral Va, home of Dominion's North Anna nuclear power plants? This was felt from Ontario to Georgia.

according to USGS reports A notable quake with a magnitude of 4.0 or higher east of the Rockies is a rarity. However, a recent study published in the Journal of Geophysical Research – Solid Earth is shedding light on the likely causes behind the 5.8 event and may indicate that there are more to come. In reference to a 3.2 earthquake in Shadwell in 2001, a VA Tech website says: This is an area of the Virginia Piedmont that has long been recognized as an area of increased seismic activity in the central Appalachians.

So our terra firma is not as firma as we thoughta.

We can recall that the 5.8 did a lot of damage in the nearby area. People are still recovering from the financial impacts of damage to their homes, buildings.

Two concerns that we should have:

Earthquakes would do serious damage to the high pressure, highly volatile compressor station and all pipeline infrastructure. Earthquakes would interrupt the wifi communications system the compressor station and pipeline would use.

First, on the damage to the infrastructure. BREDL has compiled some alarming information sourced from PHMSA – the Pipeline & Hazardous Materials Safety Administration. PHMSA has created standards for construction and maintenance: classes 1-4, Class 1 contains a lower population density than class 4. Where there is a lower density population, class 1, that's us, the pipeline wall thickness is 75% less than a higher density population area in class 4. The distance between valves in class 1 is 20 miles, for class 4 its 5 miles apart. Weld testing – for Class 1, 10 % are tested, class 4 90-100% welds are tested. So we are to be sacrificial lambs for Dominion's stockholders.

What happened to basic ethics: do unto others as you would have them do unto you.

Post construction: transmission line security patrols: the intervals between patrols would be 75% less for class 1 versus Class 4. For transmission leakage surveys, Class 1 & 2, the maximum intervals is every 15 months; Class 4, 4 ½ months.

Weaker standards make construction cheaper and the infrastructure more dangerous, and all in a high earthquake zone. These regulations read like a war zone; Our lives are less important, and can be sacrificed for the greater good of the burgeoning pockets of the Dominion stockholders.

This scenario also makes this infrastructure an easy target for terrorism. I add to that the highly vulnerable and way cheaper wifi communication systems Dominion has planned.

Wifi means an unsecured and easily identified system that is the absolute worst system for monitoring and operations of a mega pipeline system. It is easily hackable, easy to manipulate and/or destroy by vandalism, terrorism and earthquakes.

Fiber optic is virtually terrorism proof by the fact it is a deeply buried cable and only groups like the CIA, NSA or the military can hack it...

Thank you. Heidi Dhivya Berthoud  
James River District  
434 979 9732

# FRIENDS OF BUCKINGHAM

WORKING TOGETHER FOR A BETTER COMMUNITY

## Friends of Buckingham Fact Sheet

**Friends of Buckingham** is a group of Buckingham County residents, property owners and community allies, incorporated and committed to protecting Buckingham County from the long term damages of the Atlantic Coast Pipeline (ACP).

### **Compressor Station Health and Safety**

The proposed compressor station for Buckingham would be required to keep the gas moving. Compressors are known emitters of **toxic emissions** such as nitrogen oxides, carbon monoxide, volatile organic compounds which are carcinogenic, or neurotoxic. Our water and air would be polluted by the compressor, which operates 24/7.

**Public health impacts** include respiratory problems, early mortality, and childhood learning defects. Compressors operate under high-risk conditions, created by high pressures, which cause vibration, cracks, and corrosion, leading to **failures, explosions, and fires**. Who will train, and pay for the training of local emergency responders to deal with disasters and damages? Do the tax-payers bear the burden of destruction done? **Noise** levels are likened to a jet airplane flying by

### **Energy Economics**

Public necessity of increased gas supply is highly debatable. Expanding our dependence on fossil fuels creates obstacles for residential and commercial use of alternative technologies. Investment in conservation, solar, and offshore wind is more sustainable than increasing pipeline infrastructure. Studies reveal evidence that gas supplies have already peaked.

### **Atlantic Coast Pipeline**

The ACP, a natural gas pipeline jointly proposed by Dominion Resources and three other east coast utility companies, would run 550+ miles from the shale fields of West Virginia to Virginia's coast and southern North Carolina. This 42-inch, high-pressure pipeline, and its permanent 75-foot clear-cut easement, would cross about 25 miles of Buckingham County.

### **Jobs**

The ACP would create only a few long-term jobs in Buckingham County. Experienced journeymen professionals, not local workers, do the surveying, blasting, excavating, and constructing of pipelines.

### **Property Rights**

Because of a 2004 Amendment to the Virginia Code, natural gas companies take the position that they may survey private property without the consent of the owner. An easement may be granted through eminent domain with the landowner being left with restricted use of that easement. Conservation easements are no guarantee against eminent domain.

### **Property Values**

Impacted landowners would likely see a decrease in their property values due to the permanent restricted use of the easement. Pipeline easements could also complicate and limit loan and mortgage options. At a minimum, real estate sales would be disrupted with the visual damage of 125-foot wide clear-cut construction easement and surface occupancy of industrial infrastructure and equipment.

### **Keep Virginia Safe, Healthy, & Beautiful!**

<mailto:info@friendsofbuckinghamva.org>

<http://www.friendsofbuckinghamva.org/>

<https://www.facebook.com/ProtectBuckingham>

## At a Glance: The Atlantic Coast Pipeline in Buckingham County

- Miles of Pipeline: 27.1
- Acres in the construction corridor and permanent right-of-way (ROW): 410 and 246
- Most impacted land cover type (ROW only): Forest (178 acres lost)
- Parcels touched by ROW: 116
- Parcels in the 1.4-mile-wide evacuation zone: 776
- Residents and housing units in the evacuation zone: 1,548 people and 815 homes
- Parcels from which the pipeline would be visible: 7,637, or 54% of all parcels in Buckingham County
- Baseline property value at risk (and expected one-time cost due to the ACP):
  - In the ROW: \$23.7 million (\$1.0 to \$3.1 million)
  - In the evacuation zone: \$75.9 million (\$2.9 million)
  - Near the compressor station: \$4.9 million (\$1.2 million)
  - In the viewshed: \$1.17 billion (to avoid double counting with lost aesthetic value under ecosystem services, this effect is not separately estimated)
- Total property value effect lost: Between \$5.1 and \$7.2 million
- Resulting loss in property tax revenue (annual): \$28,500 to \$40,200
- Lost ecosystem service value, such as for water and air purification, recreational benefits, and others:
  - Over the two-year construction period: between \$3.7 and \$13.6 million (a one-time cost)
  - Annually for the life of the ACP: between \$1.1 and \$4.0 million
- Lost economic development opportunities due to the erosion of Buckingham County's comparative advantages as an attractive place to visit, reside, and do business. Under the scenarios described below, these could include:
  - Annual loss of recreation tourism expenditures of \$1.2 million that would support 12 jobs, \$240,000 in payroll, and generate \$54,000 in state and \$33,000 in local taxes
  - Annual loss of personal income of \$544,000 due to slower growth in the number of retirees
  - An annual loss of \$202,000 in personal income due to slower growth in sole proprietorships
- One-time costs (property value and ecosystem services during construction) would total between \$8.8 and \$20.8 million
- Annual costs (all other costs above) would range from \$3.0 to \$5.9 million

Note: For a number of reasons, these estimates are conservative and the actual economic cost of the ACP, if built, would likely be much higher. For further explanation of the concepts, methods, data, and assumptions behind these numbers, please see the technical report, "Economic Costs of the Atlantic Coast Pipeline to Property Value, Ecosystem Services, and Economic Development in Western and Central Virginia," available for download at [keylogeconomics.com](http://keylogeconomics.com).

# Natural Gas Compressor Stations

## Air Pollution, Explosions and Fires

Pipelines transporting natural gas require pressure to keep the gas moving. The pressure is provided by compressors. The power to move the gas is normally provided by gas-powered turbines or reciprocating engines. The pipeline company selects the type of compressor to install. The selection is based on local conditions, regulations and cost.

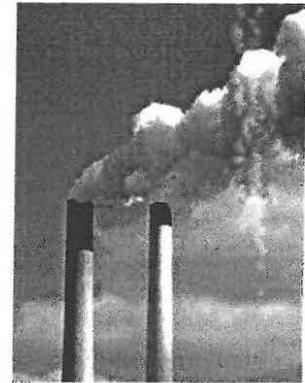
Pipeline compressors are installed at intervals of about 40 to 100 miles. So a 500 mile pipeline could have as few as 5 or as many as 12 compressors.

### Air Pollution 24/7

Compressors operate around the clock, and they emit air pollution 24 hours a day, seven days a week. The pollution comes from large engines needed to drive the compressors. Of course, the cheapest fuel available on a pipeline is natural gas.

### Pollution is no accident

Compressors normally have no pollution control devices. Air quality agencies may require performance or operating standards, but pollution is emitted in one form or another, including nitrogen oxides, carbon monoxide, volatile organic compounds and greenhouse gas. For example, lean-burn engines can reduce nitrogen oxides but increase carbon monoxide emissions. Catalytic oxidizers reduce carbon monoxide by converting it to carbon dioxide. In addition to intentional smokestack emissions, air pollution is caused by venting to prevent blowouts, flaring of unwanted gas, and fugitive emissions. Toxic air emissions include formaldehyde, benzene, toluene, ethylbenzene, xylene, hydrogen disulfide, methane and other pollutants.



### Negative Health Impacts

Nitrogen oxide emissions cause red and purple ozone alerts, aggravating asthma and COPD. Many of the air toxics emitted are carcinogenic or neurotoxic, such as benzene and hydrogen sulfide. Other negative impacts on public health include respiratory problems, early mortality and childhood learning defects.

A recent 21-county study in the Barnett Shale region in Texas revealed that the air pollution emissions from natural gas production were greater than that emitted from all on-road cars and trucks in the Dallas-Fort Worth metropolitan region, an area with a population of 6.5 million.

### Safety Hazards

Risks to health and safety and environmental contamination come with natural gas compressor stations. Compressors operate under high risk conditions, created by the high pressures and reduced temperatures of operation. These conditions cause vibrations, cracks and corrosion leading to failure of mechanical components, explosions and fires.

## Blue Ridge Environmental Defense League

www.BREDL.org PO Box 88 Glendale Springs, North Carolina 28629 BREDL@skybest.com (336) 982-2691

## Recent Natural Gas Compressor Fires and Explosions

- Crosstex Pipeline, Godley, TX, Nov 18, 2008
- Artemas Compressor Station, Mann Township, Bedford County, PA, Houston-based Columbia Gas Transmission, Nov 3, 2011
- Falcon natural gas compressor station, Jonah Field, WY, Dec 7, 2011
- Williams Energy, Lanthrop, PA March 29, 2012
- Pinon Compression Station (BP), Durango, CO June 25, 2012 - 1 killed, 2 injured
- Copano Energy in Jim Wells County, TX, September 6, 2012
- Bill Barrett Corporation, Carbon County, UT, Nov. 22, 2012 - Two injured (severe burns)
- Energy Transfer Partners, Madison County, TX, Jan 17, 2013

“An explosion at a natural gas compressor station in Susquehanna County on Thursday morning blew a hole in the roof of the complex holding the engines, shaking homes as far as a half-mile away and drawing emergency responders from nearby counties.” Scranton Times-Tribune 2012

The Pinon Compression Station blast occurred during a routine maintenance operation when a data collecting device was sent through the system. The Copano explosion and fire caused 100-foot high flames. The Carbon County fire was caused by a compression tank. In Madison County, Texas a compressor malfunction caused an explosion and fire which destroyed the unit.

“In Iowa in the past decade, pipeline accidents have resulted in nearly \$20 million in property damage, spilling a total of 10,712 gross barrels of hazardous liquids onto Iowa property, according to the federal Pipeline and Hazardous Materials Safety Administration.”

*The De Moines Register*

### A Single Compressor Can Emit Huge Amounts of Air Pollution

A compressor station investigated by Blue Ridge Environmental Defense League was permitted to emit the following amounts of pollution into the air annually:

Pollutant	Emissions, pounds/year
Particulates (2.5, 10 and total)	25,000
Sulfur dioxide, SO <sub>2</sub>	1,400
Nitrogen oxides, NO <sub>x</sub>	360,000
Volatile organic compounds, VOC	70,000
Carbon monoxide, CO	44,000
Carbon dioxide equivalent, CO <sub>2</sub> e	407,000,000
Hazardous air pollutants, HAP	25,000
Formaldehyde	17,000

These are routine emissions released under normal operation. The plant was issued a permit to operate by the North Carolina Division of Air Quality. Power for the compressors is provided by eight reciprocating engines, each rated at 4,735 horsepower and equipped with catalytic oxidizers. Pollutant emissions vary with load conditions; engine efficiency is less when the engine is operating at full throttle. Products of incomplete combustion (PICs) caused by rich-burning or lean-burning engines are known to increase carbon monoxide and formaldehyde.

November 2014 LAZ

For more information, contact

## Blue Ridge Environmental Defense League

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United States Affiliate of International Physicians for the Prevention of Nuclear War

**Testimony of Barbara Gottlieb  
Director for Environment and Health  
Physicians for Social Responsibility, national office**

**Before the Buckingham County Planning Commission  
September 26, 2016**

It is my pleasure to share with the Buckingham County Planning Commission health-related information relevant to the pending request for a Special Use zoning permit for the proposed Virginia ACP compressor station in Buckingham County.

Physicians for Social Responsibility is a national organization of health professionals working to protect human life from grave threats to health and survival, and was the co-recipient of the Nobel Peace Prize in 1985. One issue of great concern to us is the use of fossil fuels, which are associated with multiple serious threats to health. That includes natural gas, especially natural gas which is extracted using horizontal hydraulic fracturing processes, aka fracking. Once the gas is extracted, natural gas pipelines, compressors and related infrastructure transport some of those health hazards to communities distant from the well sites. No decisions concerning the construction of new gas infrastructure should be made without first assessing the dangers this infrastructure imposes on the health and safety of local residents.

A growing body of scientific evidence documents the health effects experienced by people living near natural gas pipeline compressors. People living near compressors in other states, notably Pennsylvania, have reported experiencing a range of symptoms.<sup>1</sup> Some are relatively superficial, such as skin rashes and irritation.<sup>2</sup> Others suggest the involvement of major organ systems. These include gastrointestinal problems such as pain and nausea; respiratory problems encompassing both upper respiratory effects such as congestion, sore throat and nosebleeds, as well as deep-lung effects including difficulty breathing and cough; neurological problems such as headaches, movement disorders, and dizziness; and psychological problems such as anxiety, depression, stress, irritability.<sup>3</sup> More seriously yet, given what we know about the chemicals that leak from compressors, serious long-term consequences are suspected. These will take years to appear because of latency periods, but would include: cardiovascular problems such as heart attack and high blood pressure; respiratory effects such as exacerbation of asthma and COPD; neurological effects such as stroke and cognitive deficits in children; birth defects, and cancer.<sup>4</sup>

Multiple substances associated with natural gas provoke these health effects. I will briefly indicate the health effects associated with exposure to several of these substances, focusing on the exposures most associated with compressor stations. Air samples collected around compressor stations and other pipeline-related infrastructure have been reported to have elevated concentrations of the following:

- **Formaldehyde** is considered a Hazardous Air Pollutant by the EPA; it is a known carcinogen.<sup>5</sup>
- **Nitrogen oxide** decreases oxygen absorption and weakens the strength of the lungs, especially in children and the elderly. It also worsens air pollution by contributing to the formation of ground level ozone and particulate matter, both of which I discuss below.<sup>6</sup>
- **Sulfur dioxide** can cause permanent and irreversible damage to the lungs and is a major contributor to acid rain that damages forests and crops.<sup>7</sup>
- **Benzene** is carcinogenic to humans, linked to leukemia, other cancers, and reproductive and developmental disorders. Most exposure is through inhalation, and according to the World Health Organization, there is no specific threshold level for air exposure (that is, there is no safe level of exposure).
- **Toluene:** Long-term exposure may affect the nervous system and cause miscarriages and birth defects.<sup>8</sup>
- **VOCs (volatile organic compounds)** contribute to the formation of ground-level ozone. Ground-level ozone is a widely occurring air pollutant that can damage lungs permanently. Exposure to ozone can trigger asthma attacks (and children today already suffer from historically high levels of asthma), and aggravate other chronic lung diseases and pre-existing heart diseases like angina.<sup>9</sup>

At compressor stations, fine **particulate matter (PM2.5)** may pose the greatest threat to the health of nearby residents. Particulate matter (PM) is a category of pollutant defined by particle size, not chemical identity. These tiny particles absorb airborne chemicals and carry them into the lungs, where they can cross the blood barrier and be carried throughout the body in the bloodstream. The size of particles determines the depth of inhalation into the lung; the smaller the particles, the more readily they reach the deep lung. Larger-sized particles are trapped in the nose and moist upper respiratory tract, thereby preventing or minimizing their absorption into the blood stream. The smaller PM2.5 particle, however, is more readily brought into the deep lung with airborne chemicals and from there into the blood stream.<sup>10</sup>

Exposure to particulate matter causes well-documented health effects. Inhalation of PM2.5 can cause decreased lung function, aggravate asthma symptoms, cause nonfatal heart attacks and high blood pressure.<sup>11</sup> Long-term repeated exposures increases the risk of cardiovascular disease and death.<sup>12</sup> Childhood exposure to particulate matter has been associated with respiratory symptoms: decreased lung function, exacerbation of asthma, and development of chronic bronchitis.<sup>13</sup> Higher rates of preterm births, low birth weight, and infant mortality are found to be higher in communities with high particulate levels.<sup>14</sup> Exposure to particulate matter is also associated with increased school absences, emergency room visits and hospital admissions.<sup>15</sup>

As we consider these health effects, it bears mentioning that children are especially vulnerable to these airborne pollutants. That's because children's lungs are developing and growing, and thus subject to permanent damage; children breathe at a higher rate than adults, and many children spend more time outdoors, often being very physically active.<sup>16</sup>

I would like to flag one substance that is not solely airborne. The gas which flows through the pipeline likely carries radioactive radon with it.<sup>17</sup> Some shale plays – notably the Marcellus shale – naturally contain radon as well as other radioactive elements. Radon, a gas, enters the body primarily through inhalation. It is the leading cause of lung cancer among non-smokers and the second leading cause among smokers; 21,000 lung cancer deaths per year on a nationwide basis are attributed to radon exposure, according to the EPA.<sup>18</sup> Radon has a short half-life (3.8 days), but as it decays within the pipelines, it generates its own radioactive decay products, namely polonium and lead. These elements have longer half-lives -- 22.6 years and 138 days, respectively. Thus, both polonium and lead have been

found to accumulate along the interior of the pipes; they can also be found in pipeline scrapings, as well as in the sludge that accumulates in tank bottoms, gas/oil separators, dehydration vessels, and compressor facilities.<sup>19</sup> There is a concern that the gas transiting the pipes and being compressed in compressor stations will have radioactivity levels which could potentially put workers and residents at risk.

Methane itself also leaks from natural gas pipelines and compressors. Methane is a heat-trapping gas that contributes to climate change. It is far more potent than CO<sub>2</sub> -- 86 times more potent, over a 20-year period -- which is exactly the timeframe during which we need to slash greenhouse gas levels in the atmosphere.<sup>20</sup> Leaks of methane make it hard to keep world temperatures within a manageable range. Increases in world temperatures put health at risk in a variety of ways: heat effects, including potentially fatal heat stroke; extreme storms and storm surges that can cause accidents, flooding, mold, water contamination, and the spread of waterborne disease; wildfires, which engender immediate threats and increase levels of particulate matter; the spread of disease-carrying insects and other vectors into new ranges, exposing new populations to diseases like Lyme disease and malaria and potentially Zika; and increases in allergens and air pollutants like ozone.<sup>21,22,23,24,25</sup>

Accidents are another category of health threat associated with natural gas pipelines. Gas pipeline spills, fires and explosions occur with alarming frequency in the U.S., leaving people injured or dead, damaging homes and businesses, overwhelming first responders, and traumatizing communities. Shallow or exposed gas pipelines become easy accident victims due to plowing, construction, or weather-related accidents, leading to explosions and fire. Where pipelines run near or beneath streams and other water bodies, they are subject to damage from storm flows and other accidents.<sup>26</sup> There aren't enough workers to inspect the vast network of pipelines in the US. In fact, only 7% of all natural gas lines are subject to rigorous inspection criteria or are inspected regularly.<sup>27</sup> Fires and explosions have occurred at compressor stations, including an explosion along the Transco pipeline in 2008 near Appomattox, Va.<sup>28</sup> The possibility of fire or other accidents raises a number of concerns: Will nearby localities have the resources available to contain a gas fire or explosion? Will first responders and hospitals be able to care for injured workers or other victims? Will evacuation be required, and have evacuation plans been developed and tested?

Accidents associated with pipelines and related infrastructure are generally of two types: fugitive emissions and blowdowns. Fugitive emissions are uncontrolled or under-controlled releases. They occur from equipment leaks and evaporative sources and can be a source of more intense exposure. Blowdowns are a complete venting to the atmosphere of the natural gas within a compressor or pipeline. This can be accidental, or it can be scheduled as a part of maintenance, to reduce pressure and empty the system. The first 30 to 60 minutes of the blowdown are the most intense, but the entire blowdown may last up to three hours.<sup>29</sup> It is not possible to know what exactly is emitted in any given natural gas compressor station blowdown as there is very little data available. We do know that it will include whatever is in the pipeline when the blowdown occurs. This would undoubtedly include the constituents of natural gas, like methane and ethane, and various additional constituents would likely be present, including carcinogens and radioactive material. It is worth noting that due to their intensity, blowdowns may emit these substances at much greater concentrations than annual emissions data would suggest.<sup>30</sup> Thus, blowdowns hold the potential for exposing local residents to far greater concentrations of toxic substances than is reflected in estimates of exposures associated with routine operations.

The existence of so many serious threats to health associated with pipelines and compressors requires that any jurisdiction proceed with great caution. This should certainly be the case in Buckingham County, where it is proposed to create the intersection of two 42-inch pipelines and to build an extremely large compressor station. No less an authority than the American Medical Association adopted in 2015 a

resolution which “supports legislation that would require a comprehensive Health Impact Assessment regarding the health risks that may be associated with natural gas pipelines.” Physicians for Social Responsibility strongly supports the AMA’s position and calls for a complete Health Impact Assessment to be conducted prior to making any decision concerning the construction in Buckingham County of new natural gas pipelines, compressors, or related infrastructure. We also recommend that the process for the requested permit follow the procedures for a Virginia Major Source, rather than a minor source, so as to incorporate a requirement for before-and-after testing. Independent review would also be an important requirement.

Thank you for this opportunity to share this vital health information.

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<sup>3</sup> New York State Department of Health. (2014). A public health review of high volume hydraulic fracturing for shale gas development. Retrieved from [http://www.health.ny.gov/press/reports/docs/high\\_volume\\_hydraulic\\_fracturing.pdf](http://www.health.ny.gov/press/reports/docs/high_volume_hydraulic_fracturing.pdf)

<sup>4</sup> Finkel, M.L., Hays, J. (2013). The implications of unconventional drilling for natural gas: a global health concern. *Public Health*, 127, 889-893.

<sup>5</sup> Agency for Toxic Substances and Disease Registry. Toxic substances portal: Formaldehyde. Atlanta, GA: US Department of Health and Human Services, Agency for Toxic Substances and Disease Registry; 2011. Available at <http://www.atsdr.cdc.gov/substances/toxsubstance.asp?toxid=39>.

<sup>6</sup> Agency for Toxic Substances and Disease Registry. Toxic substances portal: Nitrogen Oxides. Atlanta, GA: US Department of Health and Human Services, Agency for Toxic Substances and Disease Registry; 2011. Available at <http://www.atsdr.cdc.gov/toxfaqs/tf.asp?id=396&tid=69>

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<sup>9</sup> Centers for Disease Control and Prevention Index. Air Quality: Ozone and Your Health. Atlanta, GA: US Department of Health and Human Services, Centers for Disease Control and Prevention; 2016. Available at <http://www.cdc.gov/air/ozone.html>.

<sup>10</sup> U.S. Environmental Protection Agency. (2016) Particulate Matter (PM) Pollution: Particulate Matter (PM) Basics. Available at <https://www.epa.gov/pm-pollution/particulate-matter-pm-basics#PM>.

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# Blue Ridge Environmental Defense League

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September 26, 2016

John E. Bickford, Chairman  
Buckingham County Planning Commission  
13380 W. James Anderson Highway  
Buckingham, Virginia 23921

## Re: Case No. 16-SUP236, Atlantic Coast Pipeline, Special Use Permit Application

Dear Chairman Bickford and members of the Commission:

I write on behalf of the Blue Ridge Environmental Defense League and its members in Buckingham County and throughout Virginia in opposition to the granting of the Special Use Permit requested by Atlantic Coast Pipeline LLC for a proposed compressor station.

I have read the application before you for a special use permit; it cannot be approved by the Buckingham County Planning Commission. Locating a compressor station in the rural A-1 district would violate the county zoning ordinance. The list of permitted uses in the A-1 District does not include compressor stations nor does it include energy facilities. A special use permit allows additional types of facilities but that list does not include compressors nor does it allow industrial gas transmission facilities. A compressor station is not a "public utility generating plant," a "public utility booster station" nor any other category of permissible special use.

Regarding noise levels, the proposal before you stipulates that the compressor would be allowed to generate 55 decibels at the property line or any adjacent building (Item #6). This level of noise pollution would be ten times higher than the typical sound level in a rural area; i.e., 45 decibels. The proposal also states that "silencers shall be used during blowdowns," but fails to state a noise limit (Item #18). Therefore, the Special Use Permit, if granted, would be unenforceable.

Unwanted, unpleasant noise is a growing public health problem. Industrial sources of noise commonly disrupt communities. But the economic considerations of industrial special interest groups cannot be allowed to take precedence over the right to be secure in one's home.

### Noise Impacts

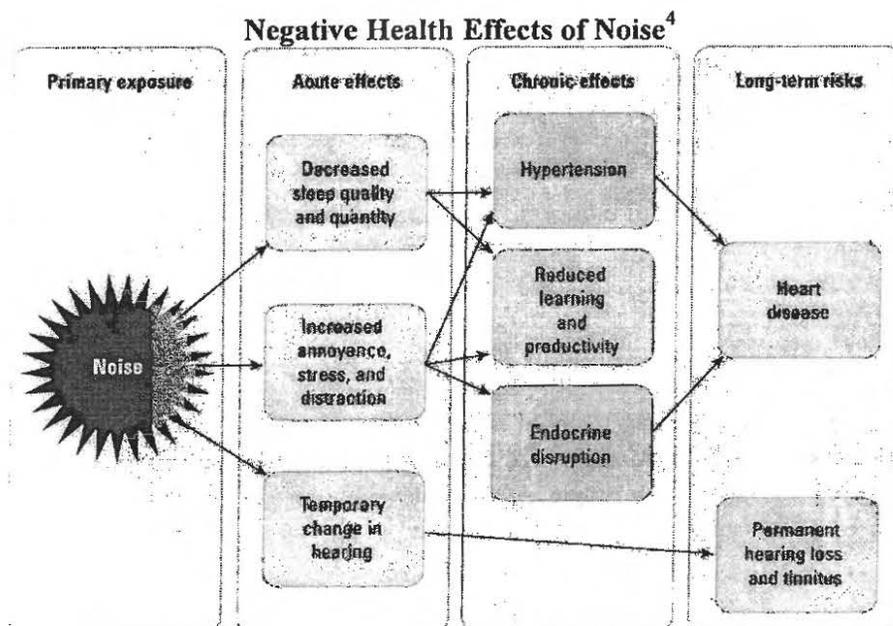
A decibel level in the upper 70s is considered annoyingly loud by many people. Sources able to cause such levels include asphalt plants, compressors and motor vehicles. A diesel truck traveling 40 mph fifty feet away creates 84 decibels. Asphalt plant neighbors have complained of start-up sounds "like a 747 taking off."<sup>1</sup> Jet take-off typically creates 100 decibels a thousand feet from the source. The high pressure operation of compressors makes them painfully noisy up close:

The basic noise sources are caused by trapping a definite volume of fluid and carrying it around the case to the outlet with higher pressure. The pressure pulses from compressors are quite severe, and equivalent sound pressure levels can exceed 105dB.<sup>2</sup>

How distance affects the impact of a source of noise varies. Sound can travel longer or shorter distances depending on the medium through which it moves. For example, sound travels at 768 miles per hour in dry air and at 3,300 mph in water. Experts have determined that disruptive sound levels can travel far from the source and over natural and artificial barriers such as trees and walls.

The atmospheric effects become most important at distances beyond about 1000 feet from the source....The normally humid environment in the southeastern US allows sound to travel further with less reduction in level. Downwind and under many night-time conditions (cooler air near the surface), sound waves that start upward will bend downward. Thus, the noise reduction benefits of barriers can be negated by these atmospheric effects.<sup>3</sup>

Thus, although sound generally decreases with distance, under some circumstances noise pollution can have higher impacts at greater distances.



### Public Health Danger

Disturbing levels of sound become a medical issue when the noise interferes with normal activities and the quality of life. Being unable to sleep or to have a normal conversation for extended periods or at recurring intervals creates stress. These conditions lead to acute, chronic and long-term problems. And the negative impacts of noise pollution on human health can be serious.

Chronic environmental noise causes a wide variety of adverse health effects, including sleep disturbance, annoyance, noise-induced hearing loss, cardiovascular disease, endocrine effects, and increased incidence of diabetes.<sup>5</sup>

The effects of noise on humans have been studied for decades. The cascade of health problems created by excessive noise appears to be related to anxiety and tension. High blood pressure and heart disease are the result of chronic stress associated with persistent noise pollution.<sup>6</sup> Plainly, excessive noise is a serious public health problem which calls for preventive measures.

### Noise Regulation

The nation's major environmental protection laws include noise as a pollutant, along with nitrogen oxides, sulfur dioxide, carbon monoxide and ozone. The federal Noise Control Act of 1972 made it the nation's policy to reduce the harm caused by excessive levels of noise to the general public.<sup>7</sup> The law states:

The Congress declares that it is the policy of the United States to promote an environment for all Americans free from noise that jeopardizes their health or welfare. To that end, it is the purpose of this Act to establish a means for effective coordination of Federal research and activities in noise control, to authorize the establishment of Federal noise emission standards for products distributed in commerce, and to provide information to the public respecting the noise emission and noise reduction characteristics of such products.

Health and welfare in the above statement is defined as the "complete physical, mental and social well-being and not merely the absence of disease and infirmity"; in other words, the absence of mental anguish and annoyance.<sup>8</sup>

The Noise Control Act designated roles for all three levels of government—federal, state and local. Emission controls are a federal responsibility. State and local governments are delegated control over the use of the various noise sources and the levels permitted in the environment from them, including automobiles, lawn mowers, leaf blowers, amplified sound systems and other sources.

The federal Clean Air Act Title IV includes a section<sup>9</sup> on the reduction of noise as a pollutant. The United States Environmental Protection Agency defines noise pollution as follows:

Sound becomes unwanted when it either interferes with normal activities such as sleeping, conversation, or disrupts or diminishes one's quality of life. The fact that you can't see, taste or smell it may help explain why it has not received as much attention as other types of pollution, such as air pollution, or water pollution. The air around us is constantly filled with sounds, yet most of us would probably not say we are surrounded by noise. Though for some, the persistent and escalating sources of sound can often be considered an annoyance. This "annoyance" can have major consequences, primarily to one's overall health.<sup>10</sup>

Under the Clean Air Act, the EPA established the Office of Noise Abatement and Control to study the impacts of noise on public health and welfare. In 1981 the Reagan Administration closed this office and transferred this responsibility from the federal agency to state and local governments where it remains today.

The medical definition of noise pollution specifically refers to internal combustion engines: "Noise pollution: environmental pollution consisting of annoying or harmful noise (as of automobiles or jet airplanes)—called also sound pollution."<sup>11</sup> Noise pollution is a recognized health hazard by the US Surgeon General, who further distinguishes noise pollution in the home from its workplace counterpart:

In relation to environmental pollution, noise is normally associated with annoying sound waves in communities, but noise is also a threat to public health. As asserted by Dr. William H. Stewart, former U.S. Surgeon General, "Calling noise a nuisance is like calling smog an inconvenience. Noise must be considered a hazard to the health of people everywhere."<sup>12</sup>

The US EPA places a large measure of responsibility on local governments to protect their residents from the negative effects of noise pollution. This is a logical method of protecting public health because municipal officials are in the best position to know their environment, their residents and the nature of the problems they face from excessive noise.

Clearly, the control of industrial sources of noise is the responsibility of local governments.

Respectfully,

  
Louis A. Zeller  
Executive Director

CC: Dabney D. Crews, Sr.  
Royce E. Charlton III  
R. Patrick Bowe  
Samuel Smith  
Chet Maxey  
Alice Gormus

## Endnotes

<sup>1</sup> This sound was described by Joyce Starr in Franklin, North Carolina, while living about a quarter mile from a medium-sized asphalt plant.

<sup>2</sup> *Occupational exposure to noise: evaluation, prevention and control*, Edited by Berenice Goeltzer, Colin H. Hansen and Gustav A. Sehrndt, Published on behalf of the World Health Organization by the Federal Institute for Occupational Safety and Health, Dortmund, Germany, © WHO, 2001, ISBN 3-89701-721-0, page 110

<sup>3</sup> *Evaluation of Environmental Sound in the Community*, Stewart ND, Ph.D. FASA FASTM (July 23, 2011), page 3, downloaded 1/16/15 from <http://www.sacnc.com>

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<sup>5</sup> *Id.*

<sup>6</sup> *Journal of Public Health* | Vol. 33, No. 2, pp. 160– 169 | doi:10.1093/pubmed/fdr032

<sup>7</sup> Noise Control Act of 1972, 42 U.S.C. 4901, Public Law 92-574, Oct. 27, 1972; 86 Stat. 1234; 42 USC 4901 et seq.; Amended by PL 94-301, May 31, 1976; PL 95-609, Nov. 8, 1978; PL 100-418, Aug. 23, 1988

<sup>8</sup> "Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare With an Adequate Margin of Safety," US Environmental Protection Agency, Office of Noise Abatement and Control (March 1974), page 7, EPA-550/9-74-004, accessed 1/18/16 at <http://www.nonoise.org/library/levels74/levels74.htm>

<sup>9</sup> The Clean Air Act Amendments of 1990 added subchapter IV-A to Title IV dedicated to the control of acid deposition caused by the burning of fossil fuel and emissions of sulfur dioxide. United States Code, Title 42 – Chapter 85, The Public Health and Welfare, Air Pollution Prevention and Control, Acid Deposition

<sup>10</sup> "Title IV - Noise Pollution," US EPA website at <http://www.epa.gov/clean-air-act-overview/title-iv-noise-pollution>

<sup>11</sup> Medline plus Health information, World Health Organization

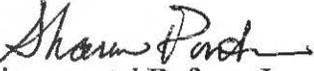
<sup>12</sup> Mauricio Leandro, "Encyclopedia of Consumption and Waste: The Social Science of Garbage," Edited by Carl A. Zimring & William L. Rathje, DOI: <http://dx.doi.org/10.4135/9781452218526.n233>

# Blue Ridge Environmental Defense League

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To: Members of the Planning Commission  
Buckingham County, Virginia

Date: September 26, 2016

From: Sharon Ponton   
Blue Ridge Environmental Defense League

Re: Special Use Permit Application  
Atlantic Coast Pipeline

After studying the Special Use Permit Application for the Atlantic Coast Pipeline, LLC's compressor station, I offer the following comments:

- 1) The County is being asked to allow an industrial use—the compressor station—in an A-1 Zone. I refer you to the A-1 zone zoning ordinance which states: “This district is established for the purpose of facilitating existing and future farm operations traditionally found in Buckingham County; preserving farm and forest lands; conserving water and other natural resources; reducing soil erosion; preventing water pollution; protecting watersheds and reducing the hazards from flood and fire. It further states: It is the intent, however, to discourage the random scattering of residential, commercial or industrial uses in this district.” (See pages 1-3 of the attachments.)
- 2) The Atlantic Coast Pipeline LLC has requested a Special Use Permit under the Public Utility Exception in the A-1 Zone ordinance. (See page 3 of the attachments.) To qualify for this exception, the Atlantic Coast Pipeline, LLC must be a public utility. Our position is that the Atlantic Coast Pipeline LLC is not a public utility.
- 3) When looking at your Comprehensive Plan Map of Growth Areas, the planned industrial zones are nowhere near the sited compressor station (See page 4 of the attachments.)

We believe the Atlantic Coast Pipeline LLC is not a utility for the following reasons:

- 1) The Atlantic Coast Pipeline, LLC is a Delaware limited liability corporation formed August 27, 2014. It is owned by a partnership. Even if some or all of those partners operate as utilities, the Atlantic Coast Pipeline, LLC, is a separate corporation, operating as a natural gas transmission company and is not a utility. In its formation documents, under Definitions, it states: “Definition 2.1 ‘Business’ means the business of acquiring, planning, designing, financing, constructing, operating, owning, improving, marketing, maintaining and expanding the ‘facilities,’ engaging in the transmission of natural gas through the ‘facilities,’ procuring or leasing gas transportation capacity on any other pipeline facilities and engaging in the transmission of natural gas through such pipeline facilities, and performing other activities or services related or ancillary thereto and other related business as approved by the Board.” (See page 5 of attachments.) This definition does not include, nor indicate, that the Atlantic Coast Pipeline, LLC will operate a public utility.

- 2) In the Federal Energy Regulatory Commission's regulation definitions, definition No. 6 defines a natural gas company as: "natural gas company" means a person [FERC's definition of "person" is a person or corporation] engaged in the transportation of natural gas in interstate commerce, or the sale in interstate commerce for such gas for resale. (Page 6 of attachments.) This definition does not indicate natural gas companies are public utilities.
- 3) The Atlantic Coast Pipeline LLC does not appear on the Virginia State Corporation Commission's website as a regulated gas utility. (Page 7 of attachments.) It does not appear there because it is not a utility.
- 4) The Supreme Court of Virginia has agreed to hear a case regarding the survey law, Virginia Code, 56-49.01 (Page 8 of attachments.) While the survey law is not a question here today, the Supreme Court agreeing to hear the case calls into question the validity of the Atlantic Coast Pipeline's claim that it is a public utility or public service company in the Commonwealth. A date for the Supreme Court hearing has not yet been set.

In our opinion, Dominion is attempting to blur the lines between legally authorized public utilities, like Dominion Virginia Power, and the proposed Atlantic Coast Pipeline, a natural gas transmission company which generates profit, not electricity. We believe this is an illegal effort to make improper use of the Special Use Permit authority of Buckingham County.

Thank you for the opportunity to share this information with you.

**QUESTION: Is the ACP LLC a public utility?**

**QUESTION: Does the compressor station fit within the A-1 District and Buckingham's Comprehensive Plan**

**Buckingham Zoning Ordinance for A-1 Districts (NOTICE highlighted areas)**

**ARTICLE 2: DISTRICTS**

The regulations set by this ordinance within each district shall be minimum or maximum limitations as appropriate to the case and shall apply uniformly to each class or kind of structure or land.

**DISTRICT 1 - AGRICULTURAL DISTRICT (A-1)**

**Purpose**

This district is established for the purpose of preserving and promoting rural land uses. These include forestal lands, areas significant for the environment such as lakes, reservoirs, streams, parks, and less intensive farming operations that are more traditional in character. This district is established for the purpose of facilitating existing and future farm operations traditionally found in Buckingham County; preserving farm and forest lands; conserving water and other natural resources; reducing soil erosion; preventing water pollution; protecting watersheds; and reducing hazards from flood and fire.

This district includes the unincorporated portions of the County. It is expected that certain rural areas of this district may develop with residential land-uses of a low density. It is the intent, however, to discourage the random scattering of residential, commercial, or industrial uses in this district. Special use permits will be utilized to seek the appropriate locations and compatibility between uses.

**Permitted Uses** - Within the Agricultural District (A-I) the following uses are permitted by right: Major subdivisions are permitted where authorized in the Buckingham County Subdivision Ordinance. Minor subdivisions are permitted where authorized in the Buckingham County Subdivision Ordinance. Dwellings located on a recorded lot or parcel that complies with area regulations.

10

. For the purpose of this article, a dwelling is:

One Family Dwelling

Manufactured and Mobile Homes as per the Mobile Home Ordinance

Accessory Buildings: Personal Use Garages, Pole Sheds, Utility Buildings Agricultural uses and all buildings necessary to such use and the repair, storage, and operation of any vehicle or machinery necessary to such use excluding the intensive farming activities and related uses found in the A-C Comprehensive District

Cemeteries, family only for currently existing, upon additional interments, an affidavit signed by the owner of the land which shall be recorded in the Circuit Court Clerk's Office, indicating the existence of the cemetery and its approximate location.

Cemeteries – newly established – a plat indicating the specific location of the grave will accompany the 1

affidavit

Churches, and Other Places of Worship Including Parish Houses and Sunday School

Conservation Areas, Private

Adult/Child Day Care Facilities -- not medical

Greenhouses, Garden shop, Nurseries

Home-base service business

Non-Intensive Dairying, and Raising of and Breeding of Livestock, Poultry and Other Livestock as Defined in this Ordinance

Off-Street Parking for Permitted Uses (Includes Adjacent Zoning Districts)

Hunting Preserves, Kennels

Public Forests, Public Wildlife Preserves and Public Conservation Areas

Public Schools, Colleges, Libraries, Museum and Administration Buildings

Public and Private Roads and Streets

Public-Operated Parks, Playgrounds and Athletic Fields, Including Customary, Accessory Buildings and Facilities

Residential Group Homes

Residential Swimming Pools

Signs -- non-illuminated and less than 8 x 8

Silvicultural Activities

Solid Waste Facilities, County-Owned Such as Convenience and Recycling Centers

Stable, Private

Subdivision, Minor

Timber Harvesting Which May Include Temporary Chipping/Sawmills used only for Cutting Timber Onsite

WaterSystems, Publicly-Owned and Operated

Wayside Stands selling Items Produced or Grown on the Premises

### **Special Use Permits**

Within the A-I Agricultural District, the following uses may be permitted by the Buckingham County Board of Supervisors by a Special Use Permit following recommendation by the Planning Commission in accordance with this ordinance and the Code of Virginia. The Planning Commission may recommend and the Board may impose conditions to ensure protection of the district if the Special Use Permit is approved.

Adult or Juvenile Jails, Detention Facilities, or Correctional Facilities Operated or Owned by Local or Regional Governmental Entities

Agricultural Based Businesses -- not classified as Intensive or manufacturing in nature by the definition of this Ordinance such as: feed mills, livestock markets, tack, feed and supplies

Airport, Airstrip, Heliport

Antique Shops/ Thrift Stores/ Flea Markets

Adult Retirement Community/Assisted Living

Auto and Truck Sales and Agricultural/Industrial Equipment - 3/22/99

Automobile Junkyard or Graveyard

Bulk Storage Tanks

Commercial Garage or Shop -- housing a business not classified as Industrial or manufacturing in nature by the definition of this Ordinance

Convenience/General Store -- Maximum 2000s.f. and no more than 4 petroleum pumps

Fairgrounds, Country Clubs, Golf Courses, Athletic Fields, Swimming Pools,

Equine Facility/Activities, Commercial

Dog Businesses -- Kennels, Grooming, Boarding, Training, Trials

Community Centers, Lodge Halls

Lumberyard, Sawmill, Planing, or Chipping Facility

Mining and Quarrying with Federal and /or State License

Motorsports -- raceways, car shows

Music Festivals or Similar Large Events - 4/23/01  
 Private Recreational Facilities/Clubs/Events – archery, shooting, pools, day & summer camps, campgrounds  
 Private Schools and Colleges,  
 Public utility generating plants, public utility booster or relay stations, transformer substations, meters and other facilities, including railroads and facilities, and water and sewage facilities.  
 Radio stations, Television Station and cable TV facilities, communication station and/or tower or related facilities in accordance with Article 9 of this Ordinance  
 Reservoir  
 Restaurants  
 Shooting Ranges, including all firearms  
 Sewage Treatment Plants, Private  
 Veterinary Hospitals and Clinics  
 Water Systems, Privately Owned Serving the Public  
 Wayside Stand with Food Preparations - No Indoor Seating

**Area Regulations**

Minimum lot size: Lots in this district shall have a minimum area of two acres.  
 Setback requirements: The minimum distance from the nearest point of the house or other structure to the edge of the front yard property line shall be fifty (50) feet. The minimum side yard and rear setback shall be the distance from the side or rear property line or a lot to the nearest point on the house or principal structure shall be twenty- five (25) feet.

12

**Setbacks for the Land Application of Manure and Animal Waste from Intensive Livestock Facilities**

Waste from lagoons or other liquid waste: the greater of the distance set forth in the Nutrient Management Plan or:

Dwellings or commercial establishments ..... 300 feet  
 Property Lines ..... 50 feet  
 Surface waters ..... 200 feet  
 Drinking Water Sources ..... 200 feet

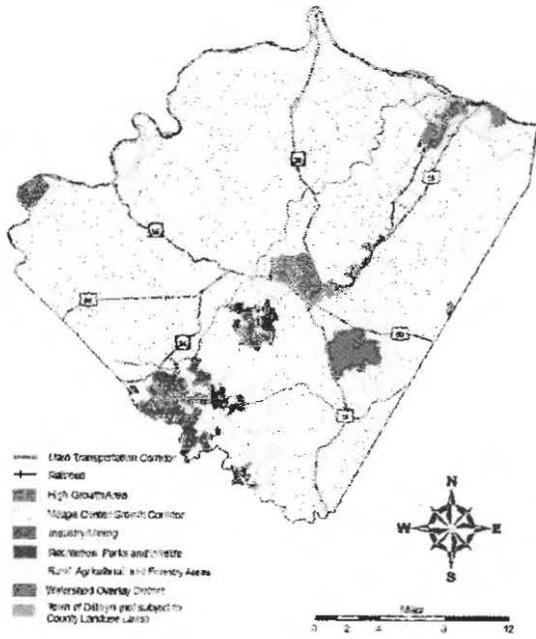
Chicken litter or other dry waste:

Dwellings or commercial establishments... ..... 100 feet  
 Property lines ..... 10 feet  
 Surface waters. .... 100 feet  
 Drinking water sources ..... 100 feet

**Inspection**

The Zoning Administrator or designees for the County shall have the right to visit and inspect any facility on-site at any time, without prior announcement, with due consideration for bio-security practices.

**Comprehensive Plan Growth Map is attached. Areas designated for industrial activities are nowhere near the sited compressor station.**



Key Provisions of the  
Limited Liability Company Agreement  
of Atlantic Coast Pipeline, LLC

Section of Agreement	Page Number	Language
1.3 Purpose	p. 2	Subject to the terms of this Agreement, the purpose of the Company shall be to engage in the <b>Business</b> and to engage in any lawful act or activity for which limited liability companies may engage under the Act and other applicable laws in furtherance of, ancillary to or in connection with the Business.
2.1 Definitions	p. 6	" <b>Business</b> " means the business of acquiring, planning, designing, financing, constructing, operating, owning, improving, marketing, maintaining and expanding the <b>Facilities</b> , engaging in the transmission of natural gas through the <b>Facilities</b> , procuring or leasing gas transportation capacity on any other pipeline facilities and engaging in the transmission of natural gas through such pipeline facilities, and performing other activities or services related or ancillary thereto and such other related business as approved by the Board.
2.1 Definitions	p. 9	" <b>Facilities</b> " means the <b>Initial Facilities</b> , the PA Required Expansion Facilities and any Approved Facilities Project.
2.1 Definitions	p. 12	" <b>Initial Facilities</b> " means an approximately 550-mile natural gas pipeline running between Lewis County, West Virginia and Chesapeake, Virginia and Robeson County, North Carolina, together with certain gas-fired compression stations and associated meter and regulation stations, all as more fully described and identified in the FERC Application for such <b>Facilities</b> (as amended or modified) and as further described on <u>Schedule A</u> hereto.

## **From the FERC Regulations (See Definition #6 below):**

<https://www.law.cornell.edu/uscode/text/15/717a>

### **Definitions:**

When used in this chapter, unless the context otherwise requires—

**(1)**

"Person" includes an individual or a corporation.

**(2)**

"Corporation" includes any corporation, joint-stock company, partnership, association, business trust, organized group of persons, whether incorporated or not, receiver or receivers, trustee or trustees of any of the foregoing, but shall not include municipalities as hereinafter defined.

**(3)**

"Municipality" means a city, county, or other political subdivision or agency of a State.

**(4)**

"State" means a State admitted to the Union, the District of Columbia, and any organized Territory of the United States.

**(5)**

"Natural gas" means either natural gas unmixed, or any mixture of natural and artificial gas.

**(6)**

"Natural-gas company" means a person engaged in the transportation of natural gas in interstate commerce, or the sale in interstate commerce of such gas for resale.

**(7)**

"Interstate commerce" means commerce between any point in a State and any point outside thereof, or between points within the same State but through any place outside thereof, but only insofar as such commerce takes place within the United States.

**(8)**

"State commission" means the regulatory body of the State or municipality having jurisdiction to regulate rates and charges for the sale of natural gas to consumers within the State or municipality.

**(9)**

"Commission" and "Commissioner" means the Federal Power Commission, and a member thereof, respectively.

**(10)**

"Vehicular natural gas" means natural gas that is ultimately used as a fuel in a self-propelled vehicle.

**From the Virginia SCC Website:**

**The ACP LLC does not appear as a regulated gas utility on this website!**

[http://www.scc.virginia.gov/pue/gas/reg\\_cos.aspx](http://www.scc.virginia.gov/pue/gas/reg_cos.aspx)

**Natural Gas Companies Regulated by the SCC**

The following is a list of natural gas companies regulated by the SCC. Utilities that provide websites<sup>®</sup> are linked. (These sites are not maintained by the SCC and are provided as a convenience only.)

[Appalachian Natural Gas  
Distribution Company](#)

[Atmos Energy](#)

[Columbia Gas of Virginia, Inc.](#)

[Roanoke Gas Company](#)

[Shenandoah Gas Division of Washington Gas Light](#)

[Southwestern Virginia Gas Company](#)

[Virginia Natural Gas, Inc.](#)

[Washington Gas Light Company](#)

From the Supreme Court of Virginia's Website:

<http://www.courts.state.va.us/courts/scv/appeals/160630.html>Home > Virginia's Court System > Supreme Court of Virginia > Appeals Granted

Appeals Granted

Case

HAZEL F. PALMER v. ATLANTIC COAST PIPELINE, LLC

(Record Number 160630)

From

The Circuit Court of Augusta County; C. Ricketts III, Judge.

Counsel

Henry E. Howell, III and Benjamin L. Perdue (The Eminent Domain Litigation Group, P.L.C.) for appellant.

John D. Wilburn, Richard D. Holzheimer, Jr. and Heather A. Britton (McGuireWoods, LLP) for appellee.

Assignments of Error

The trial court erroneously ruled that Atlantic Coast Pipeline, LLC can use Virginia Code § 56-49.01 to enter private property even if it is not a Virginia public service company.

The trial court erroneously ruled that Virginia Code § 56-49.01 does not infringe the fundamental right to private property in violation of Article I, § 11 of the Virginia Constitution.

Date Granted

09-16-2016

Sept.23, 2016

Dear Mr. John Bickford,

Thank you for taking the time to talk with me yesterday. I was very encouraged by your assurance that you and the Commissioners will spend time to fully understand the possible negative health impact of the proposed compressor station before making the recommendations on Dominion's special zoning permit application.

I am writing to ask the Commissioners to recommend to Board of Supervisors to deny the special zoning permit on the basis that the area is residential, designated as Agricultural zone and not for heavy industrial use, or at minimum to recommend that a comprehensive Health Impact Assessment (HIA) be done on the health risks of the proposed compressor station before considering the permit application.

I live with my 93 years old mother, Yaeko Steidel, on Warminster Church Road in District 5. Our home is within 4 1/2 miles of the proposed compressor station. The possible health risks, especially for elderlies, children and pregnant women reach even up to 6 miles from the station according to some research. This is a great concern to me for my mother as well as for many elderlies, young children and pregnant mothers who are my friends and neighbors.

Enclosed are selected pages from a study done by Dr. Larysa Dyrszka, a pediatrician and a member of New York Physicians for Social Responsibility (PSR). Please note that 60 to 75% of health problems "from all natural gas activities result from compressor station activities." (P. 18) One of the reasons for the lack of information on these health risks is the non-disclosure clause in most financial settlement cases.

Please see page 25 and 38 for the existence of discrepancies between actual health problem findings and government air monitoring reports and the reason for inadequate health information and protection from the natural gas activities.

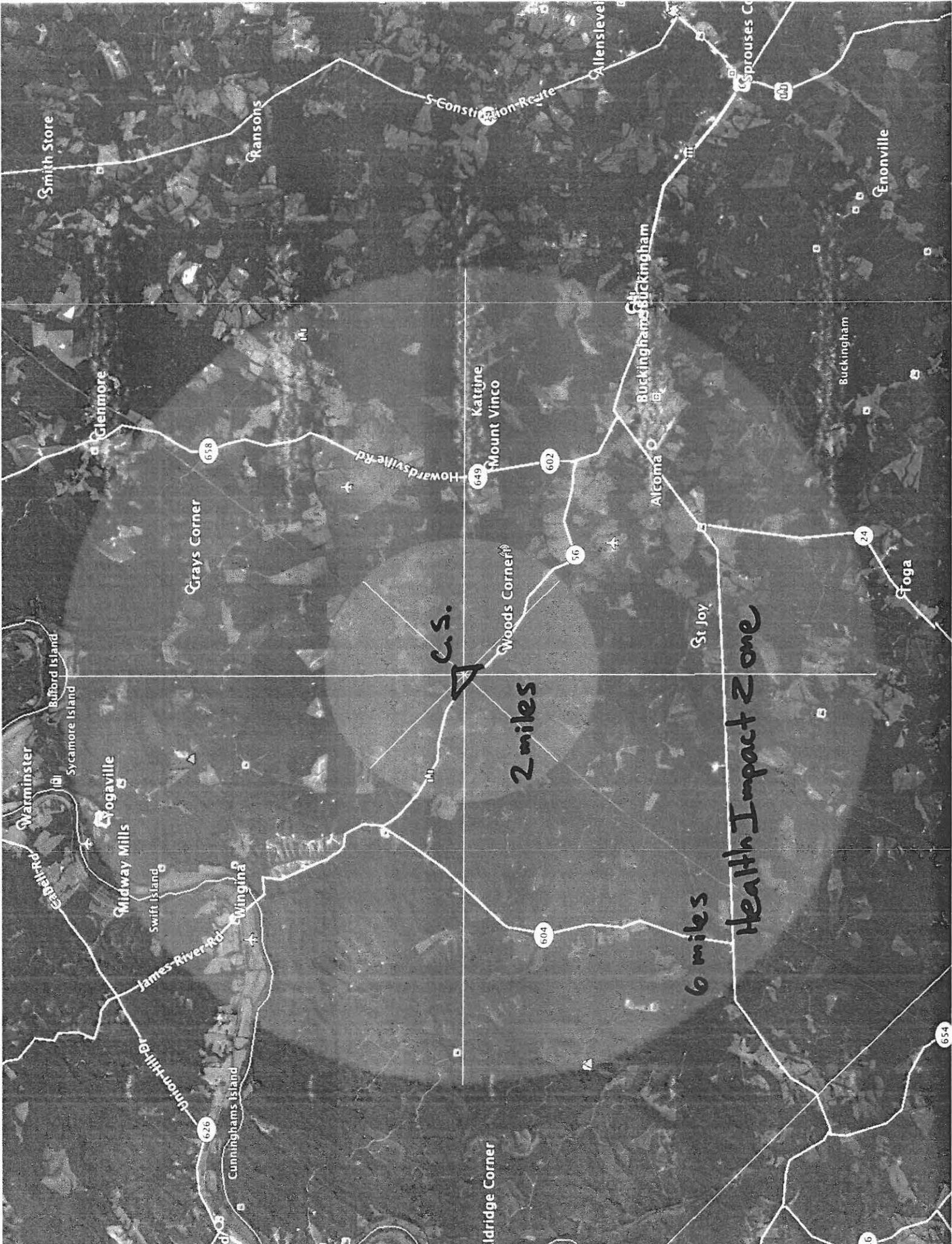
For these reasons, we depend on the Planning Commissioners to support having comprehensive Health Impact Assessment (HIA) done which is recommended by American Medical Association, Physicians for Social Responsibilities, amongst others.

Thank you for considering my concerns and request. I look forward to receiving your response. I am sending individualized letters with the same enclosure to all Planning Commission members, Mr. Danny Allen, and Mrs. Rebecca Cobb.

Sincerely,

  
Swami Dayananda and Yaeko Steidel

4368 Warminster Church Road, Buckingham, VA 23921  
434-969-6148, swdayananda@gmail.com



C.S.

2 miles

6 miles

Health Impact Zone

Smith Store

Ransons

S-Constitution-Rd

Allenslevel

Sprouses Co

Enonville

Glenmore

Crays Corner

Katrine  
Mount Vinco

Buckingham  
Buckingham

Buckingham

Alcoma

St Joy

Toga

Warminster

Bufford Island

Sycamore Island

Frogville

Midway Mills

Swift Island

Wingina

James-River-Rd

Gablers Rd

Union-Hill-Rd

Cunninghams Island

Eldridge Corner

634

10

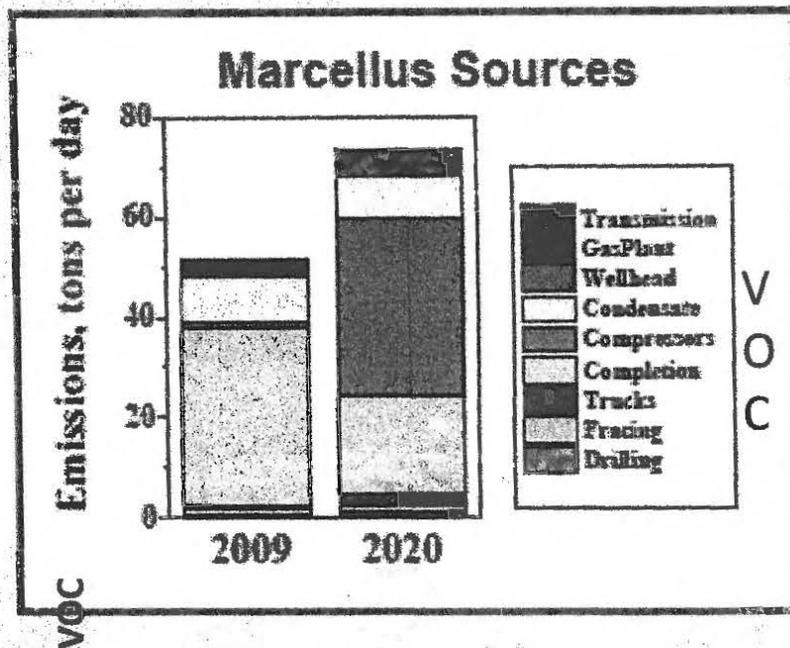
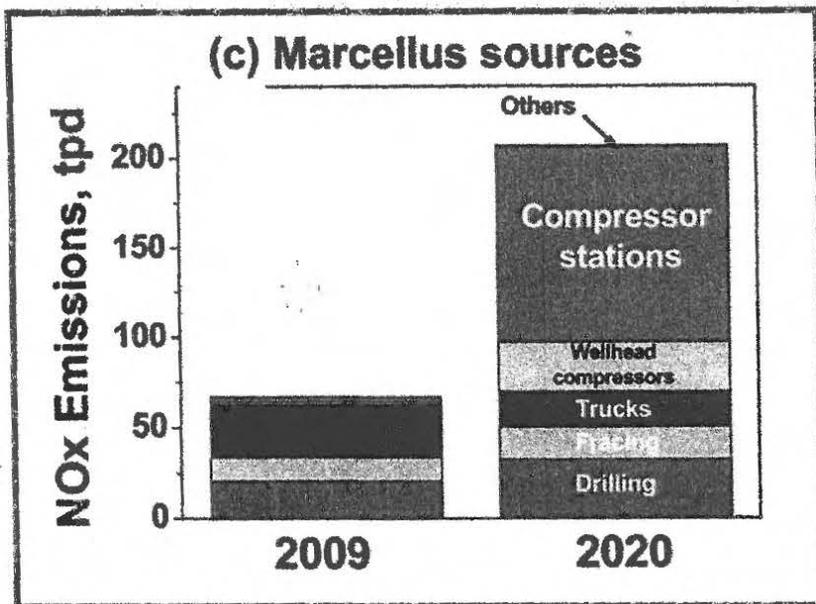
# HEALTH IMPACTS OF GAS INFRASTRUCTURE: COMPRESSOR STATIONS

Larysa Dyrzka MD

[Lar917dy@gmail.com](mailto:Lar917dy@gmail.com)

April 12, 2016

Emissions from compressor stations are significant; 60–75 % of the estimated damages (mostly health problems) from all natural gas activities result from compressor station activities. From the 2013 RAND study of air-quality damages in Pennsylvania <http://iopscience.iop.org/1748-9326/8/1/014017>



Graphs adapted from presentation of Dr Allen Robinson

<http://www.iom.edu/~media/Files/Activity%20Files/Environment/EnvironmentalHealthRT/2012-04-30/Robinson.pdf> and video <http://www.iom.edu/Activities/Environment/EnvironmentalHealthRT/2012-APR-30/Day-1/Session-5/1-Robinson.aspx>

see also Clean Air Council's Walker & Koplinka-Loehr presentation

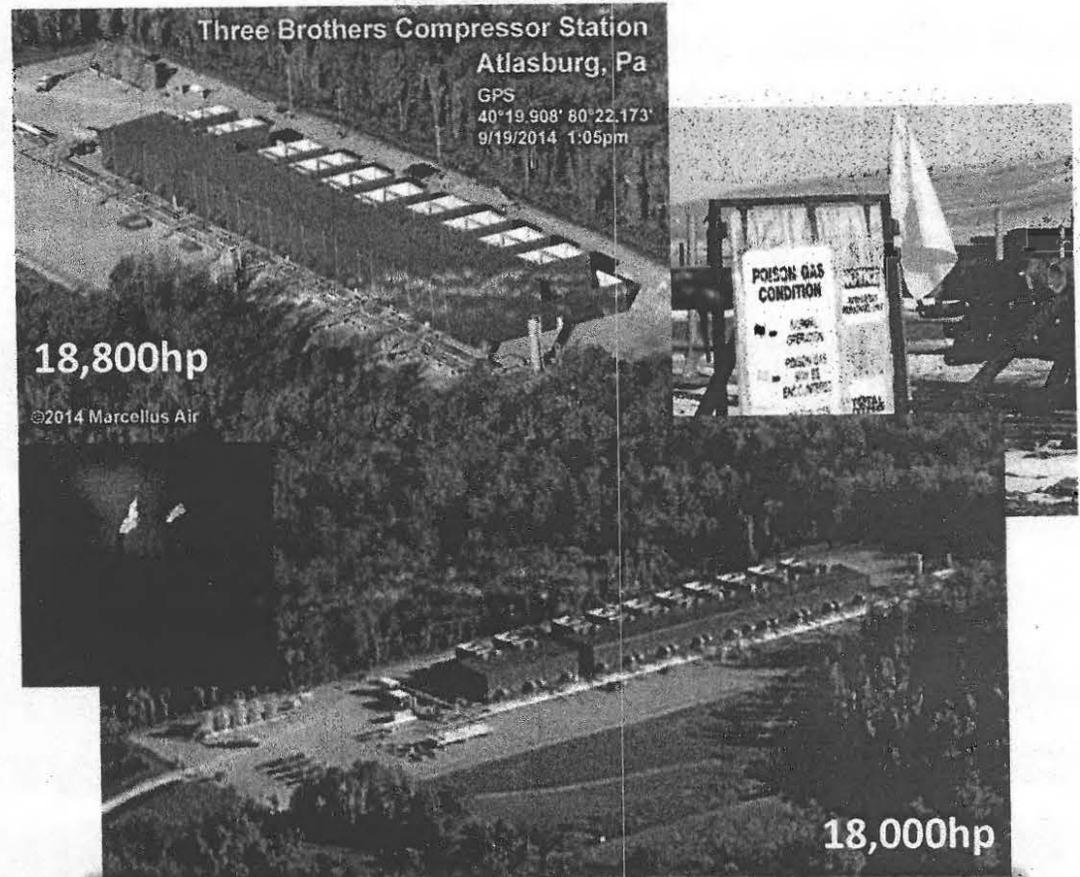
[http://www.cleanair.org/program/outdoor air pollution/shale gas infrastructure/milford compressor station air impacts commun](http://www.cleanair.org/program/outdoor%20air%20pollution/shale%20gas%20infrastructure/milford%20compressor%20station%20air%20impacts%20commun)

# POLLUTANTS

- Methane (CH<sub>4</sub>)
- Light and heavy alkanes
- BTEX - Benzene, toluene, ethylbenzene, and xylene
- Hydrogen and carbonyl sulfides
- Sulfur Dioxide (SO<sub>2</sub>)
- Formaldehyde
- Particulate matter (tiny soot-like particles)
- Carbon monoxide (CO)
- VOCs
- Radon, polonium and lead
- Polychlorinated Biphenyls (PCBs)

# SOURCES

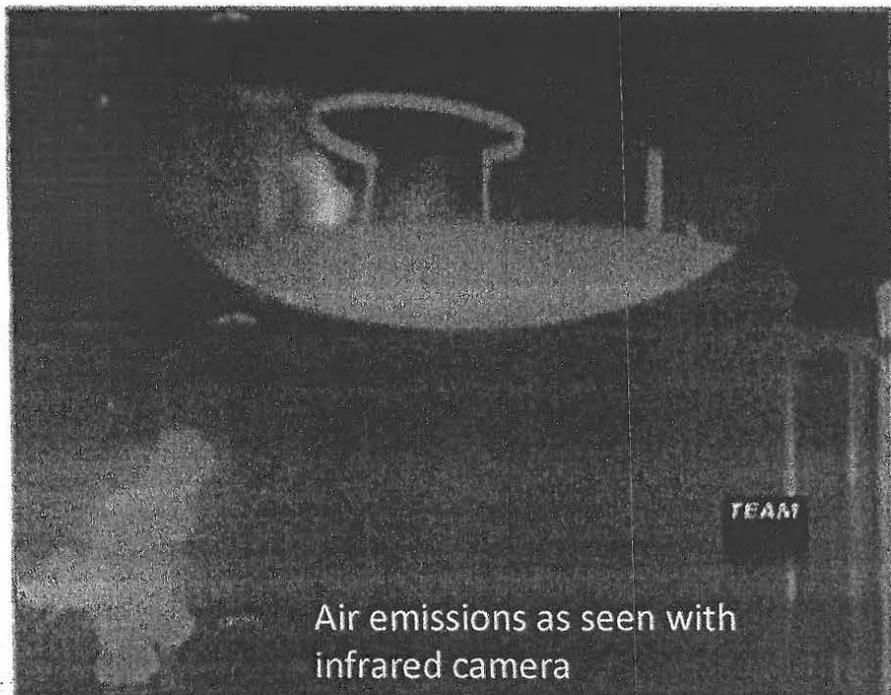
- Emissions and waste from transport vehicles, combustion at compressor stations, storage and condensate tanks, metering stations, processing plants, pipelines
- Flaring, venting, blowdowns and leaks



- Compressor Engines
- Compressor Blowdowns
- Condensate Tanks
- Storage Tanks
- Truck Loading Racks
- Glycol Dehydration Units
- Amine Units
- Separators
- Fugitive Emission Sources
- 90% of individuals reported experiencing odor events from these facilities

**UNITS AT  
COMPRESSORS  
RELEASING  
EMISSIONS**  
Subra Earthworks

# COMMON COMPLAINTS NEAR COMPRESSORS



Most common COMPLAINTS of residents living near compressors:

- Skin rash or irritation
- Eye irritation
- Gastrointestinal problems such as pain, nausea, vomiting
- Respiratory problems such as difficulty breathing or cough
- Upper respiratory problems such as congestion, sore throat and nosebleeds
- Neurological problems such as headaches, movement disorders, dizziness
- Psychological problems such as anxiety, depression, stress, irritability

Possible long-term consequences:

- Cardiovascular such as heart attack and high blood pressure
- Respiratory such as exacerbation of asthma, COPD
- Neurological such as stroke and cognitive deficits in children
- Birth defects
- Cancer
- Premature mortality



# Health Impacts reported by community members living near compressor stations and gas metering stations along gas transmission pipelines

[http://www.earthworksaction.org/files/publications/SUBRA\\_3\\_Shale\\_Gas\\_PlaysHealth\\_Impacts\\_sm.pdf](http://www.earthworksaction.org/files/publications/SUBRA_3_Shale_Gas_PlaysHealth_Impacts_sm.pdf)

**\*61% of health impacts associated with chemicals present in excess of short and long term health screening levels in the air**

- Nasal Irritation\*
- Throat Irritation\*
- Eyes Burning\*
- Frequent Nausea\*
- Allergies
- Sinus Problems\*
- Bronchitis\*
- Persistent Cough
- Chronic Eye Irritation\*
- Shortness of Breath
- Increased Fatigue\*
- Muscle Aches & Pains\*
- Severe Headaches\*
- Frequent Nose Bleeds
- Sleep Disturbances
- Joint Pain
- Difficulty in Concentrating
- Nervous System Impacts
- Irregular/Rapid Heart Beat\*
- Strokes
- Dizziness\*
- Forgetfulness/Amnesia
- Easy Bruising
- Weakness\* & Tired\*
- Ringing in Ears
- Sores & Ulcers in Mouth
- Urinary infections
- Depression\*
- Decreased Motor Skills\*
- Falling, Staggering\*
- Frequent Irritation\*
- Brain disorders\*
- Severe Anxiety\*
- Excessive Sweating
- Abnormal EEG\*
- Lump in Breast
- Spleen
- Pre-Cancerous Lesions\*
- Abnormal Mammogram
- Thyroid Problems
- Endometriosis

**Most prevalent conditions in individuals living close to compressors**

90% of individuals living and working within 2-3 miles of compressor stations report experiencing odor events and health impacts

## Medical Conditions and % of Individuals Surveyed

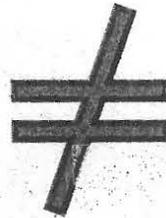
Respiratory Impacts 71%  
Sinus Problems 58%  
Throat Irritation 55%  
Allergies 55%  
Weakness and Fatigue 55%  
Eye Irritation 52%  
Nasal Irritation 48%  
Joint Pain 45%  
Muscle Aches & Pains 42%  
Breathing Difficulties 42%  
Vision Impairment 42%  
Severe Headaches 39%  
Sleep Disturbances 39%  
Swollen & Painful Joints 39%

# Health findings and government air monitoring reports are in conflict

## Health Findings

Reports of acute onset  
sequale in humans:

- Respiratory
- Neurologic
- Dermal
- Vascular bleeding
- Abdominal pain
- Nausea, and vomiting



## Monitoring Reports

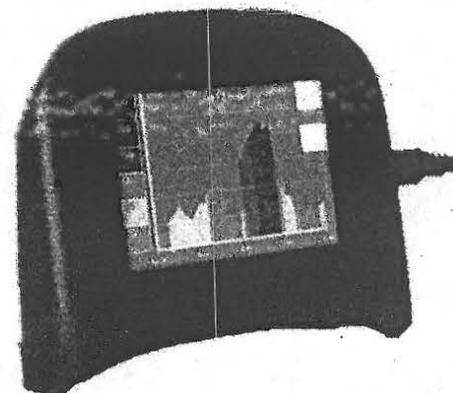
Assurances from air monitoring data  
that untoward exposures are not  
occurring.

- Barnett Shale Texas (Bunch et al-  
2013)
- Marcellus Shale Ambient Air  
sampling (Pennsylvania DEP 2010)
- City of Fort Worth Air Quality Study  
(ERG 2011)

## Minisink: Pilot Project

Summary of air monitoring and health assessment at 8 residences  
data compiled by Celia Lewis PhD

- **Community coordinator**
- **Health assessments of 8 families**
- **PM<sub>2.5</sub> monitoring with Speck monitors**
- **VOC sampling with summa canisters**



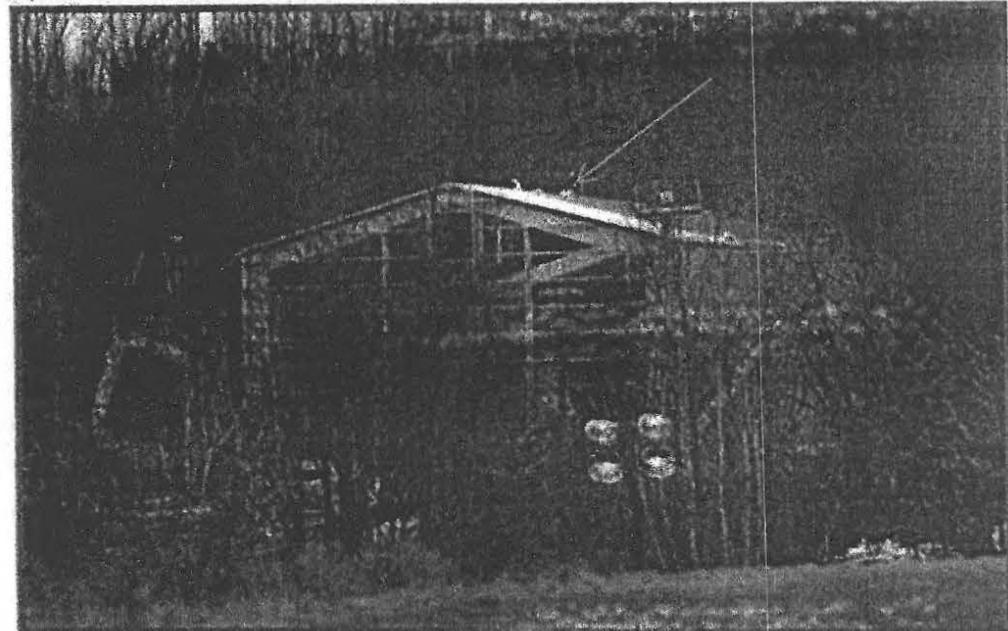
## in Minisink:

The predominant health impacts reported were:

- Respiratory problems
- Neurological problems
- Dermatological problems
  
- Overall “quality of life” levels were below normal for half of the respondents when compared to a national standard (SF36).

## COMMUNITY IMPACTS

- air and water impacts
- community tension
- traffic and road safety
- abandonment by officials
- worker safety
- housing, community character, schools
- economic issues such as value of homes
- cumulative effects of multiple stressors
- noise
- loss of viewshed, foodshed and watershed
- SOLASTALGIA



## ARE THERE ADEQUATE HEALTH PROTECTIONS IN PLACE?

- **Most of the literature on health impacts has been published in the last 2-3 years, and usually not in the mainstream general medical literature, and the results have not been considered in the regulatory process**
- **Federal exemptions limit information at the national level**  
<http://www.earthworksaction.org/pubs/PetroleumExemptions1c.pdf>  
[http://www.citizenscampaign.org/PDFs/cce\\_hvhf\\_wp\\_final.pdf](http://www.citizenscampaign.org/PDFs/cce_hvhf_wp_final.pdf)
- **Doctors are not adequately trained to recognize, nor do they have time to investigate, environmental exposures**
- **Vulnerable populations, especially children, have not been adequately studied**
- **Community and environmental impacts need attention**
- **Inadequate measures for worker safety**
- **Non-disclosure agreements prevent access to health information**
- **Comprehensive studies which include the infrastructure have not been done**

**There is a process which brings public health to the table and which can inform land use decisions and should be used prior to the development of regulations and before permitting. It is particularly important in the case of gas exploration and production.**

## **HEALTH IMPACT ASSESSMENT**

**“HIA IS A SYSTEMATIC PROCESS THAT USES AN ARRAY OF DATA SOURCES AND ANALYTIC METHODS AND CONSIDERS INPUT FROM STAKEHOLDERS TO DETERMINE THE POTENTIAL EFFECTS OF A PROPOSED POLICY, PLAN, PROGRAM, OR PROJECT ON THE HEALTH OF A POPULATION AND THE DISTRIBUTION OF THOSE EFFECTS WITHIN THE POPULATION. HIA PROVIDES RECOMMENDATIONS ON MONITORING AND MANAGING THOSE EFFECTS.”**

**“IMPROVING HEALTH IN THE UNITED STATES: THE ROLE OF HEALTH IMPACT ASSESSMENT”  
[HTTP://WWW.NAP.EDU/CATALOG.PHP?RECORD\\_ID=13229](http://www.nap.edu/catalog.php?record_id=13229)**



## MEDICAL SOCIETY OF THE STATE OF NEW YORK

May 2, 2015 – The Medical Society of the State of New York adopted a resolution, “Protecting Public Health from Natural Gas Infrastructure,” that recognizes the potential impact to human health and the environment of natural gas pipelines and calls for a governmental assessment of these risks.



## AMERICAN MEDICAL ASSOCIATION

June 9, 2015 -- The American Medical Association (AMA) adopted a resolution, “Protecting Public Health from Natural Gas Infrastructure,” that states, “Our AMA recognizes the potential impact on human health associated with natural gas infrastructure and supports legislation that would require a comprehensive Health Impact Assessment regarding the health risks that may be associated with natural gas pipelines.”

## **AT A MINIMUM:**

- **Hearings (DEC and FERC)**
- **Cumulative environmental impact study with a comprehensive health assessment, including pre- during and post-construction health monitoring**
- **Baseline measurements of air emissions, methane, radon and water quality, and continuous monitoring if compressor is approved**
- **Cumulative emissions to include condensate tank emissions and fugitive methane**
- **Best technologies, and for compressors, electric power source**
- **Hazardous Materials Management Plan including plan for disposal of waste from condensate tanks and pipelines, and a NORM Monitoring Plan**

