

UNITED STATES OF AMERICA
BEFORE THE FEDERAL ENERGY REGULATORY COMMISSION

In the matter of
Mountain Valley Pipeline LLC
Docket No. CP16-10-000
and
Equitrans, LP
Docket No. CP16-13-000

November 24, 2015

MOTION TO INTERVENE

Pursuant to 18 CFR § 385.214 and 18 CFR § 385.211, the Blue Ridge Environmental Defense League (“League” or “BREDL”) hereby files a motion to intervene in and protest the above captioned proceedings. Under 18 CFR § 157.10, BREDL seeks a formal hearing on the application. This motion is filed in a timely manner in accord with the Federal Register Notice,¹ Rule 210 and Rule 2009. The Federal Energy Regulatory Commission (“FERC”) should reject this proposed pipeline project because it would intensify and exacerbate unconventional shale gas development, injure the health and safety of the residents and undermine the welfare of communities along the proposed route. Further, FERC should review proposed pipeline projects in the region programmatically to assess cumulative impacts of multiple pipelines and associated facilities.

Background

On October 23, 2015, Mountain Valley Pipeline, LLC (“MVP”) filed an application under section 7(c) of the Natural Gas Act, seeking a certificate of public convenience and necessity to construct, own, and operate a new natural gas pipeline system (“Project”), including three compressor stations and appurtenances totaling 123,005 horsepower, across West Virginia and Virginia. If constructed, the MVP would consist of: (1) Approximately 301

¹ 80 Federal Reg. 70196, Friday, November 13, 2015

miles of 42-inch diameter pipeline in West Virginia and Virginia; (2) three new compressor stations providing approximately 171,600 nominal horsepower (hp) of compression; and (3) other facilities.

On October 27, 2015, Equitrans, LP (“Equitrans”), filed an application pursuant to sections 7(b) and 7(c) of the Natural Gas Act (NGA) and the Federal Energy Regulatory Commission's (Commission) regulations seeking a certificate of public convenience and necessity to construct, own, and operate the Equitrans Expansion Project. Equitrans also seeks authority to abandon an existing compressor station located in Greene County, Pennsylvania. Equitrans would consist of: (1) Approximately 7.87 miles of pipeline in Allegheny, Washington, and Greene Counties, Pennsylvania and Wetzel County, West Virginia; (2) a new 31,300 nominal hp compressor station (Redhook Compressor Station) in Greene County, Pennsylvania; (3) a new interconnect in Wetzel County, West Virginia with Mountain Valley's proposed pipeline system (Webster Interconnect); and (4) ancillary facilities. Equitrans also seeks authority to abandon an existing 4,800 hp compressor station in Greene County, Pennsylvania (Pratt Compressor Station) following the construction of the new Redhook Compressor Station.

Mountain Valley Pipeline, LLC is a joint venture between EQT Midstream Partners, LP and affiliates of NextEra Energy, Inc., WGL Holdings, Inc., Vega Energy Partners, Ltd., and RGC Midstream, LLC. The routing of the project through the Southwest Virginia area resulted in Roanoke Gas Company (Roanoke Gas) becoming a Project shipper and requesting a specific tap location.

MVP also proposes to construct three compressor stations: The Bradshaw Compressor Station, the Harris Compressor Station and the Stallworth Compressor Station. The Bradshaw Compressor Station would be constructed at approximately MP 2.8 in Wetzel County, West

Virginia and would pull gas from the origination point, near Mobley, West Virginia for relay to Harris Compressor Station. The station would contain four gas-driven turbines which combined would provide approximately 89,600 hp of compression. The station would include approximately five structures (compressor, 2 electrical control buildings, office, and air compressor building), with a chain-link security fence installed around the perimeter of the site. As currently designed, equipment at the station would include gas filter/separators, gas coolers, inlet air filters, exhaust silencers, tanks, blowdown silencers, heaters, and auxiliary micro-turbines. Bradshaw Compressor Station is designed to raise the pressure from 765 psig to 1,450 psig.

Harris Compressor Station would be constructed at approximately MP 77.5 in Braxton County, West Virginia and would pull gas from Bradshaw Compressor Station for relay delivery to Stallworth Compressor Station. The station would contain two gas-driven turbines, which combined will provide approximately 41,000 hp of compression. The station would include approximately five structures (compressor, 2 electrical control buildings, office, and air compressor building), with a chain-link security fence installed around the perimeter of the site. As currently designed, equipment at the station would include gas filter/separators, gas coolers, inlet air filters, exhaust silencers, tanks, blowdown silencers, heaters, and auxiliary micro-turbines. Harris Compressor Station is designed to raise natural gas pressure from 1,110 psig to 1,450 psig.

Stallworth Compressor Station would be constructed at approximately MP 154.2 in Fayette County, West Virginia and would pull gas from Harris Compressor Station, for relay delivery to Transco Station 165. The station would contain two gas-driven turbines, which combined would provide approximately 41,000 hp of compression. The station would include approximately five structures (compressor, 2 electrical control buildings, office, and air

compressor building), with a chain-link security fence installed around the perimeter of the site. As currently designed, equipment at the station would include gas filter/separators, gas coolers, inlet air filters, exhaust silencers, tanks, blowdown silencers, heaters, and auxiliary micro-turbines. Stallworth Compressor Station is designed to raise the natural gas pressure from 1,060 psig to 1,450 psig.

The Basis in Fact and Law for BREDL's Position

In order to grant a certificate of convenience and public necessity for the location, construction, operation & abandonment of a natural gas pipeline, the Federal Energy Regulatory Commission must make certain findings based on fact and law under Section 7 of the Natural Gas Act, 15 U.S.C. S717f(c). Section 3 of the Act prohibits the export of natural gas from the United States to a foreign country without “having secured an order of the Commission” authorizing it. 15 U.S.C. § 717b.

Under the Natural Gas Act, the Department of Energy has exclusive authority over the export of natural gas, including the determination of whether the exportation would “be inconsistent with the public interest.” 15 U.S.C. § 717b(a). However, a DOE study found “great uncertainties about how the U.S. natural gas market will evolve” and that “one of the major uncertainties is the availability of shale gas in the United States.”² Another DOE study found it lacked “an understanding of where and when additional gas production will arise” and therefore “the environmental impacts resulting from production activity . . . are not ‘reasonably foreseeable’”³ This presents the Commission with a dilemma, because the National

² *NERA Economic Consulting's analysis entitled Macroeconomic Impacts of Increased LNG Exports from the United States*, p.111

³ *Addendum to Environmental Review Documents Concerning Exports of Natural Gas from the United States*, 79 Fed. Reg. 48,132 (Aug. 15, 2014) at 2, available at <http://www.energy.gov/sites/prod/files/2014/08/f18/Addendum.pdf>

Environmental Policy Act (“NEPA”) requires that all federal agencies consider comprehensively the environmental impacts of proposed major actions which come before them. 42 U.S.C. § 4332(2)(C); See *La. Ass'n of Indep. Producers & Royalty Owners v. FERC*, 958 F.2d 1101 (D.C.Cir.1992). Indeed, FERC is responsible for NEPA review associated with natural gas pipeline construction. *Midcoast Interstate Transmission, Inc. v. FERC*, 198 F.3d 960, 967 (D.C.Cir.2000). Moreover, the analysis under NEPA must be broad as well as deep.

*Delaware Riverkeeper Network v. FERC*⁴ held that,

NEPA review must include both "connected actions" and "similar actions." [40 CFR] § 1508.25(a)(1), (3). Actions are "connected" if they trigger other actions, cannot proceed without previous or simultaneous actions, or are "interdependent parts of a larger action and depend on the larger action for their justification." *Id.* § 1508.25(a)(1). And actions are "similar" if, "when viewed with other reasonably foreseeable or proposed agency actions, [they] have similarities that provide a basis for evaluating their environmental consequences together, such as common timing or geography." *Id.* § 1508.25(a)(3).

And that:

"The procedures required by NEPA ... are designed to secure the accomplishment of the vital purpose of NEPA. That result can be achieved only if the prescribed procedures are faithfully followed...." *Lathan v. Brinegar*, 506 F.2d 677, 693 (9th Cir.1974).

Also:

In preparing an EA or EIS, an "agency need not foresee the unforeseeable, but... [r]easonable forecasting and speculation is ... implicit in NEPA, and we must reject any attempt by agencies to shirk their responsibilities under NEPA by labeling any and all discussion of future environmental effects as 'crystal ball inquiry.'" *Scientists' Inst. for Pub. Info., Inc. v. Atomic Energy Comm'n*, 481 F.2d 1079, 1092 (D.C.Cir.1973).

Further, “simple, conclusory statements of ‘no impact’ are not enough to fulfill an agency’s duty under NEPA.” *Foundation on Economic Trends v. Heckler*, 756 F.2d 143, 154 (D.C.Cir.1985).

⁴ *Delaware Riverkeeper Network, et al., Petitioners v. Federal Energy Regulatory Commission, Respondent. Tennessee Gas Pipeline Company, LLC and Statoil Natural Gas, LLC, Intervenors*. No. 13-1015. United States Court of Appeals, District of Columbia Circuit. Argued February 24, 2014. Decided June 6, 2014. 753 F.3d 1304 (2014)

Finally, judicial review under NEPA is available “to ensure that the agency has adequately considered and disclosed the environmental impact of its actions and that its decision is not arbitrary or capricious.” *Baltimore Gas & Electric Co. v. NRDC*, 462 U.S. 87, 97-98, 103 S.Ct. 2246, 76 L.Ed.2d 437 (1983).

Other environmental laws which FERC must address include, inter alia, the Clean Air Act, which established National Ambient Air Quality Standards to protect public health and public welfare and to regulate emissions of hazardous air pollutants, 42 U.S.C. §7401 et seq. (1970); the Clean Water Act, which regulates discharges of pollutants into the waters of the United States and sets surface water quality standard 33 U.S.C. §1251 et seq. (1972); the Resource Conservation and Recovery Act, which regulates the generation, transportation, treatment, storage, and disposal of hazardous waste and non-hazardous solid wastes. 42 U.S.C. §6901 et seq. (1976); and the Safe Drinking Water Act, which protects above ground or underground sources waters actually or potentially designated for drinking use. 42 U.S.C. §300f et seq. (1974)

The following pages detail the specific problems we have identified which argue against the granting of a certificate of convenience and public necessity in this matter.

Hydraulic Fracturing

The Blue Ridge Environmental Defense League investigates, publicizes and organizes to disclose the invasive and destructive method of natural gas extraction known as hydraulic fracturing and has done so for many years. Hydraulic fracturing, commonly referred to as “fracking,” is a technique used to extract natural gas from subterranean shale rocks. The process involves injecting millions of gallons of liquid and sand at high pressure into wells dug anywhere

from 6,000 to 10,000 feet into the earth's crust.⁵ The pressurized mixture causes fractures in the rock layer, known as fissures. When pressure is released, the propped fractures allow gas in the rock formation to flow from the well, along with the hydraulic fracturing fluid.⁶ The first stage of the fracking process involves water acquisition. During this process, large volumes of water are withdrawn from ground water and surface water. The amount of water used per well during this process can range anywhere from 30,000 to 7.2 million gallons. The second stage involves taking this water and mixing it with a variety of chemicals prior to well injection. According to a recent study released by the Environmental Protection Agency, hydraulic fracturing fluids were generally found to contain 88% by mass water, 10% quartz (used as a sand), and 1% additive ingredients.⁷ The EPA surveyed 428 fracking well operators for their study, and found that the median number of additive ingredients per well was 14, with 65% of analyzed wells using hydrochloric acid, methanol, and hydrotreated light petroleum. Many of the wells also include added ingredients that are said to be confidential business information ("trade secrets"). In fact, 11 % of the ingredient records for the operators surveyed by the EPA were said to be confidential. A report done in 2011 lists 750 chemicals and compounds used by 14 oil and gas service companies from 2005 to 2009.⁸ The list includes 29 chemicals that are either known or possible carcinogens or are regulated by the federal government, such as lead and benzene.⁹

In the third stage of the fracking process, the well is injected with the fracturing fluid. The oil or gas escapes through the well and is collected at the surface. As the oil and gas travels back up the well, so too does the fracking fluid (also known as flowback). This fluid is treated as wastewater in the fifth stage of the process, and is dealt with in one of several ways including

⁵ <http://www.forbes.com/sites/timworstall/2011/06/21/ten-things-to-know-about-fracking/>

⁶ http://m.iopscience.iop.org/1748-9326/7/4/044030/pdf/1748-9326_7_4_044030.pdf

⁷ http://www2.epa.gov/sites/production/files/201503/documents/fact_sheet_analysis_of_hydraulic_fracturing_fluid_data_from_the_fracfocu.pdf

⁸ <http://www.propublica.org/article/fracking-chemicals-cited-in-congressional-report-stay-underground>

⁹ <http://democrats.energycommerce.house.gov/index.php?q=news/committee-democrats-release-new-report-detailing-hydraulic-fracturing-products>

disposal by underground injection, treatment followed by disposal to surface water bodies, or recycling (with or without treatment) to be used in future fracking operations.

The Federal Energy Policy Act of 2005 effectively stripped the Environmental Protection Agency of its authority to regulate fracking through a provision that has come to be known as the “Halliburton Loophole.”¹⁰ While previously the EPA regulated the underground injection fluids used in hydraulic fracturing under the Safe Drinking Water Act, the loophole created an exemption for gas drilling and extraction from requirements in the underground injection control (UIC) program of the Safe Drinking Water Act. Other exemptions are also present in the Clean Water Act and Clean Air Act.¹¹

Several gas-producing states have regulations governing some aspects of fracking. However, they rarely require companies to divulge detailed information on types and quantities of chemicals that are used and whether what is injected underground remains underground or returns to the surface.¹² In West Virginia, there are no additional testing regulations with respect to groundwater and surface water, solid waste, or pre-drilling and baseline tests apart from the federal standard, which is tenuous.¹³ Further, in West Virginia disposal of liquid waste can be injected back underground, recycled and circulated, or disposed at treatment facilities. In Virginia, an advisory panel recommended that energy companies disclose the chemical ingredients used in fracking, including any “trade secrets.”¹⁴ The proposal has been submitted to Governor Terry McAuliffe’s administration for review. A decision has yet to be reached.

¹⁰ <http://cleanwater.org/page/fracking-laws-and-loopholes>

¹¹ <http://cleanwater.org/page/fracking-laws-and-loopholes>

¹² <https://www.earthworksaction.org/about>

¹³ <http://www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Capabilities/North-America-Capabilities/USA/Oil-and-Gasoline-Testing/Oil-and-Gas-Production-and-Midstream-Support/Fracking-Regulations-by-State>

¹⁴ <http://www.washingtontimes.com/news/2015/jun/2/va-panel-recommends-new-fracking-regulations/?page=all>

The greenhouse gas (GHG) produced in fracking is not conventional CO₂, but rather, CH₄, methane.¹⁵ According to the EPA, while methane has a shorter atmospheric lifetime than carbon dioxide, it is about 25 times more efficient at trapping radiation over a 100-year period.¹⁶ This means that pound for pound, methane contributes about 25 times more to climate change than carbon dioxide. Thus, while natural gas may help reduce carbon dioxide emissions, it intensifies and substantially contributes to climate change.

A fracked well begins releasing gas during the flowback period, during which some of the initially injected fluid returns to the surface over the course of a week or more. The amount of gas and how that gas is handled has been central to the debate about the greenhouse gas intensity of shale resource development. Studies have shown that anywhere from 3.9% to 7.9% of the methane from shale-gas production escapes to the atmosphere in venting and leaks over the lifetime of a well.¹⁷ According to Howarth et al., “The footprint for shale gas is greater than that for conventional gas or oil when viewed on any time horizon, but particularly so over 20 years. Compared to coal, the footprint of shale gas is at least 20% greater and perhaps more than twice as great on the 20-year horizon.”

Understanding the impacts of fracking on climate change requires knowledge of the duration of the flowback stage, and the rate of gas production during that period.¹⁸ The EPA assumes that the flowback period lasts between 3 and 10 days. A 2012 study done by O’Sullivan and Paltsev of MIT estimates the level of fugitive GHG emission resulting the fracking of about 4000 horizontally drilled shale gas wells in the US. The study estimates that about 216 MG of

¹⁵ O’Sullivan, Francis, and Sergey Paltsev. "Shale Gas Production: Potential versus Actual Greenhouse Gas Emissions." *Environmental Research Letters*, 2012. doi:10.1088/1748-9326/7/4/044030.

¹⁶ O’Sullivan, Francis, and Sergey Paltsev. "Shale Gas Production: Potential versus Actual Greenhouse Gas Emissions." *Environmental Research Letters*, 2012. doi:10.1088/1748-9326/7/4/044030.

¹⁷ Howarth, Robert, Renee Santoro, and Anthony Ingraffea. "Methane and the Greenhouse-gas Footprint of Natural Gas from Shale Formations." *Climatic Change*, 2011, 679-90.

¹⁸ O’Sullivan, Francis, and Sergey Paltsev. "Shale Gas Production: Potential versus Actual Greenhouse Gas Emissions." *Environmental Research Letters*, 2012. doi:10.1088/1748-9326/7/4/044030.

methane are released per well during the flowback period. There are currently over 1 million active gas wells in the United States.¹⁹ Further, the United States accounts for about 20 percent of global GHG emissions. Continuing to pursue fracking would release millions, perhaps even billions, of additional gallons of methane into the atmosphere. Methane's extreme potency for trapping heat would wreak havoc on the atmosphere, contributing to global warming and increasing the US's GHG emissions. In fact, according to the same study by O'Sullivan and Paltsev, the fracking contributed to about three percent of the nation's total GHG inventory in 2010.

Nationwide, the growth of fracking has been phenomenal, increasing by 259% in just four years to over ten trillion cubic feet of natural gas per year.²⁰ Altogether, over 29 trillion cubic feet of gas is extracted annually from all sources in the US, including coal beds, oil wells and traditional gas wells. Once the gas has been extracted, it is transported in trucks, compressed and delivered by pipelines. Each stage in this process creates pollution.

Compressor Stations

Compressor stations are major pollution sources. The MVP proposal includes at least three compressor stations along its proposed route. Compressor stations spaced along the pipeline keep the gas moving from source to end use. Internal combustion engines provide power for these compressors. Natural gas would be the fuel source. A typical compressor may release

¹⁹ Kelso, Matt. "Over 1.1 Million Active Oil & Gas Wells in the US." FracTracker Alliance. March 4, 2014. Accessed July 9, 2015.

²⁰ US Energy Information Administration's 2012 Annual Report available at www.eia.gov

thousands of tons of air pollution annually including nitrogen oxides, volatile organic compounds, carbon monoxide, particulate matter, benzene and formaldehyde.²¹

The negative effects of airborne formaldehyde occur at very low levels. Exposure to as little as 0.1 to 2 parts per million causes irritation of the eyes, nose and throat. At 5 to 10 ppm, people experience cough, tightness of the chest and eye damage. At 20 ppm breathing becomes difficult, at 30 ppm there is severe injury to the lungs. At 100 ppm, a concentration of just one one-hundredth of a percent (0.01%), formaldehyde is immediately dangerous to life. The National Institute for Occupational Safety and Health recommends an exposure limit of 0.016 ppm.²² A single compressor station can emit tens of thousands of pounds of toxic formaldehyde into the atmosphere annually. Children and the elderly are more susceptible to these toxins.

Pollution from compressor stations comes primarily in the form of nitrogen oxide (NO_x)—a term used to signify the sum of nitric oxide (NO) and nitrogen dioxide (NO₂). Nitrogen oxide carries with it a wide array of adverse environmental and health effects. According to the EPA, studies indicate a connection between breathing elevated short-term nitrogen oxide concentrations and increased visits to the emergency room for respiratory issues.²³ Further, when NO_x can reacts with other organic compounds in the atmosphere in the presence of heat and sunlight, it forms tropospheric ozone—commonly referred to as brown smog.²⁴ Unlike ozone in the stratosphere, tropospheric ozone is very harmful to living organisms. Sometimes called “bad ozone,” this breed of ozone damages lung tissue, and can cause the worsening of preexisting respiratory diseases. It can also aggravate existing heart conditions,

²¹ Information based on North Carolina Division of Air Quality Title V Operation Permit No. 10097T01 for the Piedmont Natural Gas Wadesboro Compressor Station. This permit is the subject of an extant petition brought by BREDL under Section 505 of the Clean Air Act.

²² ATSDR Fact Sheet: Formaldehyde, CAS 50-00-0, June 1999

²³ <http://www.epa.gov/oaqps001/nitrogenoxides/health.html>

²⁴ https://www.ucar.edu/learn/1_7_1.htm

leading to increased hospital admissions and premature death, and cause coughing, nausea, headaches, and chest congestion.²⁵

While there is no comprehensive national or state inventory of compressor station accidents, there are numerous local news accounts of individual accidents—primarily in the form of fires.²⁶ In 2008, a gas compressor station near Godley, Texas exploded and burned for several hours, destroying the compressor station and another one adjacent to it.²⁷ Similarly, in 2012 an explosion and fire at a natural gas compressor station in Jim Wells County, Texas, shot flames about 100 feet in the air.²⁸ In 2013 a compressor station fire occurred in Madison County, Texas. Volunteer firefighters from four towns were dispatched to the site, and several homes were evacuated.²⁹ Firefighters from every city in Carbon County, Texas had to respond to a similar explosion at a natural gas compressor station, which affected two workers (who had to be evacuated by medical helicopters) and engulfed the entire facility in flames.³⁰

The aforementioned accidents are just a few of the numerous emergencies brought about by compressor station fires. Past precedent tells us that there is serious risk associated with explosions at compressor stations, and raises concern as to whether local communities have the resources available to contain a fire or explosion adequately. This is of greater even greater concern given that the compressor stations would be unmanned with start/stop control capabilities controlled by the MVP's Gas Control headquarters, located in Pittsburgh, Pennsylvania at EQT Plaza.

Anecdotal evidence tells us that people who live near compressor stations report episodic strong odors as well as periodic visible plumes coming from the compressor station during the

²⁵ https://www.ucar.edu/learn/1_7_1.htm viewed July 16, 2015

²⁶ "Summary on Compressor Stations and Health Impacts." Southwest Pennsylvania Environmental Health Project. February 24, 2015.

²⁷ Smith, Matt. "Compressor Station Blows up." Cleburne Times-Review. November 18, 2008.

²⁸ Ibid.

²⁹ Castro, Fernando. "Fire at Facility Quickly Doused." The Madisonville Meteor. January 23, 2013.

³⁰ "Explosion, Fire Rage through Natural Gas Compressor Station." Sun Advocate. November 22, 2012.

day. Residents also report symptoms associated with the odors, such as burning eyes and throat, skin irritation, and headaches.³¹

Wilma Subra, an environmental chemist and consultant who is on the Earthworks Board of Directors, compiled information on health symptoms experienced near compressor stations in Texas (see Table A below).³² Subra reports that both the construction and production phases of compressor stations can cause acute and chronic impacts. With respect to the construction phase, dust particles and other emissions from diesel trucks can be damaging to respiratory tissue. In the production phase, impacts are the result of constant emissions, accidents and malfunctions, and constant noise, light, and stress from the compressor stations.³³ Of particular vulnerability to impacts from compressor station construction and production phases are pregnant women, children, and the elderly.

Table A: Prevalent Medical Conditions in Individuals Living in Close Proximity to Compressor Stations³⁴

<u>Medical Conditions</u>	<u>Percent of Individuals (Total of 71)</u>
Respiratory impacts	58
Throat irritation	55
Weakness and fatigue	55
Nasal irritation	55
Muscle aches and pains	52
Vision impairment	48
Sleep disturbances	45
Sinus problems	42
Allergies	42
Eye irritation	42
Joint pain	39
Breathing difficulty	39
Severe headaches	39
Swollen and painful joints	32

³¹ "Summary on Compressor Stations and Health Impacts." Southwest Pennsylvania Environmental Health Project. February 24, 2015.

³² Subra, Wilma. "Health Survey of Current and Former DISH/Clark Texas Residents." Texas Oil and Gas Accountability Project. December 1, 2009.

³³ "Summary on Compressor Stations and Health Impacts." Southwest Pennsylvania Environmental Health Project. February 24, 2015.

³⁴ Ibid

Frequent irritation	32
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Table B: Acute Health Impacts Experienced by Individuals Living and Working near Compressor Stations³⁵

Tense and nervous	Irritates skin, eyes, nose, throat, and lungs
Joint and muscle aches and pains	Respiratory impacts
Vision impairment	Sinus problems
Personality changes	Allergic reactions
Depression, anxiety	Allergic reactions
Irritability	Headaches
Confusion	Dizziness, light headedness
Drowsiness	Nausea, vomiting
Weakness	Skin rashes
Irregular heartbeat	Fatigue, weakness

Table C: Chronic Health Impacts Experienced by Individuals Living and Working near Compressor Stations³⁶

Damage to liver and kidneys	Damage to nervous system
Damage to lungs	Brain impacts
Damage to cardiovascular system	Leukemia
Damage to developing fetus	Aplastic anemia
Reproductive damage	Changes in blood cells
Mutagenic impacts	Impacts to blood clotting ability
Developmental malformations	

Compressor stations expose surrounding communities to constant noise pollution. While the majority of noise created by natural gas development is temporary, compressor stations stay noisy for years, perhaps even decades. The sound is a constant hum that disrupts both people and surrounding ecosystems. One resident living within two miles of three different compressor stations in Susquehanna County, Pennsylvania, describes the sound he constantly hears: “You lay in bed, you can hear this thing running. It sounds like a truck in the driveway, 30 feet

³⁵ Ibid

³⁶ "Summary on Compressor Stations and Health Impacts." Southwest Pennsylvania Environmental Health Project. February 24, 2015. Accessed July 30, 2015.

away.”³⁷ Compressor station noise release is governed by “a patchwork of local, state, and federal rules,”³⁸ and there is currently no statewide sound standard. For some landowners, noise pollution from gas operations is so loud that it makes them feel as though they are living in an industrial zone. For others who live in rural areas, the arrival of this type of industrial sound can greatly disturb the natural environmental soundscape. According to the Powder River Basin Resource Council, “Depending on the wind direction, the roar of a field compressor can be heard three to four miles from the site. Near the compressor stations, people need to shout to make themselves heard over the sound of the engines.” But the threat of noise pollution from compressor stations is more than simply psychological—it is physical.

The low-frequency vibrations emitted by natural gas compressor stations can cause vibroacoustic disease (VAD). Vibroacoustic disease is a whole-body systemic pathologic condition that can cause direct organ or tissue damage and can be debilitating and possibly deadly.³⁹ It is characterized by the abnormal proliferation of extra-cellular matrices--in other words, it causes the abnormal growth of tissue and certain structures in the body, resulting in a dangerous thickening of cardiovascular structures. It has been observed in low-frequency noise exposed professionals such as aircraft technicians, ship machinists, and pilots.⁴⁰ More recently, it has been linked to those living within earshot of natural gas compressor stations. VAS can cause depression, increased irritability and belligerence, a tendency for isolation, and decreased cognitive skills. The noise emitted from compressor stations is not simply a nuisance, it is serious, and carries with it an array of harmful ramifications. Issues with vibrations are so

³⁷ Cusick, Marie. "State Regulators Take a Closer Listen to Gas Compressor Stations." State Impact NPR. August 25, 2014. Accessed July 20, 2015.

³⁸ Ibid.

³⁹ <http://windwisema.org/about/noise/wind-turbine-syndrome-and-vibroacoustic-disease/>

⁴⁰ <http://www.ncbi.nlm.nih.gov/pubmed/15273020>

critical, that there are multiple scientific journals dedicated to the cause including the *Journal of Low Frequency Noise, Vibration and Active Control*, and the *Journal of Sound and Vibration*.

Further, constant sound from compressor stations can dramatically affect local wildlife.

In the final Environmental Impact Statement for the Jonah natural gas field, The Bureau of Land Management stated that:

“It is likely that noise already has contributed to the apparent decrease in wildlife use on and adjacent to the Jonah Infill Drilling Project Area (JIDPA), with observed decreases in raptor [birds of prey] nesting activity and productivity, male greater sage-grouse lek attendance and sage-grouse nesting within the JIDPA having been reported over the past several years. Data also suggest that noise may contribute to disturbance and/or departure of greater sage-grouse from area leks.”⁴¹

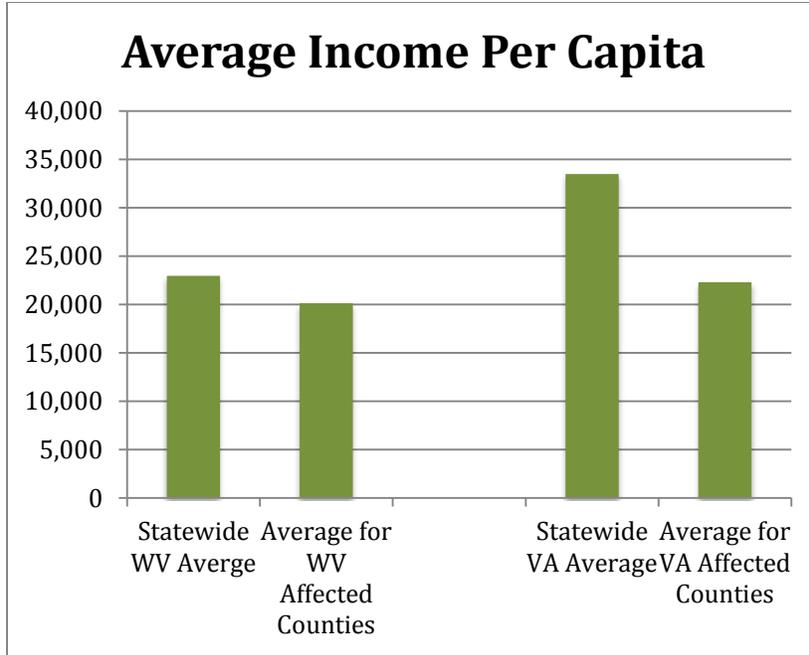
We have concerns that the MVP has stated in their resource reports that a well would be drilled locally to provide water for all proposed compressor stations, which could deplete or damage the local water supply.

Environmental Justice

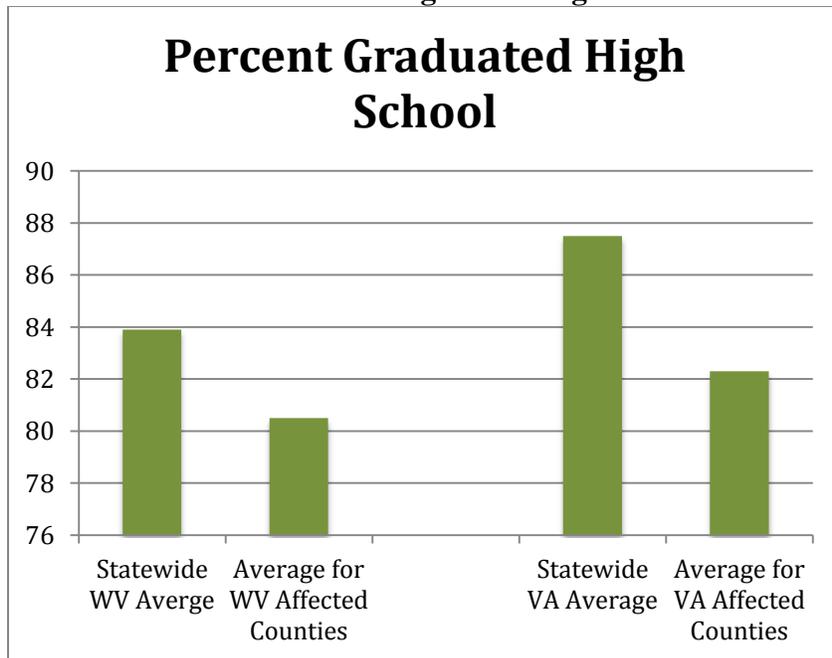
Recent census data compiled by the Blue Ridge Environmental Defense League indicates that there are disproportionate (and statistically significant) impacts on lower income counties along the pipeline’s proposed route. See graphs A, B, C.

Graph A: Average income per capita for affected counties versus statewide Virginia and West Virginia averages

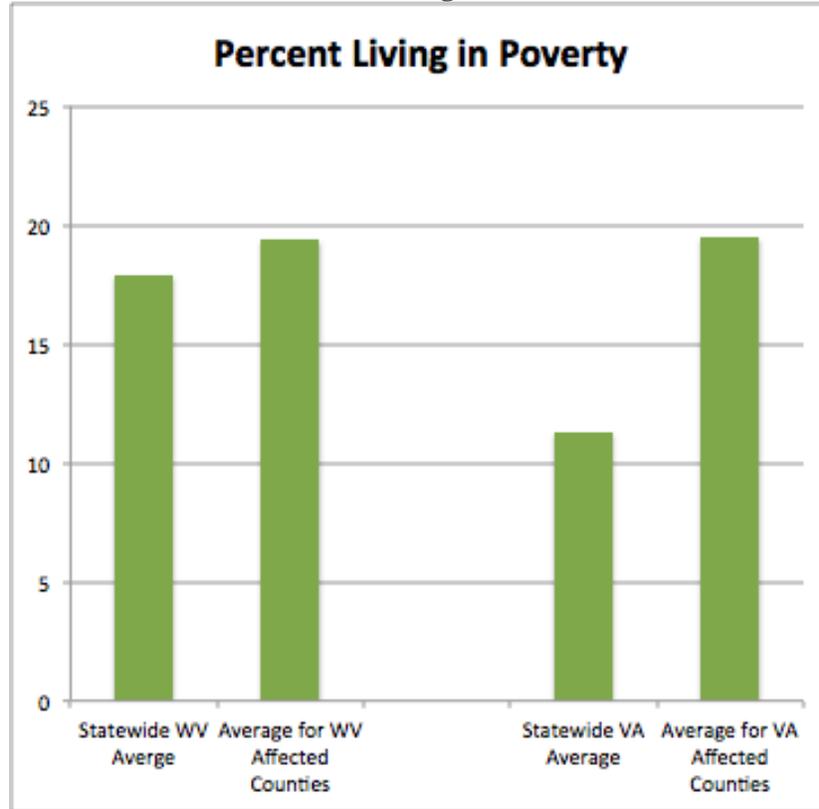
⁴¹ <http://www.blm.gov/wy/st/en/info/NEPA.html>



Graph B: Percent graduated high school for affected counties versus statewide Virginia and West Virginia averages



Graph C: Percent living in poverty for affected counties versus Virginia and West Virginia averages



According to data and calculations, the West Virginia counties affected by the pipeline have a significantly higher percentage of residents lacking basic literacy and living at or below the poverty line as compared to the statewide average. Additionally, these counties have, on average, considerably (and significantly) lower income per capita and rates of high school graduation compared to the statewide average.

Similarly, threatened counties in Virginia had lower income per capita and percent graduating high school, as well as increased percent living in poverty than the statewide average.

With considerably lower basic literacy and education, communities along the MVP in West Virginia are inherently at a disadvantage with respect to their ability to submit articulate and persuasive comments reflecting their concerns with the project. Likewise, communities

along the MVP in Virginia have markedly lower levels of income and education than the statewide average, raising similar concerns of environmental injustice and the targeting and exploitation of those already economically disadvantaged for private gain.

Presidential Executive Order 12898 requires that all federal agencies strive for environmental justice by identifying and addressing disproportionately high and adverse human health or environmental effects of its actions on minority populations and low-income populations. It is our understanding that the FERC is “an independent government agency that is officially organized as part of the Department of Energy.”⁴² Given that the FERC is an extension of the Department of Energy, which is a federal agency, FERC should be mandated to comply with the same standards as any other federal agency. It must fall upon the DOE to insure that the FERC address these social and environmental injustices perpetuated by the proposed route of the MVP and the lack of adequate public hearings during the scoping process.

Further, FERC is funded through costs recovered by the fees and annual charges from the industries that it regulates, such as pipeline projects like the MVP. This inherent conflict of interest necessitates more stringent regulations and standards.

Guidance for enforcement of the National Environmental Policy Act (“NEPA”) states, “When a disproportionately high and adverse human health or environmental effect on a low-income population, minority population, or Indian tribe has been identified, agencies should analyze how environmental and health effects are distributed within the affected community. This type of data should be analyzed in light of any additional qualitative or quantitative information gathered through the public participation process.”⁴³

According to The Department of Transportation’s (DOT) Pipeline and Hazardous

⁴² Federal Department of Energy. Accessed at <http://www.ferc.gov/students/whatisferc.asp>

⁴³ Council on Environmental Quality. “*Environmental Justice Guidance under the National Environmental Policy Act.*” Environmental Protection Agency. 1997. http://www.epa.gov/oecaerth/environmentaljustice/resources/policy/ej_guidance_nepa_ceq1297.pdf

Materials Safety Administration (PHMSA), there are three fundamental environmental justice principles.⁴⁴

- To avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority populations and low-income populations.
- To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process.
- To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations.

The FERC must address these factors comprehensively and constructively in order to uphold the principles of environmental justice. For example, when public hearings were conducted to allow citizens to address concerns with the FERC, there were only two scheduled meetings in Virginia (Elliston and Chatham), and only four scheduled meetings in West Virginia (Lindside, Pine Grove, Weston, Summersville)⁴⁵. As illustrated by the aforementioned statistics, the counties that would be affected by the MVP have lower levels of education and higher levels of poverty than the statewide averages. Those who are economically disadvantaged do not have the time or resources to devote hours of traveling time to attend the nearest meeting. Because FERC only approved six public hearings within a route that encompasses seventeen counties, a large number of people whose livelihoods would be impacted by the pipeline have not gotten the opportunity to have their voices heard, simply because they cannot afford to take the time to travel. To ensure the abidance of Presidential Executive Order 12898, FERC must implement additional public hearings along the MVP. If they do not, the DOE and PHMSA must force them to do so under the law. FERC is obligated to comply with Executive Order 12898, particularly in light of the social and environmental injustices that MVP poses.

⁴⁴ <http://www.phmsa.dot.gov/org/civilrights/EnvironmentalJustice>

⁴⁵ Federal Regulatory Commission Docket No. PF15-3-000 on the Mountain Valley Pipeline.

Rural Communities and Safety

BREDL maintains rural communities cannot and should not become sacrifice zones for the energy industry or the public at-large. Existing homes should not be placed within the boundaries of blast zones. Rural areas should not be forced to accept thinner walled pipe nor fewer shut-off valves or manual shut-off valves versus automatic shut-off valves. Regulations that allow such short cuts place rural lives in greater danger in order to allow the energy industry to lower its construction costs by millions and millions of dollars so that they may reap more profit. All human lives are sacred, no matter where residents live, their ethnicity, or their economic status. The industry must apply each and every safety measure that they can, regardless of the population density at any location on their proposed route.

A recent study of the Pipeline Hazardous Materials Safety Administration's records by the Pipeline Safety Trust shows new pipelines have a higher incidence rate of failure than pipes constructed prior to the 1940's.⁴⁶ The incident rates for pipelines built after 2010 are 6.64 per 10,000 mile of pipe, greater than the pre-1940's pipes that had an incident rate of 6.04 per 10,000 miles. Not only is there a higher rate of failure, the devastation and destruction caused by new pipeline failures is greater because new pipelines are much larger in diameter and operate at much higher pounds per square inch creating more violent explosions, larger blast zones and more damage to surrounding homes, their inhabitants, wildlife and the environment.

Calculations to determine potential hazard areas are different for gas and hazardous liquid transmission pipelines. The basic criteria used by natural gas transmission pipeline operators to calculate this distance, termed the potential impact circle, is provided in Appendix I: Calculation of Site-Specific Planning Area Distances, of *PIPA Recommended Practices*. The model for these

⁴⁶ "As US rushes to build gas lines, failure rate of new pipes has spiked" by Sarah Smith, 9 September, 2015 <http://www.snl.com/MobileX/UI/Pages/News/Article.aspx?cid=A-33791090-11060>

calculations is also addressed in the gas transmission pipeline integrity management regulations (49 CFR 192.903).⁴⁷

Rural communities deserve the same degree of protection as more densely populated areas. It is obvious that the industry is not proceeding with these protections in mind.

Protecting the Health and Safety of our Children

We must, above all else, protect the health and well-being of our children. As you know, the EPA has established guidelines in its Final Rule regarding Executive Order 13045:

“Protection of Children from Environmental Health Risks and Safety Risks” and concluded that:

“The agency has evaluated the environmental health and welfare effects of climate change on children. CO₂ is a potent GHG that contributes to climate change and is emitted in significant quantities by fossil fuel-fired power plants. The EPA believes that the CO₂ emission reductions resulting from implementation of these final guidelines, as well as substantial ozone and PM_{2.5} emission reductions as a cobenefit, will further improve children’s health.”⁴⁸

President Clinton issued Executive Order 13045 in April 1997, establishing the President’s Task Force on Environmental Health Risks and Safety Risks to Children.⁴⁹ In 2010, the Obama Administration charged the Task Force with:

- Identifying priority issues of environmental health and safety risks to children that are best addressed through interagency efforts
- Developing strategies to protect children’s environmental health and safety
- Recommending and implementing interagency actions

⁴⁷ *Hazard Mitigation Planning: Practices for Land Use Planning and Development near Pipelines*. Prepared by the Pipelines and Informed Planning Alliance (PIPA) Sponsored by the U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration (PHMSA) and the U.S. Department of Homeland Security, Federal Emergency Management Agency (FEMA) 2015

⁴⁸ Pg. 1435: <http://www2.epa.gov/sites/production/files/2015-08/documents/cpp-final-rule.pdf>

⁴⁹ <http://www2.epa.gov/children/presidents-task-force-environmental-health-and-safety-risks-children#taskforcemembers>

- Communicating information to federal, state, and local decision makers for use in protecting children from environmental health and safety risks

The Secretary of the Department of Health and Human Services and the Administrator of the Environmental Protection Agency co-chair the Task Force. A senior staff steering committee coordinates interagency cooperation on Task Force priority areas. To date, these include:

- Climate change
- Asthma disparities
- Healthy homes
- Chemical exposures

The Task Force is comprised of representatives of 17 federal departments and White House offices:

- Consumer Product Safety Commission
- Department of Health and Human Services
- Environmental Protection Agency
- Department of Education
- Department of Labor
- Department of Justice
- Department of Energy
- Department of Housing and Urban Development
- Department of Agriculture
- Department of Transportation
- Department of Homeland Security
- Office of Management and Budget
- Council on Environmental Quality
- Assistant to the President for Economic Policy
- Assistant to the President on Domestic Policy
- Office of Science and Technology Policy
- Council of Economic Advisors

Each representative from this task force must be consulted and those consultations must include recommendations that must be considered before any decision is made regarding this proposed project in order to accurately identify and address potential harm to children.

For example, developmental issues often occur when children or embryos are exposed to toxic industrial chemicals. According to a recent study:

“Because of the extraordinary complexity of human brain development, windows of unique susceptibility to toxic interference arise that have no counterpart in the mature brain, or in any other organ. If a developmental process in the brain is halted or inhibited, there is little potential for later repair, and the consequences can therefore be permanent. During fetal development, the placenta offers some protection against unwanted chemical exposures, but it is not an effective barrier against environmental pollutants. For example, many metals easily cross the placenta, and the mercury concentration in umbilical cord blood can be substantially higher than in maternal blood. The blood-brain barrier, which protects the adult brain from many toxic chemicals, is not completely formed until about 6 months after birth. The human brain continues to develop postnatally, and the period of heightened vulnerability therefore extends over many months, through infancy and into early childhood. Although most neurons have been formed by the time of birth, growth of glial cells and myelination of axons continues for several years. The susceptibility of infants and children to industrial chemicals is further enhanced by their increased exposures, augmented absorption rates, and diminished ability to detoxify many exogenous compounds, relative to that of adults.”⁵⁰

The most heartbreaking part of this study is that it found that:

“A pandemic of neurodevelopmental toxicity caused by industrial chemicals is, in theory, preventable. Testing of new chemicals before allowing them to be marketed is a highly efficient means to prevent toxicity, but has been required only in recent years. Of the thousands of chemicals used in commerce, fewer than half have been subjected to even token laboratory testing for toxicity testing. Nearly 3000 of these substances are produced in quantities of almost 500 000 kg every year, but for nearly half of these high-volume chemicals no basic toxicity data are publicly available, and 80% have no information about developmental or pediatric toxicity. Although new chemicals must be tested more thoroughly, access to these data can be restricted, because they could be claimed to constitute confidential business information. Absence of information about the neurotoxic potential of most industrial chemicals is therefore the main impediment to prevention of developmental disorders induced by neurotoxic pollutants.”⁵¹

According to one of the authors of the study: “The brains of our children are our most precious economic resource, and we haven’t recognized how vulnerable they are,” says Grandjean. “We must make protection of the young brain a paramount goal of public health protection. You have only one chance to develop a brain.”⁵²

⁵⁰ “*Developmental neurotoxicity of industrial chemicals*,” by Prof P Grandjean MD and Prof PJ Landrigan MD. The Lancet, November 8, 2006- Vol. 368

⁵¹ “*Developmental neurotoxicity of industrial chemicals*,” by Prof P Grandjean MD and Prof PJ Landrigan MD. The Lancet, November 8, 2006- Vol. 368

⁵² <http://archive.sph.harvard.edu/press-releases/2006-releases/press11072006.html>

This is of explicit concern because of the aforementioned chemical content of fracking fluid used to extract natural gas and the restrictions placed upon the release of information regarding said chemicals. Without knowledge of precisely what is used to extract the gas, it is all but impossible to determine the toxic levels of chemical contaminants that vulnerable communities would be exposed to if this project is approved.

In order to take into account all of the substantial risks to the health and safety of our children, we must include the evidence that natural gas and the risks associated with the gathering, processing and transportation of natural gas have a significantly harmful affect on health and well-being and construct our plan for the future of energy production accordingly. The proposed MVP project contains a multitude of aspects that would be harmful to our children, born and unborn, and each of those aspects must be explicitly explored, addressed and mitigated in order for any such project to proceed with integrity.

Water

Stream crossings are one of the most significant impacts of pipeline construction. Small streams would be diverted during construction. For many larger streams and rivers, pipeline crossings are done by excavation and blasting of the stream-bed. In each of these crossings, harm would be done to the waterways.

In the mountainous regions of West Virginia and Virginia, the MVP's path would traverse many mountain slopes with very steep grades. Construction practices would put entire communities at risk of major erosion, sedimentation and storm water run-off issues which could result in: i) pollution of streams, as well as recharge areas for community water supplies which are especially vulnerable in karst topography, and the drinking water wells and springs of most residents who live in the affected rural communities; and ii) increased flooding in all

communities, but particularly those who have previously suffered catastrophic flooding because of heavy rain on their steep mountain slopes and shallow soils.

For example, 36 miles of the proposed Mountain Valley Pipeline (MVP) would traverse highly erodible soils⁵³ in mountainous terrain with slopes at over 25 % grade⁵⁴ in Franklin County. The amount of destruction that would be caused to excavate a pathway is substantial, causing severe erosion in vertically steep and inhospitable mountainous terrain. The amount of runoff from seasonal downpours would cause major damage in the mountains below the proposed pipeline path.

Most private water systems and business systems in Franklin County rely on groundwater from wells, springs or rivers for their domestic water supplies; some residents and businesses along the 220 corridor receive water from the Spring Hollow Reservoir,⁵⁵ which is also threatened by the proposed MVP.

Construction of the proposed Mountain Valley Pipeline would have severe negative consequences for the domestic and agricultural water supplies of citizens with respect to potential erosion and sedimentation of downstream areas. Franklin County's agricultural and tourism-based economy is highly reliant on the availability of abundant, clean water; Franklin County's quality of life is highly reliant on the availability of abundant, clean water. Erosion caused sediment is a major contributor to pollution of Smith Mountain Lake and surface waters of Virginia and the United States.

The VA DEQ has the authority to request site-specific E&SC and storm water management plans from EQT as stated in the Erosion and Sediment Control Regulations 9VAC25-840-30-B, "The submission of annual standards and specifications to the department

⁵³ http://www.nrcs.usda.gov/Internet/FSE_MANUSCRIPTS/virginia/franklinVA2009/Franklin_VA.pdf

⁵⁴ http://www.franklincountyva.gov/images/planning/comp-plan-maps/slopes_map.pdf

⁵⁵

[http://www.westernvawater.org/85256A8D0062C8D5/vwFilesByName/WVWAMisc/\\$File/RoanokeCCR2012.pdf](http://www.westernvawater.org/85256A8D0062C8D5/vwFilesByName/WVWAMisc/$File/RoanokeCCR2012.pdf)

does not eliminate the need where applicable for a project specific Erosion and Sediment Control Plan.”

The Virginia Department of Environmental Quality (DEQ) administers the Virginia Water Protection (VWP) Permit Program and an associated compliance program through regulation of surface water withdrawals and non-agricultural impoundments. Impacts to surface waters such as land clearing, dredging, filling, excavating, draining, or ditching in open water, streams, and wetlands are included. As part of a larger effort to protect water quality, they are tasked with protecting wetlands and streams to protect their beneficial uses, striving to protect state waters and prevent and reduce water pollution in Virginia. The Virginia Water Protection Permit Program serves as Virginia’s Section 401 certification program for federal Section 404 permits issued under the authority of the Clean Water Act. State law requires that a VWP permit be obtained before disturbing a wetland or stream by clearing, filling, excavating, draining, or ditching.⁵⁶

Section 404 of the Clean Water Act (CWA) established a program to regulate the discharge of dredged or fill material into waters of the United States, including wetlands. Activities in waters of the United States regulated under this program include fill for development, water resource projects (such as dams and levees), infrastructure development (such as highways and airports) and mining projects. Section 404 requires a permit before dredged or fill material may be discharged into waters of the United States.⁵⁷

The proposed MVP project would create serious problems related to erosion and sediment control. It is likely that there have not been adequate measures taken to meet state and federal requirements for proper monitoring and mitigating of the harm that is done by the devastating and disruptive practices of pipeline construction.

⁵⁶ <http://www.deq.virginia.gov/Programs/Water/WetlandsStreams.aspx>

⁵⁷ <http://water.epa.gov/lawsregs/guidance/cwa/dredgdis/>

All of our waters are connected; harm done to one body of water affects others, often irreparably. Therefore every proposed water crossing must also take into account the adjacent waters. Furthermore, according to The Clean Water Act: “The agencies emphasize that the rule has defined as “adjacent waters” those waters that currently available science demonstrates possess the requisite connection to downstream waters and function as a system to protect the chemical, physical, or biological integrity of those waters...The Clean Water Act establishes both national and state roles to ensure that state’s specific circumstances are properly considered to complement and reinforce actions taken at the national level.”⁵⁸

For example, Bent Mountain is located at the top of the watershed on the Blue Ridge Plateau, where important headwater streams and wetlands are born. Location at the peak of the watershed means that there is a limited and fragile groundwater supply; groundwater recharge occurs much more slowly. Blasting of rock during construction could alter groundwater flow paths, potentially resulting in dry wells and altered water courses. Contamination at the top of the watershed would have significant and long-lasting impacts to the Bent Mountain water supply due to slower groundwater regeneration. Chemicals applied to the exterior of the pipeline would have significant potential to foul the groundwater supply. These chemicals would be constantly exposed to soil moisture and groundwater, which have the potential to break down the chemicals and leak them into the water supply.

Bottom Creek is the headwaters of the South Fork of the Roanoke River. Bottom Creek is classified as a Tier III Exceptional State Water, the highest designation given by the State. The equivalent regulatory term is “Outstanding National Resource Waters” for EPA. The designation of a waterbody as an Exceptional State Water is a regulatory amendment to the Antidegradation Policy section of Virginia's Water Quality Standards. There are only thirty

⁵⁸ http://www2.epa.gov/sites/production/files/2015-05/documents/finding_of_no_significant_impact_the_clean_water_rule_52715.pdf

Exceptional State Waters designated in Virginia.⁵⁹

Bottom Creek also forms Bent Mountain Falls, the second highest waterfall in the Commonwealth. This creek, and the adjacent wetlands, would be crossed a minimum of two times by the proposed MVP. Mill Creek, also an important headwater stream of the Roanoke River, flows throughout the Bent Mountain area and would be crossed numerous times by the MVP. Mill Creek has an extensive wetland network due to the flat plateau landscape.

The Spring Hollow Reservoir, which provides drinking water for a large portion of Roanoke County, is located near the proposed route of the MVP. Contamination of the Spring Hollow Reservoir during construction and/or operation of the MVP would create very serious problems for Roanoke and Franklin County's drinking water supply.

The Blackwater River is directly upstream from the Town of Rocky Mount's Water Plant in Franklin County. The Plant takes water from the Blackwater River, and The Town of Rocky Mount Water Department operates a conventional water treatment plant with a total capacity of 2 million gallons per day that purifies the water for residents of the Town of Rocky Mount. The water then passes through thousands of feet of water lines ranging from 2" to 16" in diameter. Five storage tanks hold up to 2.4 million gallons of water for drinking, for industry, for fire flow and for emergency supply. The possibility of damage or permanent harm to this source of clean water for The Town of Rocky Mount is unacceptable and would directly endanger the clean water supply for nearly 5000 inhabitants.

Furthermore, the gas that is proposed to be transported through the MVP is obtained through fracking. There are several mechanisms by which fracking can contaminate drinking

⁵⁹[http://www.deq.state.va.us/Programs/Water/WaterQualityInformationTMDLs/WaterQualityStandards/ExceptionalStateWaters\(TierIII\).aspx](http://www.deq.state.va.us/Programs/Water/WaterQualityInformationTMDLs/WaterQualityStandards/ExceptionalStateWaters(TierIII).aspx)

water resources.⁶⁰ Among them are overland flow to nearby surface water, soil contamination and eventual transport to surface water, and infiltration and contamination of underlying ground water. In a recent study, the EPA examined 151 spills from fracking operations. Of the spills characterized in its study, fluids reached surface water in 9 percent of cases and soil in 64 percent of cases.⁶¹ If a spill does occur, there is a 64% chance that the fluid—laced with additives that have unknown environmental impacts—will contaminate the surrounding soil.

Once a spill has occurred, the contaminants may percolate through the soil and could, ultimately, reach ground water. It may take several years, however, for spilled fluids to infiltrate soil and leach into groundwater. Therefore, it may not be immediately apparent whether a spill has reached the ground water or not. It is imperative that we continue to view groundwater contamination as a serious risk associated with hydraulic fracking.

The vast majority of incidents of water contamination are due to the inadequate cement casing of fracked wells (also called wellbores). This allows natural gas and fracking fluid to migrate into groundwater zones. In fact, a 2014 study in *Proceedings of the National Academy of Sciences*, done by Duke and several other universities, found that faulty well integrity—namely, poor casing and cementing—is the primary cause of drinking water contamination from shale gas extraction.

Most wells used in hydraulic fracturing operations have casings and a layer of cement to protect drinking water, however, there is an alarmingly large number of exceptions. A survey conducted by the EPA estimated that at least 3 percent of wells fractured by nine oil and gas service companies in 2009 and 2010 did not have cement casings.⁶² This means that escaped

⁶⁰ EPA. "Assessment of the Potential Impacts of Hydraulic Fracturing for Oil and Gas on Drinking Water Resources." June 1, 2015.

⁶¹ Ibid.

⁶² EPA. "Assessment of the Potential Impacts of Hydraulic Fracturing for Oil and Gas on Drinking Water Resources." June 1, 2015. Accessed July 14, 2015.

fluids have fewer barriers to travel through to reach ground water resources. And while 3 percent may seem like a small fraction of wells, when the sample in question contains upwards of 20,000 wells, 3 percent amounts to 600 wells and over 600 communities at risk.

Pavillion, Wyoming is one such community. The US EPA began investigating claims of drinking water contamination in the heavily-fracked town in 2008. The EPA sampled 39 individual wells in March 2009 and found nitrate, arsenic, and methane gas. The agency conducted a second sampling in January 2010, and found the groundwater to contain high levels of benzene and methane.⁶³ Benzene is classified as a known carcinogen by the American Cancer Society, and methane is classified as a probable carcinogen.⁶⁴ THE EPA advised well owners not to drink the water, at the recommendation of the US Department of Health and Human Services Agency for Toxic Substances and Disease Registry. Owners were also told to use alternate sources of water for drinking and cooking.

It is BREDL's assertion that all water is exceptional and must be protected. It is inconceivable that the proposed MVP could attain the many related State and Federal permits required for construction given the sensitive nature of the landscape it proposes to traverse.

Soil

The Blue Ridge Environmental Defense League learned through comments filed by the United States Forest Service ("USFS") on November 5, 2015 that Dominion and its subcontractors blatantly misled the USFS regarding soil surveys completed on Forest Service lands in the Monongahela and George Washington National Forests. According to the documents submitted by the USFS to FERC, USFS personnel had repeatedly given Dominion's

⁶³ Hoyer, Sarah. "EPA Releases Results of Wyoming Water Well Testing." CNN. August 31, 2010. Accessed July 15, 2015.

⁶⁴ American Cancer Society. "Known and Probable Human Carcinogens." American Cancer Society. October 2, 2014. Accessed July 15, 2015.

subcontractor soil survey protocols and qualification requirements for those soil scientists who would be conducting the soil surveys on USFS lands. The USFS gave ample documentation to clarify the necessary qualifications of personnel used to conduct soil surveys as well as their ability to conduct the surveys under the protocols set out by the USFS.

It is imperative, not only on USFS lands, but on lands of private property owners, that soil surveys are conducted in a manner that protects the health, safety, and welfare of the public. Therefore it is of great concern that the MVP proposes to cross USFS land in the Jefferson National Forest and may not be meeting the strict criteria regarding soil survey protocols and qualification requirements for soil scientists who would be conducting those surveys.

BREDL's expert consultant, Jeff Walker, LPSS, stated: "Any suggestion that soil "sampling" constitutes the extent of soil assessment required for routing a linear project gravely mischaracterizes a soil scientist's work. We work with other environmental scientists to define limits or impediments for use; typically this work is certified and delivered to a professional engineer for consideration of factors affecting a proposed project. Appropriate survey and design by a certified engineer integrating all the required factors is essential in establishing the routing of linear projects such as the MVP. At a minimum, their assessment should include geospatial documentation and documentation to establish whether the proposed route has been assessed in compliance with the established standards. It is crucial that professional work be performed in accordance with the standards set by the USFS and the Bureau of Land Management ("BLS") in order to protect public and private property which will be affected by disturbance on this scale. Clearly this should apply to National Forests, State and local parks and private property across the entire Appalachian region."

Loss of the surface layer is especially damaging on soils that have a clayey subsoil, such as Clifford and Minnieville soils, and on soils that have a layer in or below the subsoil that limits

the depth of the root zone, such as Strawfield and Hickoryknob soils. Erosion on farmland results in the sedimentation of streams. Controlling erosion minimizes the pollution of water by runoff carrying plant nutrients, soil particles, plant residue, and pesticides. Reclamation is difficult after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.⁶⁵

According to the Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development: “Field survey requirements vary with topography, geologic hazard, potential for public and recreational use, or other concerns. Each surface management agency has survey requirements based on design requirements and concerns specific to the area. The surface management agency should be contacted as early as possible to determine the survey requirements.”⁶⁶

Explicit soils surveys should have been completed before the proposed MVP chose a preferred route. The MVP cannot, without those surveys, know which areas along the route are susceptible to seeps, slips and slides, among many other concerns. It is unclear as to whether or not the MVP hired consultants that have been approved by the USFS, the BLS or the Virginia Department of Environmental Quality. The FERC must assure that those soils surveys are carried out with integrity.

Endangered Species and Biodiversity

Percina rex, the Roanoke Logperch is an Endangered Species⁶⁷ found in the Roanoke River that would be impacted directly by disturbance during construction and chronically by

⁶⁵ http://www.nrcs.usda.gov/Internet/FSE_MANUSCRIPTS/virginia/franklinVA2009/Franklin_VA.pdf

⁶⁶ United States Department of the Interior and United States Department of Agriculture. 2007. Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development. BLM/WO/ST-06/021+3071/REV 07. Bureau of Land Management. Denver, Colorado. 84 pp.

⁶⁷ <http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?scode=E01G>

increased siltation following construction. Because this species has been documented in the Pigg River in Franklin County, habitat assessments are necessary for other perennial streams in Franklin County, including Teel Creek, Little Creek, and the Blackwater River.

Noturus gilberti, Orangefin Madtom is a Threatened Species⁶⁸ found in the Roanoke River that would be directly impacted by disturbance during construction and chronically impacted by increased siltation following construction.

Clemmys muhlenbergii, the Bog Turtle is a Threatened Species⁶⁹ inhabiting the high elevation wetlands of Bent Mountain in Roanoke and Franklin Counties. It would be directly impacted during construction and would continue to be impacted by the altered hydrology of the wetlands after construction.

Glaucomys sabrinus, the Northern Flying Squirrel is an Endangered Species⁷⁰ inhabiting the forests of Montgomery County and would be directly impacted during construction and maintenance of the pipeline.

Myotis sodalis, the Indiana Bat, is an Endangered Species⁷¹ inhabiting the forests of Montgomery County and other areas in the region and would be directly impacted during construction and maintenance of the pipeline.

Buckleya distichophylla, the Pirate Bush, is an Endangered Species⁷² inhabiting Poor Mountain and would be directly impacted during construction of the pipeline. The Poor Mountain population of the Pirate Bush is the largest known population of the species.

Pleurobema collina, James Spiny mussel,⁷³ has been widely documented in Craig, Johns, Little Oregon, and Dicks Creeks. Its habitat would be greatly damaged by disturbance during

⁶⁸ <http://www.dgif.virginia.gov/wildlife/virginiatescspecies.pdf>

⁶⁹ <http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=C048>

⁷⁰ <http://www.dgif.virginia.gov/wildlife/information/?s=050068>

⁷¹ <http://www.dgif.virginia.gov/wildlife/information/?s=050023>

⁷² <http://plants.usda.gov/core/profile?symbol=BUDI>

construction and chronically damaged if not destroyed by increased siltation following construction.

It is of great concern to us that *Neonympha mitchellii mitchellii*, Mitchell's Satyr Butterfly,⁷⁴ is not considered to be of concern to MVP, LLC. As stated in MVP's resource report, "Initial consultations with the USFWS indicate this species and potentially suitable wetland habitat may be located within the Project area in Franklin and Montgomery Counties, Virginia. However, after recent discussions between the USFWS and VDCR-DNH, the USFWS has revised information provided through their IPaC service and are currently recommending surveys for this species within appropriate habitat in Floyd County, Virginia (Appendix 3-A). Since the Project does not impact areas within Floyd County, surveys for Mitchell's satyr butterfly are no longer recommended by the USFWS."

This is unacceptable. If there is a chance that this rare species may have habitat in Franklin and Montgomery counties, every available resource must be utilized to identify and preserve those habitats and the butterfly in order to protect them from further devastation.

Other Endangered and threatened species include, but are not limited to:

- Dwarf wedge mussel (*Alasmidonta heterodon*)
- Club shell Mussel (*Pleurombema clava*)
- Snuffbox Mussel (*Epioblasma Triquetra*)
- Tar River Spiny mussel (*Elliptio Steinstansana*)
- Virginia Big-eared Bat (*Corynorhinus townsendii virginianus*)
- Northern Long-Eared Bat (*Myotis Septentrionalis*)
- American Chaffseed (*Schwalbea Americana*)
- Michaux's Sumac (*Rhus Michauxii*)
- Northeastern Bulrush (*Schpus Ancistrochaetus*)
- Pondberry (*Lindera Melissifolia*)
- Rough-Leaf Loosestrife (*Lysimachia Asperulaevolia*)
- Running Buffalo Clover (*Triofolium Stoloniferum*)
- Shale Barren Rock Cress (*Arabis Serotina*)
- Eastern Prairie Fringed Orchid (*Platanthera Leuchophaea*)

⁷³ http://ecos.fws.gov/tess_public/profile/speciesProfile.action?scode=F025

⁷⁴ http://ecos.fws.gov/tess_public/profile/speciesProfile.action?scode=I00K

- Small Whorled Pogonia (*Isotria Medeoloides*)
- Swamp Pink (*Helonia bullata*)
- Virginia Spiraea (*Spiraea Virginiana*)
- Virginia Sneezeweed (*Helenuium Virginicum*)
- Smooth Coneflower (*Echinacea laevigata*)
- Red-cocked Woodpecker (*Picoides Borealis*)
- Cheat Mountain Salamander (*Plethodon Nettingi*)
- Madison Cave Isopod (*Antrolana Lira*)
- Bald Eagle (*Haliaeetus Leucocephalus*)
- Golden Eagle (*Aquila chrysaetos*)

According to a study done for The Center for Health and the Global Environment at the Harvard T.H. Chan School of Public Health

“A natural background, or baseline, rate of species extinction (i.e. the rate that existed before our species, *Homo sapiens*, first appeared approximately 195,000 years ago) can be very roughly calculated for all organisms. That rate has been estimated at one species per million species each year, so that for 15 million species, 15 extinctions would occur each year. Human activity has accelerated this natural extinction rate many fold, so that for some groups of organisms the rate is 100 times baseline levels, and for others, it is 1000 times and even more. Because of the very high level of current extinctions, scientists say we have now entered “the sixth great extinction event,” the fifth having occurred sixty-five million years ago, when dinosaurs and many other organisms went extinct. That event resulted from natural causes, perhaps including a giant asteroid striking the Earth; this one we are causing...Most people experience the loss of other species and the disruption of ecosystems as intangible, abstract events, happening somewhere else, separate from themselves. In spite of this, they may feel these losses deeply—ethically, spiritually, and aesthetically—and may even understand some of the ecologic and economic costs involved. Yet, it is still difficult for them to grasp what this impoverishment of Nature has to do with their daily lives. The challenge for those of us working to preserve biodiversity is to convince others, policy-makers and the public in particular, that we human beings are intimately connected with the animals, plants, and microbes we share this small planet with, and totally dependent on the goods and services they provide, and that we have no other choice but to preserve them.⁷⁵

The toll that this project could take on the biodiversity of the ecosystems that still exist in the areas the MVP proposes to cross cannot be over-estimated; it would devastate fragile wetlands, unmarred streams and precious, irreplaceable topsoil, destroying the habitats of countless plant, animal and amphibious species. We must proceed with the knowledge that

⁷⁵ “*How Our Health Depends on Biodiversity*,” Eric Chivian M.D. and Aaron Bernstein M.D., M.P.H.

“human beings are an integral, inseparable part of the natural world, and that our health depends ultimately on the health of its species and on the natural functioning of its ecosystems.”⁷⁶

Furthermore, “Unless we significantly reduce our use of fossil fuels, climate change alone is anticipated to threaten with extinction approximately one quarter or more of all species on land by the year 2050, surpassing even habitat loss as the biggest threat to life on land.”⁷⁷

This presents the FERC with an obvious action, which is to refuse the approval of the proposed MVP. The MVP would not only destroy fragile, irreplaceable habitat, it would also contribute to the continuing use of fossil fuels which we must curtail immediately if we are to preserve the lives of countless species, some of which may not have even been identified and categorized yet. One of those species is our own. Our very survival depends upon the protection of our biodiversity and the preservation of our remaining pristine, untouched areas of earth.

Economic Issues

For the majority of the past decade, “Industry leaders have touted that shale gas, along with burgeoning shale oil production, will lead to America’s energy independence, kindle a manufacturing renaissance, lower bills for everyday Americans and create millions of much-needed jobs.”⁷⁸ However, it is clear that the shale gas boom is unsubstantiated hype; the shale gas boom that the United States has been experiencing for almost a decade is actually just a bubble.

In economics, a bubble is a term used to refer to a significant, usually rapid, increase in asset prices that typically arises from speculation or enthusiasm rather than intrinsic increases in

⁷⁶ Ibid.

⁷⁷ Ibid.

⁷⁸ Powers, Bill. "The Popping of the Shale Gas Bubble." Forbes. September 3, 2014

value.⁷⁹ The issue with all bubbles, however, is that they ultimately pop. Popping the shale gas bubble in the US would leave in its wake a collapse of prices and, potentially, a short-term increase in well drilling as the United States scrambles to find a sliver of profit in an unsustainable economy. Bill Powers, author of the book *Cold, Hungry and in the Dark: Exploring the Natural Gas Supply Myth*, draws a striking parallel between the shale gas boom, and the housing boom in 2007. He writes that similar to the prevailing beliefs about the housing bubble before it burst, "...much of today's thought regarding natural gas supplies has come from people with a vested interest in selling the dream of a 'Shale Gale' that will eliminate foreign energy imports, boost employment and increase GDP."

What could cause such a colossal collapse? Gross overestimates of shale gas reserves and resources in the United States. The United States boasts about its ample supply of natural gas, however, the reality is that natural gas is a finite and depleting commodity. In *Cold, Hungry and in the Dark*, Powers refutes the idea that increasing shale gas production will create a new era in America's economy, and instead, he suggests that it will create a severe deliverability crisis, leading to unsustainable shale gas production. According to Powers, the majority of shale gas basins in America have already begun exhibiting declining production.⁸⁰ Geoscientist and Research Fellow at the Post Carbon Institute J. David Hughes makes the same argument in his report *Drilling Deeper: A Reality Check on US Government Forecasts for a Lasting Tight Oil & Shale Gas Boom*. His report provides an extensive analysis of actual shale gas production data from the top shale gas reservoirs in the US. He concludes that the current boom in domestic oil and gas production is unsustainable at the rates projected by the Energy Information Administration (EIA). He writes, "The EIA's current energy policy—which is largely based on

⁷⁹ New Oxford American Dictionary

⁸⁰ Powers, Bill. "The Popping of the Shale Gas Bubble." *Forbes*. September 3, 2014

the expectation of domestic oil and natural gas abundance far into the future—is badly misguided and is setting the country up for a painful, costly, and unexpected shock when the boom ends.”⁸¹

While policymakers, media, investors, and the general public look toward DOE reports with little skepticism, the DOE’s EIA has a markedly poor record of estimating recoverable shale gas in the United States. In 2011, the EIA had to cut its estimates of technically recoverable shale gas in the Marcellus formation by 80% and in Poland by 99% after the United States Geological Survey came out with much lower numbers.⁸² Further, in 2014, the EIA had to cut its estimate of recoverable tight oil from California’s Monterey Formation by 96%—this came just two years after the agency estimated that the Monterey Formation held two-thirds of all US tight oil.⁸³ The EIA keeps producing optimistic forecasts for the future of US shale gas production, however, these estimates are largely unfounded and have contributed to a shale gas bubble that have steered policymakers and the American public in a dangerous direction. An article published in *Nature* done by researchers at the University of Texas at Austin, echoes the findings of Hughes. It suggests that while many gas-bearing shale formations are geographically vast, the number of “sweet spots” where fuel can actually be extracted in worthwhile volumes is much smaller than originally thought.⁸⁴ In other words, there is a strict geological limit for natural gas extraction, which the US is rapidly approaching.

Continuing to exploit shale resources will only lead to high decline rates and declining well quality, as the number of spots where gas can be extracted are exhausted. This means that in order to keep production flat, the United States will have to drill even more wells. As the US

⁸¹ Hughes, J. David. "Drilling Deeper: A Reality Check on U.S. Government Forecasts for a Lasting Tight Oil & Shale Gas Boom." *Shale Bubble*. October 1, 2014.

⁸² Efstathiou Jr., Jim, and Kasia Klimasinska. "U.S. to Slash Marcellus Shale Gas Estimate 80% on Geology Update." *Bloomberg*. August 23, 2011.

⁸³ Sahagun, Louis. "U.S. Officials Cut Estimate of Recoverable Monterey Shale Oil by 96%." *Los Angeles Times*. May 20, 2014.

⁸⁴ Zeller Jr., Tom. "Does Anyone Really Know How Long the Shale Gas Boom Will Last?" *Forbes*. January 5, 2015.

scrambles to drill more expensive wells, it will require massive amounts of capital, something that "...can only be supported by high levels of debt or higher prices."⁸⁵ Thus, from an economic standpoint, continuing to try to tap into shale gas resources will be detrimental to the US economy, as it creates a bubble that will soon burst and wreak economic havoc.

Landowners will also suffer decreased property values caused by the restricted land use along easements in the 75- to 125-foot-wide clear-cut, the standard in the construction of large interstate pipelines. Other economic impacts caused by the proximity of a gas pipeline include inability to sell, inability to get a mortgage and potential calling in of the mortgage because the owner allowed industrial development, a common stipulation in mortgage agreements.

Historic and Cultural Preservation

The Advisory Council on Historic Preservation ("ACHP") promotes the preservation, enhancement, and sustainable use of our nation's diverse historic resources, and advises the President and the Congress on national historic preservation policy. According to the ACHP:

"In the National Historic Preservation Act of 1966 ("NHPA"), Congress established a comprehensive program to preserve the historical and cultural foundation of the nation as a living part of community life. Section 106 of the NHPA is a crucial part of that program that requires consideration of historic preservation in the many projects with federal involvement that take place every day across the nation... NEPA requires that all federal agencies ensure an environmental review is completed when they propose a federal action. Each federal agency develops its own internal NEPA regulations to implement this review process. NEPA covers a broader scope of resources than Section 106; however, federal agencies should coordinate their compliance with NEPA and Section 106 and consider their Section 106 responsibilities as early as possible in the NEPA process. Agencies should plan their public participation, analysis, and review in such a way that they can meet the purposes and requirements of both statutes in a timely and efficient manner."⁸⁶

⁸⁵ Hughes, J. David. "Drilling Deeper: A Reality Check on U.S. Government Forecasts for a Lasting Tight Oil & Shale Gas Boom." Shale Bubble. October 1, 2014.

⁸⁶ <http://www.achp.gov/index.html>

BREDL is working with local residents in Roanoke and Franklin Counties, VA to identify historic and archaeological resources in the path of the Mountain Valley Pipeline. Full engagement in Section 106 will be necessary to ensure protection of these resources. There are no prohibitions and no conflicts for interveners and consulting parties under 18 CFR or Section 106 of the National Historic Preservation Act.

No Demonstrated Need for Project

Industry representatives may tout natural gas as an environmental improvement and an economic advantage, but natural gas commerce is part of a global market, a factor which governs who gets the financial benefit and who is subject to the pollution. There was a 68% rise in US natural gas exports from 2008 to 2012 (from 0.9 to 1.6 trillion cubic feet).⁸⁷

Project need is demonstrably false. The EPA recently submitted comments to the FERC regarding the purported need of a similar natural gas pipeline project, the Northeast Energy Direct Pipeline, which stated that the need could be met by investment in renewable energy such as wind and solar.⁸⁸ Scientists have stated that the burning of fossil fuels must stop to prevent the further degradation of our planet by climate change. Recently, it was found that Exxon Mobil completed its own scientific studies regarding the burning of fossil fuels and their effects on global warming.⁸⁹ Not only did Exxon hide those findings from the public for decades, they began funding climate deniers in an effort to continue to harm the public and our planet—all in the name of corporate profit.

A private, for-profit company must not abuse the public trust by creating its own “alleged need” for natural gas because it chooses to use 20th century technology in the 21st century.

⁸⁷ Sources: BP Statistical Review of World Energy 2014, IEA Gas Medium Term Market Report 2013, accessed at <http://cdn.powermag.com>

⁸⁸ Joe Mahoney, “EPA: Can local pipeline plans merge?”, October 2015, thedailystar.com

⁸⁹ “Exxon’s Climate Lie: ‘No corporation has ever done anything this big or bad’” by Bill McKibben, The Guardian, 14 October, 2015.

Citizens who have worked their entire lives to acquire their homes and be good stewards of their land should not have to turn their life's work over to the energy industry because of a business plan that is outdated and ineffectual.

“According to the Department of Energy Review, 46% of gas pipeline capacity in the United States is unused, and improving the flexibility and capabilities of current infrastructure is a better investment...”⁹⁰ Ninety-four percent (94%) of the proposed ACP is to be constructed on green fields. It is not in the public's best interest to allow the energy industry to continue to burn fossil fuels and is certainly not in the public interest to destroy our planet. BREDL believes a corrupt, greedy industry continues to seek profit over the health, safety and welfare of the public and our habitat, and that FERC is complicit by continuing to approve such projects as those presented in this filing.

BREDL's position is that the evidence does not support the purported benefits of these projects. Natural gas and its facilities emit huge amounts of pollution and are not “clean-burning.” Scientists agree fossil fuels, including natural gas, must stay in the ground to stop the progression of climate change. The latest Intergovernmental Panel on Climate Change asserts that methane is a greenhouse gas that is 34 times more potent than carbon. Furthermore, a 2011 study by leading scientists at Cornell University showed that not only do current unconventional methods of extraction result in 30% more methane emissions than conventional drilling practices but that the potential for methane to trap heat is higher during the first ten to fifteen years after it is released. Thus, natural gas actually poses an immediate and far greater threat to our climate than the industry is admitting.⁹¹

⁹⁰ “Proposed Gas Pipeline in VA called a threat to resources, economy”, by Leslie Middleton, bayjournal.com, 27 July, 2015.

⁹¹ Robert W. Howarth, Renee Santoro, and Anthony Ingraffea, “Methane and the Greenhouse-Gas Footprint of Natural Gas from Shale Formations,” *Climatic Change* 106 (2011): 679-90; Naomi Klein, *This Changes Everything*, 143-144

Segmentation and Cumulative Impact

Case law is clear regarding the requirement to complete an EIS before final approval is given for a project. Otherwise the description of the project, the analysis of its impacts and consideration of alternatives become a meaningless paper exercise. It is also well settled that the requirements of NEPA may not be avoided by segmentation of a project.⁹² Segmentation arises when the comprehensive environmental impact of a project is not given full consideration or that analysis of the impact is done after permitting agency decisions are made and the project is underway.⁹³

Cumulative actions are those which have significantly greater impacts when viewed with other actions or which have increasing effect caused by successive additions. Council of Environmental Quality Regulations Implementing NEPA⁹⁴ provide that reasonably foreseeable future actions are to be considered in a cumulative impact analysis. A survey of relevant case law indicates that many government agency decisions successfully challenged for failure to consider cumulative impacts were won because the agency either left out critically important actions that were reasonably foreseeable or included no cumulative impact analysis at all.⁹⁵

BREDL asserts that a broad, wide-ranging, NEPA-compliant Programmatic Environmental Impact Statement that would appropriately scrutinize the impact of not only the MVP but also other proposed pipeline projects that are currently being examined in Virginia,

⁹² *River v. Richmond Metropolitan Authority*, 481 F.2d 1280 (4th Cir. 1973)

⁹³ Daniel R. Mandelker, *NEPA Law and Litigation*, 9-25 (2nd ed. 2004).

⁹⁴ Sec. 1508.7 Cumulative impact.

"Cumulative impact" is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

⁹⁵ *Recent Trends in Cumulative Impact Case Law*, Michael D. Smith, PhD, paper presented to the National Association of Environmental Professionals Annual Conference, April 2005

West Virginia and North Carolina is essential in order to legitimately consider the bigger picture, especially in regards to climate change. NEPA states: “The preparation of an area-wide or overview EIS may be particularly useful when similar actions, viewed with other reasonably foreseeable or proposed agency actions, share common timing or geography. For example, when a variety of energy projects may be located in a single watershed, or when a series of new energy technologies may be developed through Federal funding, the overview or area-wide EIS would serve as a valuable and necessary analysis of the affected environment and the potential cumulative impacts of the reasonably foreseeable actions under that program or within that geographical area.”⁹⁶

Considering the wide-ranging impacts that the spider web of pipelines currently being proposed could have, it is necessary to look at them all with the long-range cumulative effects in mind. The FERC must require and review such a study before permitting any currently proposed pipeline project. The impacts on the land, air and water resources which would occur if the proposed MVP project—and other similar proposed natural gas pipeline projects—advances are contrary to the letter and the spirit of the National Environmental Policy Act, which is to prevent or eliminate damage to the environment and the biosphere.

Summary

Natural gas carries with it an array of negative environmental, economic, health, and legal ramifications. Tenuous federal standards and surveillance make this billion-dollar industry exceedingly dangerous and detrimental to United States citizens. Every stage in the natural gas extraction process exposes the surrounding air and groundwater to dozens of deleterious pollutants. What is more, the transportation of natural gas via interstate pipelines not only causes further noise and chemical pollution, but so too does it infringe on the property rights of United

⁹⁶ https://ceq.doe.gov/current_developments/CEQ_Regs_and_Guidance_Programmatics.html

States citizens. Natural gas threatens the wellbeing of the economy, the environment, and all of its inhabitants.

As gas companies race to build additional pipelines to transport and ultimately export gas, they are forcing landowners to cede their land through the antiquated and corrupt laws of eminent domain. Countless landowners are harmed by this practice. In addition to encroaching on property rights, natural gas pipelines and gas development sites are increasingly popping up in public forestlands, once again demonstrating the corruption of power that private corporations exert over not only vulnerable communities and landowners, but also our shared commons.

An increased dependence on extraction, transportation and exportation of natural gas fetters the United States from embarking on a renewable revolution. The United States has made significant gains in green energy technologies. For example, in the past year, major advancements have been made with respect to solar energy batteries. A new design that combines a solar cell and a battery into a single device can now achieve a 20 percent energy savings when compared to traditional lithium-iodine batteries.⁹⁷ This marks a remarkable achievement in terms of green energy advancement, and demonstrates that the United States already has, at its disposal, the tools it needs to build a greener nation. Citizens from all walks of life are now willing to fight to safeguard America's resources and secure a sustainable future for our energy needs. Rather than continuing to invest in a billion dollar industry that will only cause harm in both the short and the long term, the United States must choose to focus its resources on developing and improving renewable energy technologies.

Finally, BREDL believes that so-called energy independence via natural gas is a chimera “snorting out the breath of the terrible flame of bright fire.”⁹⁸

⁹⁷ Frost Gorder, Pam. "New Design Brings World's First Solar Battery to Performance Milestone." Ohio State University Newsroom. August 3, 2015

⁹⁸ *Iliad*, Homer

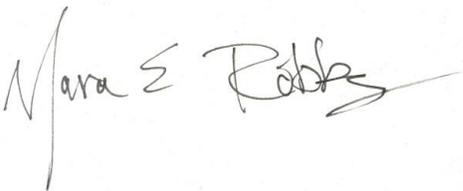
BREDL acts in the public interest

The Blue Ridge Environmental Defense League was founded in 1984 as a non-profit, independent non-governmental organization. The League is a 501(c)(3) corporation with members, chapters and projects in seven states: Virginia, North Carolina, South Carolina, Tennessee, Georgia, Alabama and Mississippi. The organization's mission is the protection of the natural environment and public health. As stated *supra*, the League has members situated on the pipeline route in Virginia.

Conclusion

The Blue Ridge Environmental Defense League hereby requests that the Commission grant its motion to be admitted as an intervenor in the extant proceeding and further requests that a formal hearing be held on the merits of the application.

Respectfully submitted,

A handwritten signature in black ink that reads "Mara E Robbins". The signature is written in a cursive style with a long horizontal line extending to the right.

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