INDIVIDUALS
IND232 – Peggy Quarles

Peggy Quarles
1280 Inglecress Drive
Charlottesville, VA 22901

November 16, 2016

Supervisor Clyde Thompson
Monongahela National Forest
200 Sycamore Street
Elkins, WV 26241

Supervisor Joby Timm
George Washington and Jefferson National Forests
5162 Valleypointe Parkway
Roanoke, VA 24019

Norman Bay, Chairman
Federal Energy Regulatory Commission
888 First Street, NE, Room 1A
Washington, DC 2042

FERC Docket CP15-554-000, CP15-555-000
FERC Docket CCP16-10-000, CP16-13-000

ELECTRONIC DELIVERY

Dear Supervisors Thompson and Timm and Chairman Bay:

IND232-1 I am writing to comment on the draft EIS (DEIS) for the Mountain Valley Pipeline (FERC Docket CP16-10-000 and CP16-13-000). These comments are also relevant to the Atlantic Coast Pipeline (FERC Docket CP15-554-000 and CP15-555-000). The focus of these comments is the requirement that the Forest Service must designate a 5(c) utility corridor in the Land and Resource Management Plan (LRMP) for the George Washington & Jefferson National Forests as part of a decision to issue special use permits for these pipelines.

1. **Comments on the Draft EIS and Utility Corridor Designations for Individual Projects**

There are many problems with designating utility corridors in these Forests in response to a natural gas pipeline project application and the information provided in the draft MVP EIS.

- Purpose of a utility corridor. The purpose of designating a "utility corridor" is to identify the best possible location for utility services through an area. It is a planning tool, not a permit. The advantage of designating a utility corridor is to concentrate multiple uses into a single area which has been identified as optimal for that purpose. One advantage of designating a utility

IND232-1 See response to comment FA8-1 regarding Amendment 1.

IND232-1 cont'd

corridor is to engage the public fully regarding the benefits and costs of the land usage for this purpose. A pre-designated utility corridor would make the process of analyzing and permitting the utility use quicker and easier for the applicant.

Amending the LRMP for either the MVP or ACP solely to allow a single project turns this model of decision making on its head. It is inconsistent with the goals and purpose of utility corridors. To designate a utility corridor in response to the applicant's choices about where the corridor should be located when there is no information supporting an additional public need for that location will serve only the corporate interests of the applicant and the public needs which have yet to be defined.

IND232-2

- Deficient Analysis in the Draft EIS. Although the document says that the pipeline route through the Forest must be designated as a utility corridor, the DEIS does not address the environmental, resource or cultural impacts of this Forest Service Action. The DEIS specifies the acres and areas where this will require re-designation of lands from one prescription to another, but there is no analysis of these re-designations. The draft EIS is simply inadequate to support this Forest Service action.

IND232-3

- No Criteria for Forest Service Decision regarding Utility Corridor. Absent a pipeline proposal, how does the Forest Service go about the task of defining and adopting a utility corridor? Surely these criteria must be part of any justification for the designation. The draft EIS for the MVP does not address how the Forest Service should go about considering or approving this amendment.

IND232-4

- Data Collection and Analysis of Utility Corridor Lands. The draft EIS for the MVP is based on surveying by the applicant. FERC does not perform independent field work. Within the Jefferson National Forest, the applicant was granted permission to survey a 300 foot corridor. It is expected that the utility corridor would be 500 feet. Who is responsible for surveying and analyzing the full width of a utility corridor to support a determination by the Forest Service as to its suitability for this purpose? Or to understand the impacts? If it is the Forest Service's responsibility, appropriate additional time must be allowed for these activities, within the staffing capabilities and ongoing assignments of the local Forest Service specialists. Otherwise, no utility corridor should be approved. The impact of the entire width of the designated corridor and whether the corridor conflicts with any of the standards and conditions established in the LMRP must be fully evaluated before a change to the LRMP is considered or proposed.

IND232-5

- Corridor Must Support Multiple Uses. A utility corridor is by definition a corridor designed to reduce impacts by co-locating utility uses. If the designated corridor supports only one type of utility, and one project of that type, it is a corridor in name only and should not be designated. To date, neither the applicant, FERC or the Forest Service has demonstrated how the proposed utility corridor would support multiple uses. This issue is not addressed in the draft EIS. In resource Report 10 for the MVP, the applicant states that the ACP pipeline route crosses narrow ridge lines which are not large enough for two pipelines. Atlantic makes a similar conclusion about the MVP route. FERC has endorsed these statements by not insisting on a combined route. Clearly there is agreement that the routes cannot be utility "corridors." So how can the US Forest Service consider an amendment making these designations?

IND232-6

- Inconsistency with FERC and Forest Service Policy Goals. Both FERC and the Forest Service policy promote the use of existing corridors or co-location with existing rights of way. In fact,

IND232-2 The FS has decided to not change the management prescriptions to the Rx 5C-Designated Utility Corridors.

IND232-3 The FS has decided to not change the management prescriptions to the Rx 5C-Designated Utility Corridors.

IND232-4 Although the FS has decided to not change the management prescriptions to the Rx 5C-Designated Utility Corridors, any future potential utility collocation would be required to undergo the full NEPA process, including surveys.

IND232-5 The FS has decided to not change the management prescriptions to the Rx 5C-Designated Utility Corridors.

IND232-6 Collocation with the proposed ACP project is addressed in the section 3.3.2 of the EIS. Collocation with the proposed Atlantic Coast Pipeline project is addressed in the EIS, Section 3.3.2.1.

IND232-6 cont'd

GWJNF LMRP Desired Condition LSU-15 states a goal of requiring that "Each utility corridor is developed and utilized to its greatest potential in order to reduce the need to develop additional corridors." Approving two separate pipelines in separate corridors, contradicts these goals. Both FERC and the Forest Service should insist that a single utility corridor be found and designated, to be shared by the ACP and MVP. An appropriate mechanism for identifying a corridor across federal lands is found in Section 368(c) of the Energy Policy Act of 2005. This mechanism provides for appropriate environmental analysis and NEPA review.

IND232-7

- Failure to Address Impacts on Private Lands. If a corridor is designated to accommodate the MVP and/ or the ACP through the High Alleghenies, it would impact not only the National Forests, but the interspersed private lands connecting the fragmented areas which are owned by the Forest Service. How can the Forest Service justify defining a utility corridor through the National Forest with such significant impacts on the surrounding private lands? It would significantly increase the impacts on private lands by increasing the amount of land affected. These property owners would need to respond to future applications each time the corridor was proposed to be used. This additional burden on private land owners adjacent to the Forest lands is difficult to justify.

IND232-8

- Utility Corridor Compatibility with the Blue Ridge Parkway and Appalachian National Scenic Trail. If the Forest Service determines that a utility corridor can and should be designated for the ACP or MVP, the designated corridor will need to cross both the Blue Ridge Parkway (BRP) and the Appalachian National Scenic Trail (AT), both administered by the National Park Service in cooperation with the Forest Service. While both pipeline applicants have proposed using Horizontal Direction Drilling (HDD) to preserve the integrity of these treasured public features by creating a route under them. Taking this into consideration, above-ground utility corridor containing multiple uses would be entirely inconsistent and the Forest Service must not compromise its responsibility to protect these iconic features. A utility corridor that stops at the Blue Ridge Mountains would be pointless and a contrived solution to the LMRP requirement.

IND232-9

- Scope of the Draft EIS for MVP. The scope of the draft EIS does not support a Forest Service decision regarding utility corridors. The level of analysis, the area of analysis and the resulting lack of public input are all inadequate. FERC relies heavily on data collected by the applicant and the analysis of these data, which understandably focus on the impacts of a single project, not multiple uses of the entire corridor. And FERC has frequently stated that its analysis of "cumulative impacts" under NEPA does not include future projects that are not before them – whether or not their policy encourages multiple uses of existing right of ways. The scope and methods used in the FERC process for review of a project proposal differ significantly from those which would be used by the Forest Service to identify, document, analyze and adopt a utility corridor.

IND232-10

2. Vulnerability of Foregoing Full Environmental Review

There is an interagency agreement between USDA /Forest Service, FERC and other Federal agencies (May 2002) to rely on a single EIS for which FERC has primary responsibility for the Special Use Permit and any plan modifications agreed to which are directly related to the impacts of the pipeline construction and operation. However, FERC has not undertaken any analysis of the broader impacts of designating a utility corridor in the Draft EIS for the MVP. If this analysis is performed and added to the Final EIS, it will not be subject to public comment. If FERC fails to include this analysis, the Forest Service must undertake a Supplemental Draft EIS for this purpose. If both FERC and the Forest Service

IND232-7 The FS has decided to not change the management prescriptions to the Rx 5C-Designated Utility Corridors.

IND232-8 The FS has decided to not change the management prescriptions to the Rx 5C-Designated Utility Corridors.

IND232-9 The FS has decided to not change the management prescriptions to the Rx 5C-Designated Utility Corridors.

IND232-10 The FS has decided to not change the management prescriptions to the Rx 5C-Designated Utility Corridors.

IND232-10 cont'd

forego their responsibility to characterize adequately the impacts of this government action per NEPA requirements, the FERC decision and the Forest Service decision to approve the applications will undoubtedly be challenged successfully by pipeline opponents, either in the administrative or judicial review phases.

IND232-11

3. Root Cause of Utility Corridor Designation Dilemma

The root cause of all of these deficiencies is found in the failure of responsible government agencies to fulfill their statutory responsibilities, as established by Congress in the Energy Policy Act of 2005. Section 368 of this Act, entitled "Energy Right-of-way Corridors on Federal Land", and its history up to this point in time established a path for designating utility corridors in this situation. Section 368 defines three types of actions.

- **Section 368(a)** required the Secretaries of Agriculture, Commerce, Defense, Energy, and Interior (the Secretaries), to identify utility corridors for the Western United States. The statute directs theses agencies to perform required environmental reviews and incorporate the results into land use plans. Congress directed the Secretaries to "consult" with FERC and other state and local governments. In 2009, the secretaries fulfilled these responsibilities in a Programmatic Environmental Impact Statement. At this time all affected plans were amended to reflect the chosen corridors.

IND232-12

- **Section 368(b)** required the Secretaries to undertake a similar analysis for "Other States". In October 2008, the US Department of Energy issued an Advanced Notice of Intent to prepare a Programmatic Environmental Impact Statement (PEIS), and asking for early input from all stakeholders in identifying potential 368(b) corridors across federal lands. The government received minimal response to this notice and no suggested corridor locations. They concluded that there was not a sufficient identified need to designate utility corridors at that point in time. See Energy Transport Corridors: the Potential Role of Federal Lands in State Identified by the Energy Policy Act of 2005, Section 368(b), prepared by Argonne National Laboratory for the Departments of Energy, Agriculture, Interior and Defense, August 2011.

IND232-13

- **Section 368(c)** defines Ongoing Responsibilities. It states:

  "The Secretaries, in consultation with the Federal Energy Regulatory Commission, affected utility industries, and other interested parties, shall establish procedures under their respective authorities that --

  (1) ensure that additional corridors for oil, gas, and hydrogen pipelines and electricity transmission and distribution facilities on Federal land are promptly identified and designated as necessary, and (2) expedite applications to construct or modify oil, gas, and hydrogen pipelines and electricity transmission and distribution facilities within such corridors, taking into account prior analyses and environmental reviews undertaken during the designation of such corridors."

It is time for the Secretaries to recognize and fulfill the responsibilities established by Congress in Section 368(c). The Forest Service has in hand three separate applications for new or expanded gas pipelines across the High Alleghenies and within the Monongahela, George Washington and Jefferson National Forests. A corridor through this area may be necessary and should be designated if the Secretaries determine that there is a need and an environmentally acceptable corridor. Clearly, Congress

IND232-11 The FS has decided to not change the management prescriptions to the Rx 5C-Designated Utility Corridors.

IND232-12 The FS has decided to not change the management prescriptions to the Rx 5C-Designated Utility Corridors.

IND232-13 The FS has decided to not change the management prescriptions to the Rx 5C-Designated Utility Corridors.

IND232-13 cont'd

did not believe that this is FERC's responsibility. The idea that the Forest Service would proceed with multiple utility corridor designations in response only to project applications with less that complete environmental analysis, is unacceptable and frankly incompatible with the high standards of land stewardship associated with most Forest Service decision making. The Secretaries should immediately initiate a programmatic EIS to identify a single utility corridor through or around the Alleghenies to meet the needs of all project applicants. This process would utilize the information already provided by all applicants so that a designation can be made in a timely manner. This process would also allow for adequate input from interested government agencies, commercial interests, property owners and the affected public. Meanwhile, the Forest Service should reject the special use applications or defer any decision until an acceptable utility corridor is properly designated.

IND232-14

Although there are many concerns about the proposals to build large scale natural gas infrastructure through the High Alleghenies (including environmental risks on steep slopes, water quality impacts, long term contributions to climate change and increased dependence on fossil fuels, etc.), analysis of the utility corridor requirements in the Forest Plans and FERC's response, is key to understanding the fundamental problems with the process of approving intrastate pipelines in this country. Why are the powerful energy interests empowered to define the need for what is essentially public infrastructure? Why do these companies define the route, instead of our government agencies? Why do we award them with powers of eminent domain when their primary incentives are shareholder profits? How can we justify the anguish of landowners whose aspirations are only to have full enjoyment of their property? Or the frustration of whole communities and local governments with hopes of protecting and preserving a quality of life and opportunity consistent with their citizen's expectations?

I urge you to look ahead to the inevitable changes in process which will be necessary to establish a true balance of interests and impacts that are necessary to meet our national energy needs in the coming decades and act accordingly.

Sincerely,

Peggy Quarles

Peggy Quarles

cc:

Jennifer Adams, US Forest Service
Tony Tooke, Regional Forester, US Forest Service
Kathleen Atkinson, Regional Forester, US Forest Service
Kevin Bowman, FERC Project Manager
Jon Jarvis, Director, National Park Service
Robert Bonnie, Under Secretary for Natural Resources, US Department of Agriculture

IND232-14 Comment noted. The comment is noted.

INDIVIDUALS

IND233 – David C. Schmauss

20161117-5177 FERC PDF (Unofficial) 11/17/2016 4:15:00 PM

David C. Schmauss, Pence Springs, WV.

FERC Document cp16-10-000

Mountain Valley Pipeline

Owners Tax Map:

*WV-SU-5282

* 7-19-75

November 17, 2016

Kimberly Rose,

IND233-1 Our letter did not fit in this comment section. Therefore we am sending a hard copy via the postal service.
Sincerely,
David and Jeanne Schmauss

IND233-1 Comments noted.

INDIVIDUALS

IND234 – Francis Dowdy Collins

20161116-0012 FERC PDF (Unofficial) 11/16/2016

CP16-10

November 12, 2016

FILED
SECRETARY OF THE
COMMISSION

2016 NOV 16 P 4:13

FEDERAL ENERGY
REGULATORY COMMISSION

Kimberly Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

ORIGINAL

Dear Ms. Bose

IND 234-1 I have a great concern for the contamination of my family's water supply of spring water, beautiful forest land, farm land and an early 1800's Iron Ore Furnace that once provided employment for neighbors. MVP wants to destroy our late 1800's family farm which has been passed down for 5 generations in Newport, VA, Giles County. Why would you let MVP destroy my farm and that of my neighbors and the Historic Village of Newport?

IND 234-2 I am opposed to MVP's survey which crosses over Canoe Cave on the My Grandfather Dowdy's farm in Giles County. This cave has a depth of about 5-10 feet over three lakes that contain distinct species of wildlife. MVP surveyors have not considered the damage that a 42 in pipeline would do to crop land, old growth trees that took 100 years to mature, structures that are essential for farming, springs that supply water to my great, grandfather's home. Please consider

IND 234-3 **Hybride Alternate Route 1A.** Hybride Alternate Route 1A would have the crossing at Glen Lynn, VA where there are other utility crossings already. This route would shorten the miles across JNF from 3.4 to 1.6. Please save our forest and farm land!

IND 234-4 The 2,000 + page EIS statement issued by FERC has a **Major** concern. MVP stated that there would be a great impact on the National Forest. The National Forest and Appalachian Trail Conversancy have major concerns about crossing the AT near Peters Mt. in Giles County because of the harm to habitat of sensitive animal species and eco systems in the National Forest. The ATC has voiced concerns to FERC that MVP would have significant negative impact on visual quality of the mountain top and the recreational experience available to the public on the AT. Another major concern is the effects of multi pipelines crossing the AT and other scenic areas. As a land owner, I am strongly opposed to **Amendment 1** that would allow LRMP to have a new Rx 5C land allocation of 500 feet width on each side of the pipeline. Also, I am

IND 234-5 opposed to **Amendment 4** which would allow the MVP pipeline to cross the ANST on Peters Mountain.

IND 234-6 It doesn't take an expert to know that the Giles County VA area is full of karst topography and water flow through karst can be rapid and very unpredictable which is a huge concern for erosion. This would cause irreparably harm to the springs and water supplies to homes, schools and medical facilities. The disturbance of slopes and mountains, and contamination of water on my family's farm as well as the Newport Community is unacceptable. I am strongly opposed to **Amendment 2** that would allow LRMP to exceed restrictions as described in LRMP standards Rw-5, FW-9, FW-14, and 11-017. How can FERC approve this as being SAFE and without contamination?

IND 234-7 Please listen to the reviews of Ernest Kasting, an authority on karst terrain. The construction of this pipeline through karst terrain is very hazardous compounded by steep slopes, poor soils and other geo hazards. MVP cannot safely build this line through our community. Please FERC reject this application of MVP to build this line and destroy our heritage in Historic Newport Virginia Giles County!

IND 234-8 I am strongly opposed **to Amendment 3** which would amend LRMP to allow the removal of old growth trees within the construction corridor of the MVP pipeline (reference LRMP Standard FWW-77). Why would I be pleased to see the old 100 year trees destroyed on my family farm for a small penitence?

IND234-1 The MVP would not destroy your farm. As noted in section 4.10 of the EIS, the proposed pipeline would be 1,362 feet away from the historic iron ore furnace (35-412-36). The EIS discusses impacts on water resources in section 4.3; forest in 4.4; and farmlands in section 2, 4.2, and 4.8.

IND234-2 Section 4.1 of this final EIS has been revised to discuss the October 2016 route that would avoid Canoe Cave (about 1,000 feet away). Wildlife is discussed in section 4.5 of the EIS. See the response to comment IND2-2 regarding springs.

IND234-3 Section 3 of the final EIS has been revised to provide a discussion of the Hybrid 1A Alternative route.

IND234-4 Comment noted.

IND234-5 Comment noted.

IND234-6 Comment noted.

IND234-7 See the response to comment IND62-1 regarding Dr. Kastning's report.

IND234-8 Comment noted.

INDIVIDUALS

IND234 – Francis Dowdy Collins

20161116-0012 FERC PDF (Unofficial) 11/16/2016

IND 234-9

Why would FERC approve MVP's application to *destroy multiple, old growth forest land,* farms, homes, Historic buildings and Historic communities so private companies can take peoples private property for corporate gain?

So, in summary, as a Giles County land owner, be it resolved that I Frances Dowdy Collins strongly oppose the proposed amendments 1, 2, 3, & 4 to the USFS's LRMP to establish a MVP with a 500' utility corridor, to exceed restrictions on soil and riparian corridors, to permit the removal of old growth forest, and to reduce the scenic integrity objective for the proposed crossing of my family farm on Old Furnace Road, Newport, VA, Giles County and the proposed crossing of the ANST on Peters Mountain.

Please include this resolution in Docket Number CP 16-10-000.

Thank you,

Frances Dowdy Collins

Frances Dowdy Collins
Concerned Landowner

IND234-9 Comment noted.

INDIVIDUALS

IND235 – Judith Starchild

20161116-0007 FERC PDF (Unofficial) 11/16/2016

FEDERAL ENERGY REGULATORY COMMISSION

NATIONAL ENVIRONMENTAL POLICY ACT REVIEW FOR THE

MOUNTAIN VALLEY PROJECT & EQUITRANS EXPANSION PROJECT

ORIGINAL

DOCKET NOS. CP16-10-000 & CP16-13-000

FILED
SECRETARY OF THE COMMISSION
2016 NOV 16 P 4:13
FEDERAL ENERGY REGULATORY COMMISSION

PUBLIC SESSION COMMENT FORM

Comments can be: (1) left at the sign-in table, (2) mailed to the addresses below, **or** (3) filed electronically by following the instructions provided below.

Please send one copy referenced to Docket No. CP16-10-000 & CP16-13-000 to the address below.

For Official Filing:

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, NE, Room 1A
Washington, DC 20426

To expedite receipt and consideration of your comments, the Commission strongly encourages electronic filing of any comments to this proceeding. See 18 CFR 385.2001(a)(1)(iii) and the instructions on the Commission's Internet web site at www.ferc.gov under the "e-Filing" link and the link to the User's Guide. Before you can file comments you will need to create a free account, which can be created on-line.

COMMENTS: (*Please print; use and attach an additional sheet if necessary*)

IND235-1

I am writing (Docket Nos. CP16-10-000 & CP16-13-000) in behalf myself and other citizen's adversely impacted by the proposed Mountain Valley Pipeline and to demand that a review of the current environmental impact report be reviewed by outside professionals to establish the risks this pipeline will have on our environment, paticularly our water sources. The current report is groosly misleading and inaccurate. It is your responsibility to tax paying citizens to do your job in anm objective, scientific manner.

This standard has NOT been reached.

More studies need to be conducted to address our unique geological environment (such as caves and precious underground aquifers).

Until this is achieved the Mountain Valley Pipeline must NOT be constructed.

Commentor's Name and Mailing Address (***Please Print***)

JUDITH STARCHILD
418 DAY AVE SW
ROANOKE VA
24016

IND235-1 Section 4.3.1 of the EIS describes measures to protect groundwater resources. See the response to comment LA5-1 regarding preparation of the EIS.

INDIVIDUALS

IND236 – Elizabeth Reeder

20161118-5029 FERC PDF (Unofficial) 11/18/2016 9:47:49 AM

Elizabeth Reeder, Jumping Branch, WV.
Nov 18, 2016

Kimberley Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

Dear Ms. Bose and Members of the Federal Energy Regulatory Commission:

IND236-1 I have been tremendously disappointed by the sloppy, incomplete, and unprofessional DEIS released by MVP, and I share the concerns others have voiced for water quality, rare and endangered species, ecosystem integrity, and human welfare. More specifically, where is there any solid indication that MVP is going to prevent erosion and sedimentation; damage to springs and wells; threats to public water sources; devastation of rare species of bats, salamanders, and mussels; irreversible loss of breeding habitat for declining songbird populations; destruction of cultural sites such as Native American encampment areas; ruination of scenic beauty; threats of explosions, noise pollution, and air pollution; and the uncontainable spread of invasive species?

IND236-2 I also see no mention of the emotional harm done to people forced to give up land they have loved and cherished for a lifetime, and built their dreams of the future upon.

IND236-3 But what I would like to address in this letter is one of the most glaring omissions of all: the impact on our deteriorating climate. MVP offers a perfect one-two punch: remove millions of trees (which, as we all know, remove carbon dioxide from the atmosphere and store carbon long-term) and hasten to market an ever-increasing quantity of natural gas to be burned, releasing vast amounts of carbon dioxide into the atmosphere.

IND236-4 It's my understanding that one of the primary functions of the federal government is to protect its people. Then I can only say shame on you FERC for rubber-stamping pipeline after pipeline as climate deteriorates before our eyes. Twenty-three of my fellow Mountaineers died this past June, many of them attempting to escape their homes as water rose in the middle of the night, after thunderstorms passed through on a June day. Is it normal to fear for our lives from thunderstorms?? Is there anything normal about our climate anymore? Ask the people in Houston, TX, or Charleston, SC. Ask the people in Ellicott City, MD. Or almost anywhere else.

Ms. Bose, I not asking but begging you to consider our children and grandchildren. It's time to put the brakes on pipelines and fossil fuels. And when a DEIS like this one comes across your desk with such obvious disregard for the welfare of people and nature, tell its writers they have done a shoddy and unacceptable job, and you cannot have faith their pipeline will be any better than their DEIS. Those of us in the pipeline path are counting on FERC, as a wing of the federal government, to put

IND236-1 See the response to comment LA5-1 regarding preparation of the EIS. The EIS addressed water resources in section 4.3, wildlife in section 4.5, threatened and endangered species in section 4.7, erosion control in section 2, cultural resources in section 4.10, air quality and noise in section 4.11, pipeline safety in section 4.12.

IND236-2 As discussed in section 4.8 of the EIS, the Applicants would negotiate an easement agreement with landowners for use of their property for project facilities.

IND236-3 Climate change, GHGs, and cumulative impacts are discussed in section 4.13.

IND236-4 See the response to comment IND196-5. A revised discussion of flash flooding is provided in section 4.3.2 of this final EIS.

INDIVIDUALS

IND236 – Elizabeth Reeder

IND236-4 cont'd

the welfare of U.S. citizens ahead of a corporation intent on rapid construction, maximal profit, and minimal regard for those who suffer the consequences.

With sincere concern,

Betsy Reeder,
ecologist, mother, West Virginian

INDIVIDUALS

IND237 – Robert L. McCain

CP16-10

ORIGINAL

November 10, 2016

Mr. Robert L McClain
2853 DRY Fork RD
Samlem, WV 26426

Ms. Kimberly Bose, Secretary
Federal Energy Regulatory Commission
888 First Street NE, Room 1A
Washington, DC 20426

IND237-1

I am writing this letter to you concerning THE MOUNTAIN VALLEY PIPELINE going through Doddridge and Harrison Counties in West Virginia.

Our views have NOT changed about our concerns about the location of the pipeline. If this pipeline is installed above our house our house will be ruined, and our water and land will be destroyed.

We are asking that you do NOT allow this pipeline to be placed above our house.

I am enclosing the letter I sent you last year and the letter I sent to EQT about our concerns.

Sincerely,
Robert L McClain
Ann M McClain
Justin McClain
Phone number (304) 782-3983

IND237-1 The commentor's home would be more than 2,000 feet from the proposed pipeline centerline. Impacts to the commentor's land and water are not expected.

INDIVIDUALS

IND238 – Robert L. McCain

CP16-10

October 8, 2015

ORIGINAL

Mr Robert L McClain
2853 Dry Fork Road
Salem West Virginia 26426

IND238-1

I am writing this letter to you concering THE MOUNTAIN VALLEY PIPELINE going through Doddridge and Harrison Counties in West Virginia.

I will try to give you some background information about myself and my location regarding this proposed pipeline project.

My name is Robert L. McClain, I live with my wife Ann and our youngest son Justin on a 160 acre farm on Branch of Dry Fork Road in Doddridge County.

Our farm is ½ mile west of the Harrison County line. We live in Doddridge County.

I have lived on this farm almost 70 years. We farm the land keeping Reg. Black Angus cattle and Club-Lamb Sheep. Our farm is completely fenced because of the livestock.

The road leading to our farm home is a narrow one lane road with sharp turns and curves. I keep the road ditched and my son trims the grass and trees along this narrow road. We own the land on both sides of the road mostly. It is a gravel road coming to our house from the Meathouse Fork Road. There is no way trucks and large equipment can travel this road.

We are the last house on this road. I have taught school in Harrison County 47 years. My son Justin and my wife Ann take care of the farm and livestock.

The proposed pipeline is about 400 feet east of our land on a steep mountainside,

The people who surveyed the path for the pipeline did most of the work in the dark in late evening. They did not know how the land lays or which way the water flows.

This pipeline is to be built on property owned by people living a six-hour drive from here. They live in Virginia and have this land for hunting. When Justin and I approached them about our concern with them selling this land for the pipeline, they said that the company told them that they would take their land. We tried to explain to them 'people owning the land', That the mud and water run-off from this would damage our house and property. They ignored our pleas and sold the

IND238-1 See the response to comment IND237-1 regarding location of the proposed pipeline from the commentor's home. Mountain Valley is proposing a permanent access road (MVP-DO-049) off of Branch of Dry Fork Road about 1,800 feet south of the commentor's home. This access road and associated ATWSs would be located adjacent to the commentor's parcel but not on land owned by the commentor.

INDIVIDUALS

IND238 – Robert L. McCain

IND238-1
cont'd

land to the pipe-line company. The way the pipe-line is planned will cause a lot of damage to our land, and home.

A few days ago, my son saw 2 trucks with Utah plates on them driving onto our property.

He followed the truck 0n the hill behind our house. They were surveying on our land. They had crossed a locked gate with a large NO TRESPASSING sign on it, When he asked these four people about going on our posted land they said they do this everyday. My son told them they were 400 feet west of the proposed pipe-line. They told him they could be off the line if they needed because they were going to make a place to PARK TRUCKS AND STORE PIPE. My son told them we had not sold them any property. One of these people answered him by saying THEY COULD USE WHATEVER THEY NEEDED, IF HE DIDN'T LIKE IT ,THEY WOULD SEND US A EMINENT DOMAIN LETTER . He asked for their business card, they did not have one. One of them gave him a phone number of his boss where they were staying in a motel in Bridgeport, WVA .

When I came home from work, I called this number. They put me in touch with a land agent for them in Harrison County.

I explained my concern about the water damage and if they used our road we would no longer be able to get to our house. I asked him if they would move the pipe-line east of where they had it staked.

He informed me that the pipe-line would not be moved. I tried to explain that the water and mud would not harm anyone if it was moved east a few feet. I also, asked him if he would send someone to talk to me about this and look at the problem. He told me that they had purchased about 95 per cent of the land for this pipe-line in the area and they would not change anything.

I also told him my concern with them using our road for an access road to the pipe-line.

I asked him if they could stay on the property of the people they had purchased land from.

He stated that they would use our road and it was their right to use it. He did not care about the damage that occurred to the fences and road banks, ditches, etc.

As of today no one has talked to us about this pipe-line project. They have sent countless people on our land to survey and plan the destruction of our land without talking with us.

IND238-2

I have lived here almost 70 years, I know which direction the water flows and where erosion and damage to the land will happen. These people do not care about the land, water, trees, or the lives of people living near these pipe-lines.

I have seen first-hand the damage that can be done from these large pipe-lines. Another company has been working on one about 1000 feet north-east of our land this summer. Large amounts of water and mud washed down off 2 mountain sides, came down in a stream and ruined about 5 acres of our hayfield. As a result, we had to sell some of our cattle because of the loss of winter hay.

We will always have flooding issues with this because of the removal of all the trees. Once these pipelines are put in, things are never the same again. There is extreme erosion and sediment problems in the water streams.

It is all about money and people who do not care about the environment, air, drinking water and the land. People who live away from this do not realize the damage that is being done to our land, water and country roads. The roads are being destroyed and the bridges damaged. People are amazed and shocked when they drive into these areas where they are drilling and laying pipe-lines. Most of the money is going out of state. This does not benefit the people living in the area of all the destruction and pollution. The large pipe-line will carry the gas to the east coast to be sold to other countries. How will this benefit the people where these lines cross their land? Who will benefit – BIG COMPANIES or our environment?

These larger for profit companies and greedy people do not think about the long term effects all this will have on our future children and our environment.

We hope this letter will be brought to the attention of the people in charge of regulating this pipe-line company and their employees.

We would like for them to come talk with us about our concerns before bringing heavy equipment and destroying our homes and land.

Sincerely,

Robert L McClain

Robert L McClain
Ann M. McClain
Justin W McClain
Phone Number 1(304)782-3983

Am

IND238-2 See the response to IND70-1 regarding erosion and sedimentation. See the response to comment IND2-3 regarding export. See the response to comment IND288-3 regarding road damage.

INDIVIDUALS

IND239 – Robert L. McCain

CP16-10

November 19, 2015

Mountain Valley Pipeline
EQT Plaza
625 Liberty Ave,
Suite 1700
Pittsburg, PA 15222

ORIGINAL

Dear EQT:

IND239-1 I am writing this letter to you concering your MOUNTAIN VALLEY PIPELINE.

I am VERY CONCERNED about the location of the GAS LINE in regards to my property.

The men who surveyed the right-of-way,on my neighbors property, did the work very hastily in the evening time when it was dark.

My son and I went on the hill behind our house and tried to express our concern to these surveyors. They said for us not to worry because it would be a couple of years and someone would talk to us about the situation.

These surveyors did not know or look at the drainage issues on the land,

If this line is installed where you have it planned, it will cause serious damage to our land and home,

If the line is moved a few yards EAST of this proposed route, it could not damage any ones home or property.

IND239-2 Also, I am extremely concerned with your contractors using our road for an access road,

They will cause serious damage to the road, drainage ditches, fences, and more if they use our road. The road is very narrow and has sharp turns. If this road is used it will cause water to run in my house,

I have maintained this road myself since 1972, because I am the last house on the road.

There are severed other routes these trucks can use to get to this pipeline.

The purposed pipeline I am talking about is on the Doddridge-Harrison County Line. Located off the MEATHOUSE FORK ROAD – BRANCH OF DRY FORK.

IND239-1 See the response to comment IND237-1 regarding location of the proposed pipeline from the commentor's home.

IND239-2 See the response to IND238-2 regarding access roads near the commentor's parcel.

IND239-2 cont'd

The road, that I am concerned about, is THE BRANCH OF DRY FORK ROAD.

As of today, no one has contacted me about these problems, It seems to us as if your companies do not care,

I am requesting, as a citizen, taxpayer, and land owner, that you have someone to look at this situation and please contact me before starting to work on the pipeline project.

Sincerely,

Robert L, McClain
2853 Dry Fork Road
Salem, WVA 26426

Phone number: 304-782-3983

am

INDIVIDUALS

IND240 – Tina Smusz

20161121-5025 FERC PDF (Unofficial) 11/20/2016 2:20:57 PM

Submission Description: (doc-less) Motion to Intervene of Tina Smusz under CP16-10-000.

Submission Date: 11/20/2016 2:20:57 PM

Filed Date: 11/21/2016 8:30:00 AM

Dockets

CP16-10-000 Application for Certificate of Public Convenience and Necessity and Related Authorizations.

Filing Party/Contacts:

Filing Party	Signer (Representative)
Other Contact (Principal)	
Individual	FERCSmusz@gmail.com

Basis for Intervening:

IND240-1 I am directly impacted by the Mountain Valley pipeline project via karst terrain linking my well (and many neighbors' wells) to the pipeline route. I am in a rural area bordered by the Jefferson national forest with minimal water sources for emergency response vehicles to access in the event of a fire associated with pipeline construction or operation.

IND240-2 As a physician vitally interested in protecting the health and safety of my community, I have special knowledge of health hazards of natural gas pipelines. Our home is situated on 90 acres which constitute part of a

IND240-3 200 acre neighborhood conservation easement which has been (and could still be) threatened by an earlier alternate route for the pipeline.

IND240-1 Non-environmental Commission staff will make a determination on whether to grant a party's out-of-time intervention request. See the response to comment IND3-1 regarding water wells.

IND240-2 The potential health effects regarding methane are discussed in section 4.12 of the EIS.

IND240-3 The commenter's comments regarding an alternative route are noted.

INDIVIDUALS

IND241 – Carl E. Zipper

20 November 2016

Ms. Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission (FERC)
888 First Street, N.E.
Washington, DC 20426

Re: Mountain Valley Pipeline proposal, Docket No. CP 16-10
Second pipeline is foreseeable

Dear Ms. Bose and Members of the Commission,

IND241-1

I am writing to communicate information that is relevant to the Mountain Valley pipeline (MVP) proposal. I am concerned that FERC and the DEIS[1] have failed to consider the potential for Mountain Valley Pipeline's certification to draw at least one additional pipeline to the project area. By failing to consider such, the DEIS has failed to consider the full range of adverse effects that would be caused to resources and people within the project area by the Mountain Valley Pipeline. Hence, the DEIS should be revised.

With this letter, I am re-posting copies of letters written about this topic, previous submitted to Docket PF 15-3,[2] to the current FERC Docket. I am taking this action because this information is relevant to the current proceeding, because I see no evidence that FERC has considered the likelihood that certification of Mountain Valley Pipeline would draw other pipelines to the area..

Clearly, FERC must consider the potential for Mountain Valley Pipeline's to draw additional pipelines to the project area. FERC policy encourages use of existing corridors for new pipelines. If Mountain Valley Pipeline is constructed, that would create an existing corridor that would be expanded if it were to draw additional pipelines.

My comments are not speculative because another project has been proposed for the project area, the so-called Appalachian Connector, with a route that would run roughly parallel to the Mountain Valley Pipeline (if constructed, see Exhibit 1). Information relevant to the Appalachian Connector, filed previously to Docket PF15-3, is refiled here (Exhibit 2). Also documented here is the apparent collusion between Mountain Valley Pipeline LLC and the Transcontinental Pipeline Co. (Williams Co.) concerning the so-called Appalachian Connector (Exhibit 3). The Appalachian Connector pipeline's developers have conducted an "open season" solicitation for gas shippers (Exhibit 2), an indication that its developers are serious in their planning for eventual construction.

Adding to the concern is the fact that Mountain Valley Pipeline has been offering to property owners easement-purchase agreements that would allow it to construct "one additional pipeline", despite not having proposed such to FERC.[3] The fact that Atlantic Coast Pipeline has

[1] Mountain Valley Project Equitrans Expansion Project Draft Environmental Impact Statement. FERC/DEIS-D0272

[2] Mountain Valley Pipeline, pre-application.

[3] Submittal 20150828-5050(30844494) to FERC Docket PF 15-3. See also "Mountain Valley Pipeline acquires easements from regional residents for natural gas transmission pipeline", Roanoke Times, 11 September 2016. Land records filed at courthouses in counties along the potential right-of-way contain clauses allowing a second pipeline within the purchased easement area. For example, land record filed in Giles County, Virginia, on 4/7/2016 that lists Mountain Valley Pipeline LLC (MVP) as Grantee includes the following clause 7" "... Grantor does hereby give, grant, and convey unto Grantee, its successor and assigns, a further right at any time or from time to time, to lay, maintain, operate, renew, alter, improve, protect, repair, and remove oone additional pipeline ... as it may desire within the right of way and easement area. The additional pipeline to be laid approximately parallel to the first line laid and shall be considered a Pipeline as the term is used herein." Similar

IND241-1 FERC policy provides numerous criteria by which the Commission typically evaluates proposals and uses the criteria to weight the impacts of one over the other. The Commission's "Certificate Policy Statement" can be found at Certification of New Interstate Natural Gas Pipeline Facilities, 88 FERC ¶ 61,227 (1999), clarified in 90 FERC ¶ 61,128, and further clarified in 92 ¶ 61,094 (2000). By no means does FERC policy indicate that existing rights-of-ways are the only locations at which a project could be built.

Section 3.3.2 of the EIS states that the Appalachian Connector pipeline is not a real project, and under NEPA only foreseeable projects need to be addressed. See the response to comment IND26-1 regarding installation of a second pipeline. Furthermore, as stated in section 1.3 of the EIS, because a natural gas transportation project is proposed before the FERC, it is not likely that it would lead to additional drilling and production. In fact, the opposite causal relationship is more likely, i.e., once production begins in an area, shippers or end users will support the development of a pipeline to move the natural gas to markets. In past proceedings, the Commission concluded that the environmental effects resulting from natural gas production are not linked to or caused by a proposed pipeline project. Therefore, induced or additional natural gas production is not a "reasonably foreseeable" indirect effect resulting from the proposed MVP and the EEP, and this topic need not be addressed in this EIS.

IND241-1 cont'd

expressed an intent to purchase easements that allow only one pipeline[4] indicates that the purchase of rights to construct a second pipeline, when only one pipeline is proposed by a FERC application, is not a standard practice for the natural gas pipeline industry.

Adding to the concern is that Mountain Valley Pipeline originally proposed to obtain easements for a 75-foot permanent right-of-way easement[5], in excess of the 50-foot wide right-of-ways that are common within the industry when only a single pipeline is being constructed. Mountain Valley reduced its proposed right-of-way width to 50 feet after being requested by FERC to justify the need for a 75-foot permanent easement.[6]

The combination of apparent collusion, parallel routing, Mountain Valley's initial attempt to use FERC authority to gain an easement in excess of what is needed for a single pipeline, and Mountain Valley's current efforts to obtain easements that include the right to build two separate pipelines should be considered collectively as a strong indicator that a second pipeline is being planned for the proposed Mountain Valley Pipeline route.

In evaluating the Mountain Valley Pipeline application, FERC should recognize the likelihood that Mountain Valley Pipeline's construction (if certificated) would likely draw at least one additional pipeline into the project area. The information I have reviewed above supports that expectation. The DEIS does not consider the possibility that the project's approval would be likely to draw a second pipeline into the project area, thus expanding the disturbance and adverse effects. FERC should recognize the likelihood of a second pipeline and revise the DEIS.

I am a registered intervenor in the Docket CP16-10 proceedings, and I am sending these comments to the full service list via e-mail as per FERC policies.

With regards,

Carl E. Zipper
Blacksburg Virginia 24060

Cc: US Forest Service, comments-southern-georgewashington-jefferson@fs.fed.us
US Bureau of Land Management, vcraft@blm.gov, mliberat@blm.gov
Appalachian Trail Conference, lbelleville@appalachiantrail.org

or identical terms are included in multiple land records recently filed which list Mountain Valley Pipeline LLC as the Grantee. Such records can be provided to FERC or to a court of law upon request.

[4] Roanoke Times, "Mountain Valley Pipeline begins buying easements for proposed route in W.Va.", 20 August 2015.

[5] Submittal 20141201-5054 (p. 1-8 / p.149 of 238) to Docket PF15-3.

[6] Submittal 20150313-4017 (Environmental Information Request, p. 1-2, Query 10).

20 November 2016

Ms. Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission (FERC)
888 First Street, N.E.
Washington, DC 20426

Re: Mountain Valley Pipeline proposal, Docket No. CP 16-10
Draft Environmental Impact Statement (DEIS)
DEIS fails to consider reasonable alternative

Dear Ms. Bose and Members of the Commission,

IND242-1

I am writing to communicate information that is relevant to the Mountain Valley pipeline proposal. I am concerned that the DEIS[1] has failed to "evaluate a range of reasonable alternatives as required by NEPA (at 40 CFR 1502.14) and Commission policy."[2]

The DEIS evaluates a Route Alternative to the Mountain Valley Pipeline (" Alternative 1") which has identical starting and ending points; occurs to the east of the proposed route's northern segment and to the south and west of the proposed route's southern segment, and crosses the proposed route in the vicinity of milepost 140.[3] However, the DEIS fails to evaluate other logical alternatives: The pairing of the proposed route's northern segment with Alternative 1's southern segment (Hybrid 1A), and the pairing of Alternative 1's northern segment with proposed route's (Hybrid 1B). Those alternatives are explored in supplemental filings that have been posted to the FERC Docket by Mountain Valley Pipeline LLC,[4] but they have not been evaluated by FERC as reasonable alternatives to the proposed route in the DEIS.

A tabular comparison of Hybrid Alternative 1A, Alternative 1 and the proposed route is provided here as Table 1. It is clear that Hybrid Alternative 1A has reduced impacts to several resources compared to Alternative 1: It is shorter, impacts fewer landowner parcels (estimated by MVP), has lesser wetland impacts, and has a shorter distances through National Historic Districts, karst terrain, steep slopes, and shallow bedrock. Yet, FERC failed to evaluate this alternative in the DEIS. Hybrid Alternative 1A would reduce a number of adverse effects relative to Alternative 1 yet Alternative 1 is evaluated in the DEIS but Hybrid Alternative 1A is not.

The DEIS notes that numerous cultural, historic, and environmental resources would be affected adversely if the pipeline is constructed along the proposed route; and proposes measures intended to mitigate those adverse effects. FERC's Certification Policy is similar to the National Environmental Policy Act in at least one respect: NEPA requires avoidance of adverse effects when possible, and minimization of adverse effects when avoidance is not possible.

The Hybrid Alternative 1A routing avoids numerous adverse effects that will occur in Craig, Giles, Montgomery, Roanoke, and Franklin Counties if Mountain Valley Pipeline is constructed over the proposed route; some of these are listed in Table 2.

[1] Mountain Valley Project Equitrans Expansion Project Draft Environmental Impact Statement. FERC/DEIS-D0272

[2] Quoting from the DEIS p. 3-1 (p.148 of 781).

[3] DEIS, p.3-22 through 3-24 (pp.169-171 of 781).

[4] Text describing these alternatives is located in submittal 20160421-5195 to FERC CP16-10; Responses to FERC Environmental Information Request Dated March 31, 2016; Master Response List; pp. 185-186 of 209. An accompanying comparison table and map are in submittal 20160422-5012 to FERC Docket CP16-10, part 126 of 126, Attachments DR2 RR10-3a and DR2 RR10-3b, pp.21-24 of 58.

IND242-1 Section 3 of the EIS has been revised to provide a discussion of the Hybrid 1A Alternative route.

IND242-1 cont'd

Table 1. Comparison of Hybrid Alternative 1A, Alternative 1, and the Proposed Route.

Features	**Hybrid Alt. 1A**	Route Alt. 1	Pro-posed Route	Notes
General				
Total length (miles)	309.2	323.8	301	
Length adjacent to existing right-of-way (miles)	68.4	101	22	
Land disturbed within construction right-of-way (acres)	4682.6	4892	4556	
Federal Lands and Federally Managed Areas				
National Forest System lands crossed (miles)	1.6	1.6	3.4	
National Forest System lands crossed (miles greenfield)	0	0	3.4	a, b
National Forest Wilderness crossed (miles)	0	0	0	
National Forest Wilderness adjacency (miles)	0	0	1.8	a, c
National Forest Outstandling Ecological Core areas (acres)	0	0	40	a, d
Appalachian National Scenic Trail crossings (number)	1	1	1	
Appalachian Trail crossings - Greenfield	0	0	1	a, b
Blue Ridge Parkway crossings (number)	1	1	1	
Blue Ridge Parkway crossings- Greenfield	0	0	1	a, b
National Forest– USFS-designated old growth forest crossed (feet)	0	0	3000	a, e
National Forest – USFS-designated old growth forest affected by constr. (acres)	0	0	9	a, e
National Forest – trails crossed (number)	n/a	15	2	f
National Forest – inventoried roadless areas crossed (feet)	0	0	4990	
National Forest – inventoried semi-primitive areas crossed (feet)	n/a	8660	13540	
NRHP designated or eligible historic districts crossed (miles)	0	5	10.1	
Human Environment				
Populated areas within 0.5 mile (number) b/	12	11	8	g
Landowner parcels crossed (number)	1,446	1,609	1495	h
Residences within 50 feet of construction workspace (number)	n/a	65	63	i
Resources				
Forested land crossed (miles)	236.9	237.6	245.2	
Forested land affected during construction (acres)	3594.9	3608.7	3720	
Forested land affected during operation (acres)	1436.5	1441.2	1486	
Interior forest crossed (acres)	2106.1	1565.2	2365.2	
Wetlands (NWI) crossed (feet)	2090	5525	3299	
Forested wetlands crossed (feet)	1518	1657	1721	
Forested wetlands affected by construction (acres)	2.6	2.9	3	
Forested wetlands affected by operation (acres)	1.7	1.9	2	
Perennial waterbody crossings (number)	116	133	97	
Major (>100 feet) waterbodies crossed	7	7	5	
New River crossings (number)	2	2	0	
Shallow bedrock crossed (miles)	114.9	217.3	214.9	
Steep slope (>20 percent) crossed (miles)	138.8	171.4	120	
Side slope crossed (miles)	169.1	165.1	122.8	
Landslide potential crossed (miles)	220.8	232.2	224.2	
Karst area crossed (miles)	37.3	56.2	53.3	

IND242-1 cont'd

Notes to Table 1:

a - data added by CEZ; all other data are as provided by the applicant in the DEIS (TABLE 3.4.2-1) and in "Comparison of Hybrid Alternative 1A, Hybrid Alternative 1B, and the Proposed Route", Attachment DR2 RR10-3a as referenced above in footnote 4.

b - Mountain Valley Pipeline's submittal 20160421-5195 FERC Docket CP16-10 (as referenced above) states that "Hybrid Alternative 1A crosses the Blue Ridge Parkway, the Jefferson National Forest, and the Appalachian National Scenic Trail adjacent to existing 138-kilovolt (kV) overhead electric transmission lines".

c - estimated by CEZ from Figures 1.11-1 and 1.11-2 in the Mountain Valley Pipeline application, Resource Report 1. Approximately 0.8 miles of the proposed route is directly adjacent to Peters Mountain Wilderness, and appoximately 1 mile is located within approximately1200 feet from the Brush Mountain Wilderness, but within the Brush Mountain Inventoried Roadless Area. that adjoins that wilderness.

d - calculated by CEZ based on 2.6 miles length through Ecological Core Areas as designated on DEIS Figure 4.4.1-3 (p. 4-135; p. 372 of 781).

e - DEIS table 1 states that 4.8 acres of old growth would be affected, but elsewhere the DEIS states that 9 acres of old growth (equivalent to 3064 feet length for a 125-foot wide corridor) would be affected.

c - The assertion that 15 separate trails would be crossed over a 1.6 mile length is not supported - no supporting information is presented.

h - these data are estimated as distances to town and city boundaries, and not as areally defined clusters of homes, and is not necessarily reflective of residential impacts. For example, the proposed route runs along the outskirts of a major residential near Blacksburg VA, but does not come with 1/2 mile of the town limigs.

g - landowner parcels over alternative routes were estimated by Mountain Valley

l - Minor adjustments to proposed reduced direct residential proximities, but such analyses have not been conducted for the Alternative 1 route. No residential proximities are reported for Alternative 1A.

IND242-1 cont'd

Table 2. Significant cultural, environmental, historic, and recreational resources that would be affected adversely if the Mountain Valley Pipeline if constructed over the proposed route (as revised October 2016) but are avoided by the Hybrid 1A alternative route.

Listed or Eligible Historic Districts avoided by 1A (15 miles)
Greater Newport Rural Historic District;
Newport Historic District:
Big Stony Rural Historic District (potentially eligible);
North Fork Historic District;
Blue Ridge Parkway Historic District;
Coles-Terry Rural Historic District (potentially eligible)
Bent Mountain Rural Historic District (potentially eligible);
Cahas Mountain Rural Historic District.

Historic properties of note avoided by 1A
Link Farm Covered Bridge (one of seven remaining covered bridges in Virginia);
Newport High School Campus and Fairgrounds (site of oldest continuous agricultural fair in Virginia).

U.S. Forest Service specially managed areas avoided by 1A
Appalachian National Scenic Trail (greenfield crossing on top of Peters Mountain, adjacent to the Peters Mountain Wilderness) – Hybrid 1A crosses the ANST with another utilitu clearing;
Peters Mountain Wilderness (proposed route is adjacent);
Cascades National Recreation Area;
Brush Mountain Inventoried Roadless Area;
Sinking Creek Mountain old growth forest management area.

Conservation sites and easements avoided by 1A
Virginia Department of Conservation and Recreation's Slusser's Chapel and Old Mill Conservation Sites;
Virginia Department of Conservation and Recreation's Canoe Cave Conservation Site.†
The New River Conservancy's Sizemore conservation easement (Pembroke) adjoining Cascades National Recreation Area);
The Virginia Outdoors Foundation's Mill Creek conservation easement

Other special areas avoided by 1A
Eastern Elementary School and Mayapple Preschool in Giles County, Virginia
Big Stony Creek Road and Blue Grass Trail (Virginia Scenic Byways);
Peters Mountain vicinity Cultural Attachment Area (MVP Cultural Attachment consultant designated)

High Consequence Areas avoided by 1A
Newport Recreation Center and Fairgrounds
Newport Fairgrounds
Newport Volunteer Rescue Squad
Newport Mt. Olivet Methodist Church
Doe Creek Farm

Additional adverse-effect avoidances by 1A
Greenfield impacts to Jefferson National Forest lands (the Hybrid 1A JNF crossing is in association with an existing utility corridor)
Greenfield impact to Appalachian National Science Trail (Hybrid 1A crossing is in an existing utility corridor).
Greenfield impact to Blue Ridge Parkway (Hybrid 1A crossing is in an existing utility corridor).
Impacts to USFS Unfragmented Forest Block LI-22;
Hazards caused routing through Giles County Seismic Zone

† Despite the 13 October 2016 routing revisions, the proposed route goes over the Canoe Cave footprint (Submittal 20160317-5126, Virginia DCR, Figure 2) and through the Canoe Cave Conservation Area (ibid. VDCR, Figure 4).

IND242-1 cont'd

Advantages of Hybrid Alternative 1A, relative to the proposed route, include use existing utility corridors (not greenfields) to cross Jefferson National Forest, Appalachian Trail, and Blue Ridge Parkway; and avoidance of the old-growth forest losses, NRHP historic areas and other adverse effects that are proposed by Mountain Valley with current proposed route (Table 2).

The applicant's discussion of Hybrid Alternative 1A[5] states that "there is approximately 50 miles of severe side slope crossed by the southern half of Route Alternative 1" (which is included within Hybrid Alternative 1A). This claim should be evaluated by FERC, given that most of the southern half of Hybrid Alternative 1A runs in close parallel to the proposed route, and thus in similar orientation to the southwest-to-northeast grain of the mountain ridges and intervening valleys that characterize this terrain. One would expect long lengths of "severe sideslopes" to occur along pipeline segments that run parallel to the grain of the mountains, but the orientation of Hybrid Alternative 1A relative to that grain is similar to that of the proposed route. Furthermore, the applicant has proposed mitigation measures for sidehill construction[6] in light of the 123 miles of sideslope construction that are said to occur along the proposed route; but the applicant's text describing Hybrid Alternative 1A makes no mention of sideslope mitigation..

FERC's has failed to evaluate a reasonable alternative to the current proposed route in the DEIS, despite a direct appeal for such evaluation that was duly filed to FERC CP 16-10 in a timely manner, <3 weeks following Mountain Valley Pipeline's submittals describing Hybrid Alternative 1A, and well in advance (>4 months prior) to FERC's issuance of the DEIS.[7]

It is quite possible that Hybrid Alternative 1A would have adverse effects that are not apparent based on the information that I have before me, and I do not contend that Mountain Valley Pipeline here should be re-routed to Hybrid Alternative 1A. My point is that FERC has failed to exercise its responsibility under National Environmental Policy Act, which is to provide a "detailed statement [of] alternatives to the proposed action" and to "study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources." Clearly, Mountain Valley Pipeline "involves unresolved conflicts" as per the quoted NEPA text.

Federal regulations implementing NEPA state that

*"Federal agencies **shall** to the fullest extent possible … Use the NEPA process to identify and assess the reasonable alternatives to proposed actions that will avoid or minimize adverse effects of these actions upon the quality of the human environment" [with emphasis added].*

Federal regulations also state that federal agencies

"shall … Rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated."

Clearly, Hybrid Alternative 1A is a reasonable alternative to the proposed action, but FERC has failed to evaluate it in the DEIS and has failed to describe a reason for not doing so.

[5] See submittal 20160421-5195 to FERC CP16-10; Responses to FERC Environmental Information Request Dated March 31, 2016; Master Response List; pp. 185-186 of 209

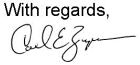
[6] See section 7.0 of Mountain Valley's Landslide Mitigation Plan (rev. 2), submittal 20161014-5022, Attachment H; and associated plan drawings, also in submittal 20161014-5022 Attachment H.

[7] Submittal 20160509-5041 to Docket CP16-10, letter from Louisa Gay.

IND242-1 cont'd

I am a registered intervenor in the Docket CP16-10 proceedings, and I am sending these comments to the full service list via e-mail as per FERC policies.

With regards,



Carl E. Zipper, Blacksburg Virginia 24060

Cc: US Forest Service, comments-southern-georgewashington-jefferson@fs.fed.us
US Bureau of Land Management, vcraft@blm.gov, mliberat@blm.gov
Appalachian Trail Conference, lbelleville@appalachiantrail.org

20 November 2016

Ms. Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission (FERC)
888 First Street, N.E.
Washington, DC 20426

Re: Mountain Valley Pipeline proposal, Docket No. CP 16-10
Draft Environmental Impact Statement (DEIS)
Visual resource evaluation is not adequate

Dear Ms. Bose and Members of the Commission,

IND243-1

I am writing to comment on the Draft Environmental Impact Statement (DEIS) for the Mountain Valley pipeline application. I am concerned that FERC and the DEIS[1] have failed to consider adequately the proposed pipeline's adverse effects on visual resources within the project area.

I base my comments on my review of the potential visual resource effects that would be apparent within the Montgomery – Giles County area, where I am familiar with proposed routing for Mountain Valley Pipeline and potential visual resource effects. Visual resources are important to economic development and quality of life in this area, but the DEIS analysis fails to assess visual resource effects in a competent manner. As a result, the DEIS conclusion of limited adverse impacts to visual resources is not supported.

DEIS Conclusion:

The DEIS concludes that "We determined that construction and operation of the MVP and the EEP would result in limited adverse environmental impacts, with the exception of impacts on forested land."[2] The supposed lack of adverse effects to visual resources is not supported.

Reason for Questioning:

I found the conclusions failure to state adverse effects to visual resources as questionable, given that the pipeline is proposed for construction:

- Through areas that are predominantly forested, meaning that the replacement of forest vegetation with herbaceous vegetation, as proposed for the corridor, would be easily visible to any person with an appropriate vantage point.
- Through areas with significant topographic relief, meaning that large areas of landscape are visible from numerous vantage points.
- Through areas where valleys are often used for agricultural, residential, and transportation purposes that clear forest vegetation, such that extensive areas of mountainside vegetation are visible from numerous vantage points within the cleared valleys.
- Through areas with numerous recreational resources that utilize the forested mountains, and provide users with vantage points that enable viewing of large areas.

[1] Mountain Valley Project Equitrans Expansion Project Draft Environmental Impact Statement. FERC/DEIS-D0272 (Hereafter stated as DEIS).
[2] DEIS, p. 5-1 (p. 756 of 781).

IND243-1 Section 4.8 of the final EIS has been revised to provide an updated analysis of visual impacts.

IND243-1 cont'd

To say it simply: The conclusion that visual resources would not be adversely affected does not pass the "common sense test". In support of that perspective, I present the following analyses below.

IND243-2

No Justification for Three Mile Maximum Distance

The DEIS visual analysis assumes visual resource impact distances are limited to three miles. The DEIS states that "Mountain Valley performed a visual resources analysis of its pipeline route, encompassing a 3-mile-wide corridor. This distance corresponds to the FS defined 'middle ground' zone."

The three-mile limit on visual effects is not justified. The DEIS provides no justification for selecting this criterion in a forested and mountainous landscape where points of view routinely exceed 3 miles. For example, when driving on US Route 460 in Montgomery and Giles Counties near the project area, between Christiansburg and Rich Creek, one is afforded with numerous landscape views that exceed three miles. As a means of illustrating that point, I have prepared Figure 1 which demonstrates that motorists traveling on US Route 460 are able to see the Peters Mountain location where the Mountain Valley Pipeline is proposed to pass under the Appalachian Trail, and to create a deforested corridor on the mountain slope.

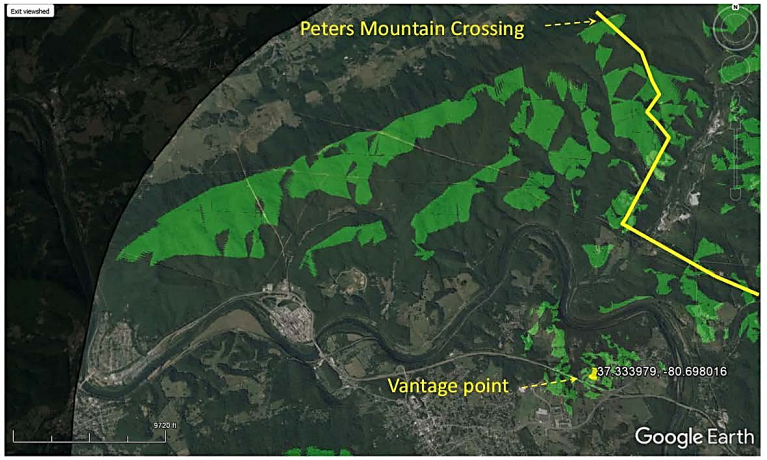


Figure 1. Segment of Google Earth rendering of viewshed from a location on US Route 460 near Pearisburg VA. Green background areas are represented as visible from the vantage point. The viewshed is from the point of view of a vehicle driving west, where both driver and passengers would have a clear view of the Peters Mountain crossing, and passengers would have clear view of other pipeline impact areas. The yellow line is the approximate route of Mountain Valley Pipeline. The vantage point was selected based on my experience as a driver of this segment, and as a random placement within the highway segment where I am aware of expansive landscape views, Note the figure's scale in the lower left corner. The viewshed analysis edge is the 10 km limit for the Google Earth viewshed tool.

IND243-2 The geographic scope of the visual impacts analysis was developed in coordination with the FS, a cooperating agency for the production of this EIS.

IND243-3

Another reason why the three-mile limit is not justified concerns the numerous vantage points within the project area where landscape features can be seen at distances exceeding three miles. These vantage points include locations along two of the North American Continent's premier recreational resources – the Appalachian National Scenic Trail and the Blue Ridge Parkway – both of which are constructed across mountain ridges. Landscape features along Appalachian National Scenic Trail where vantage points enable viewing of land at distances greater than three miles and lands potentially impacted by Mountain Valley Pipeline include Angel's Rest, Kelly's Knob, Rice Fields, Dragon's Tooth, and other points along the trail in winter months. From Angels Rest, for example, parties have a clear view of an extended segment of Peters Mountain which includes proposed crossing point for Mountain Valley Pipeline.

Many other points within the project area enable views of landscapes that include Mountain Valley Pipeline at distances of greater than three miles. For example, Giles County High School in Pearisburg VA is on an elevated location with views of such landscapes.

Visual Analysis: Why is Analysis Based Solely on "Points"?

IND243-4

The DEIS provides no justification for basing the visual analysis solely on "KOPs" (Key Observation points). Whereas that is logical that features serving as essential destinations should be considered as key observation ***points***, it is not a logical to evaluate visual impacts to linear landscape features such as the Appalachian National Scenic Trail, scenic byways, heavily traveled highways based on a limited number of specific points. Hikers and travelers using the linear features have opportunity to experience landscape views over extended segments of travel, not only at specific points.

Visual Analysis: No Clear Criterion for Selection of Key Observation Points.

IND243-5

The DEIS states that Key Observation Points (KOPs) were "selected" by Mountain Valley Pipeline, but no selection criteria are noted.[3]

Of the 61 KOPs evaluated (DEIS Table 4.8.1-10), more than 1/3 (21) are rated as "not visible". As a resident of the potentially affected area, I find certain of the selections to be curious. Why would anyone expect the proposed pipeline to be visible from Cascades Falls, which is located ~2.6 miles from the proposed pipeline, within an area of extreme topographic relief and is densely forested? Why would anyone expect the proposed pipeline to be visible from "Shenandoah Bike Trail and Park", which is within the Town of Blacksburg and without view of mountains that are close to the proposed crossing of Brush Mountain?

Of the remaining 40 KOPs, 11 are described as "screened". Many of those screenings are provided by deciduous vegetation; and visual evaluations appear to have been performed during the leaf-on season.

While public use areas are heavily represented in the KOP selection, few points of primary use by area residents, other than roadways, are in the selection of evaluated KOPs; and certain public use areas (such as those along the Appalachian Trail other than at Peters Mountain) are not evaluated. The point is that no criteria for KOP selection have been articulated, and it appears that no controls have been established to avoid bias, perhaps unintentional, in KOP selection - as well as in visual impact assessment.

[3] DEIS, p. 4-229 (p.466 of 781).

IND243-3 The EIS discusses special status resources such as the ANST in relation to visual resources in section 4.8.

IND243-4 The use of KOP is a standard procedure in visual analyses .

IND243-5 In its application, Mountain Valley stated "KOPs are points chosen in the project area and best represent the most critical viewpoints in the landscape. KOPs are usually chosen along commonly traveled routes, in residential communities, or at other likely observation points, such as an established scenic area as well as any natural, recreational, registered natural landmark that may be affected by the project." Mountain Valley selected KOPs on FS lands in coordination with the FS.

High Impact Observation Points are Excluded

IND243-6

Several critical observation points with likelihood of seeing the corridor been are excluded. These include locations along the Appalachian National Scenic Trail that provide landscape views of the project area, such as Angel's Rest, Rice Fields, Kelly's Knob, Dragon's Tooth, and numerous other points along the trail that provide hikers with landscape views during the winter months.

An unexplained KOP selection concerns public views from Route 42, also known as Blue Grass Trail and as Cumberland Gap Road, in Giles and Craig Counties northeast of Newport. The KOP selected by the DEIS for this area is at milepost 212.1 (As listed in DEIS Table 4.8.1-10, prior to 10/2016 route revision) where the proposed pipeline would cross Route 42/Blue Grass Trail and where views of the crossing are restricted by landscape features. However, the DEIS fails to note the numerous unrestricted views of the pipeline corridor's ascent of Sinking Creek Mountain's northwestern slope (milepost 218.1 – 218.5, 10/2016 route revision) that can be obtained from Route 42 just east of the Giles/Craig County border, in Craig County, such as that noted by Figure 2.

Figure 2. Approximate location of the proposed pipeline's crossing of Sinking Creek Mountain in Craig County, Virginia. Photo was taken from Route 42, a Virginia Scenic Byway, approximately 1/2 mile east of the Craig/Giles County border. Numerous views of the mountain ridge and the ridge crossing are evident from Route 42 over an approximately 2-mile length in this vicinity. These views were not evaluated as Key Observation Points.

IND243-6 While there are undoubtedly many locations that could have served as KOPs, we find Mountain Valley's selection of KOPs acceptable. In our January and March 2017 EIRs we requested that Mountain Valley examine additional KOP along the ANST. Section 4.8 of the final EIS has been revised to provide an updated analysis of visual impacts.

IND243-7

Visual Analysis: Roadway View Ratings are Inconsistent and Unjustified

For example, the I-64 crossing (milepost 156, Table 4.8.1-10) is rated as "high" impact, while the I-81 crossing (milepost 232.7) is rated as "Moderate – traffic at speed" impact despite the lack of evidence for speed differences between I-64 and I-81; and despite the fact that the larger landscape that would be bisected by the pipeline corridor at the I-81 crossing is quite visible. While it is understandable that a driver's appreciation of landscape views would be affected by traffic speed (since, presumably, the driver is focused on the road), passenger views of extended landscapes would not be affected by vehicle speed.

Nine of the 61 KOP ratings (15%), and nine of the 30 KOP ratings for which the pipeline is said to be visible (30%) are influenced by traffic speed considerations. Such considerations are not valid or justified when the pipeline corridor would be visible within a larger landscape that can be viewed from the roadway, such as occurs at the Route 81 crossing and likely occurs for other roadway as well.

IND243-8

DEIS Does Not Use Current Technology to Evaluate Visual Impacts

The DEIS relies solely on photographs from a limited number of observation points to draw conclusions that concern visual impacts; while failing to utilize technologies for evaluating landscape visibility. The visual impact assessment fails to make use landscape visibility evaluation tools that are common of commercial GIS software – and even in public-source software tools such as is demonstrated by Figure 1. Such tools can enable more comprehensive visibility evaluations than can be obtained as photo-like views from single viewpoints.

IND243-9

DEIS Proposals Fail to Minimize Adverse Impacts to Visual Resources:

The DEIS concludes that "With implementation of the Applicants' Plans, we conclude that overall impacts on … visual resources would be adequately minimized." [4] This statement is not supported, as the applicant's Plans fail to minimize visual resource impacts.

The deforested construction corridor is planned for 125 feet in width. Although the DEIS claims that the corridor width will reduce to 50 feet via natural regeneration, that claim is highly problematic. As documented in associated comments to FERC,[5] the applicant has failed to propose Plans that will ensure and accelerate re-establishment of forest vegetation in temporary workspaces. In the absence of such Plans, adverse effects to forest are not minimized; and, since the width of the deforested corridor directly influences its visibility, adverse impacts to visual resources are not minimized as well.

In the project area, landscapes are predominantly forested. Forests are prevalent on the mountains, and mountains are readily visible from long distances. Deforested corridors on mountainsides are, typically and generally, are easily visible to parties who are in locations with views of those mountainsides. Generally, reason would suggest that a narrower deforested corridor in a forested mountainside would be less apparent, visually, than a wider deforested corridor (see Figure 3); but the DEIS fails to describe Plans that will ensure and accelerate reduction of deforested corridors' widths from 125 to 50 feet. Therefore, the DEIS claim that adverse impacts to visual resources would be "minimized" is false.

[4] DEIA, p. 5-8 (p. 763 of 781).
[5] My letter concerning adverse effects to forest and submitted to the FERC Docket on this same date.

5

IND243-7 Speed is a factor when analyzing visual impacts from vehicles. The faster a car goes by a KOP, the shorter the timeframe for the view.

IND243-8 Visual analyses were conducted by Mountain Valley using a method developed in coordination with the FS, a cooperating agency for the production of this EIS.

IND243-9 Section 4.8 of the final EIS has been revised to provide an updated analysis of visual impacts.

Figure 3. The deforested corridor caused by construction of the Columbia Gas pipeline in Giles County, Virginia. The photograph shows that the deforested corridor's width influences its visibility. In the foreground is the Celco plant, Giles County. (Photo by Brian Murphy, used by permission).

IND243-10

Plans Claimed as Mitigating Adverse Visual Impacts Are Problematic:

In support of the conclusion, the DEIS includes the following statement: "With implementation of the Applicants' Plans, we conclude that overall impacts on land use and visual resources would be adequately minimized." [6] In my review of the DEIS, I am finding four specific actions described as intended to reduce adverse effects to visual resources:

1. Bore under the Appalachian Trail, so as to reduce adverse effects to visual resources experienced by to trail users at the crossing point.
2. Cross the Blue Ridge Parkway in an area of open field, so as to reduce adverse effects to visual resources experienced by to trail users at the crossing point
3. The applicant states an intent to ensure right-of-way vegetation that avoids bare soil;
4. The applicant states intent to locate compressor stations in areas with few visual receptors.

[6] DEIA, p. 5-8 (p. 763 of 781).

IND243-10 Section 4.8 of the final EIS has been revised to provide an updated analysis of visual impacts.

IND243-10 cont'd

Of the four actions described by the DEIS as intended to reduce visual effects, two (Nos. 3 and 4) clearly are intended to address federal legal issues that have potential to prevent pipeline construction (Clean Water Act and federal noise limits), and two (Nos. 1 and 2) have not been demonstrated as effective.

Proposed action number 3 would, presumably, be essential to compliance with Clean Water Act requirement, as thorough revegetation is essential to erosion limitation and contril; while proposed action number 4 would also enable minimization of compressors' audible impacts to nearest receptors, as needed to comply with 18 CFR 380.12(k)(4)(v)(A). Claiming these actions as intended to minimize visual impacts is disingenuous, at best.

Despite proposed action number 1, the pipeline's construction would diminish visual resource experiences by users of the Appalachian National Scenic Trail. I use that term, rather than the colloquial "Appalachian Trail" in light of the Trail's designation by US National Park Service, which includes the word "Scenic".[7] I also use it while noting that the DEIS proposes to degrade the Trail's scenic character: The DEIS proposes that Scenic Integrity Objectives for the Peters Mountain crossing location be reduced from "High" to "Moderate"; and that the "Moderate" designation for that location should be relaxed for a period of 5 to 10 years.

I will also note that the Appalachian Trail Conference has stated strong concerns with the DEIS proposals for reasons that include proposed visual impact at Peters Mountain and at other locations, and the fact that the proposed Trail crossing is in an area of unbroken forest while ignoring other potential routes across the Trail already impacted by development.[8] Clearly, proposed action number 1 has only limited effectiveness and cannot be considered as "minimizing" adverse effects to visual resources.

I am unfamiliar with the Blue Ridge Parkway crossing, and am unable to offer informed comment on that crossing.

IND243-11

Visual Resource Impacts are Not Insignificant:

The proposed pipeline's adverse effects on visual resources is relevant to the DEIS. As noted by FERC's certification policy for new natural gas pipelines, "the Commission will approve an application for a certificate only if the public benefits from the project outweigh any adverse effects." FERC's policy for certification of new natural-gas pipelines[9] emphasizes economic effects. Therefore, effects by the proposed pipeline on affected areas' economic prospects are of direct relevance to FERC's certification decision.

Identities and economic plans of affected counties emphasize environmental amenities that would be adversely affected by the proposed pipeline's construction. Underlines have been added to emphasize key points in the text excerpts that follow.

Summers County WV: The County has prepared a plan entitled "Summers County 2020 A Community Vision Shared"[10] which begins with a section entitled "Background", the first sentence of which reads

[7] https://www.nps.gov/appa/index.htm
[8] Comments by Laura Belleville, Appalachian Trail Conference, at the FERC hearing in Roanoke, 3 November 2016, submittal 20161103-4005 to FERC Docket CP16-10.
[9] Statement of Policy, Certification of New Interstate Natural Gas Pipeline Facilities. FERC Docket No. PL99-3-000, 15 September 1999. Federal Energy Regulatory Commission (FERC).
[10] http://summerscountywv.org/uploads/New%20SumCo%202020%20Plan.pdf

IND243-11 Section 4.8 of the final EIS has been revised to provide an updated analysis of visual impacts.

IND243-11 cont'd

"Summers County, nestled in the heart of the Allegheny Mountains is a place of breathtaking scenic beauty, abundant natural resources, and strong, resilient communities."

The Summers County Plan's Goals and Objectives include a Goal 2:

"To develop as a gateway tourism community."

Monroe County WV: The County's Strategic Plan[11] includes a Goal 2, Economic Development, which is stated as:

"Purpose: Identify development opportunities that best meet the rural nature of Monroe County; continue promotion of sustainable industries such as agriculture, small industry, forestry, tourism and recreation, and service oriented businesses."

Giles County VA: The County's website is entitled "Virginia's Mountain Playground".[12] The first section of text on that website states

"Live the Life You've Dreamed of - Life in Giles is a delightful combination of friendly neighbors, beautiful farmlands, quaint towns with award winning restaurants, and businesses, vast river and mountain views …"

The Giles County Strategic Plan's[13] Goal 2 is to

"Encourage and assist the stimulation of economic activity in the County, New River Valley and the State to achieve a healthy, diverse economy while maintaining the scenic beauty and environmental quality."

Montgomery County VA: The first sentence of text on the home page of the County's economic development website[14] states:

"Nestled in the beautiful mountains of Virginia, Montgomery County is a progressive, technology-driven community with an abundance of lifestyle amenities …"

Franklin County VA: The County's economic development website[15] is subtitled as "A *Natural Setting* for Opportunity".

Conclusion:

The DEIS has failed to consider adequately adverse effects of the proposed pipeline, if constructed, on visual resources within the project area.

- Visual resource evaluations are restricted to three miles in a region where longer-range views occur; this restriction is not justified.
- Visual resource evaluations are based on views from specific points; but criteria for selection of those points, and for evaluation of visual resource impacts at those points are not stated; and potential visual impacts to certain well-known vantage points and at multiple points along corridors are not evaluated.

[11] http://www.monroecountywv.net/Forms/County_Plan/CCP.pdf
[12] http://www.virginiasmtnplayground.com/
[13] http://www.virginiasmtnplayground.com/wp-content/uploads/2016/02/Giles-Co-Comp-Plan-2012.pdf
[14] http://www.yesmontgomeryva.org/
[15] http://www.yesfranklincountyva.org/

IND243-11 cont'd

- Landscape visual-effect analysis technologies that are common in geographic analysis software, and would enable a more thorough and unbiased analysis visual resources effects if employed competently, have not been applied to aid the visual effects analysis.
- By failing to prescribe procedures that will ensure and accelerate regeneration of forest vegetation similar in composition to adjacent areas for temporary workspaces, the DEIS fails to minimize adverse effects to visual resources.

The DEIS method for evaluating adverse effects to visual resources is inadequate; and, hence, the evaluation is inadequate. The DEIS has failed to demonstrate a lack of adverse effects for visual resources, as claimed. Visual resources are important to local economies, and adverse effects are significant to FERC's certification decision, yet FERC has failed to consider adequately effects to visual resources in its preparation of the DEIS.

I am a registered intervenor in the Docket CP16-10 proceedings, and I am sending these comments to the full service list via e-mail as per FERC policies.

With regards,

Carl E. Zipper
Blacksburg Virginia 24060

Cc: US Forest Service, comments-southern-georgewashington-jefferson@fs.fed.us
US Bureau of Land Management, vcraft@blm.gov, mliberat@blm.gov
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20 November 2016

Ms. Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission (FERC)
888 First Street, N.E.
Washington, DC 20426

Re: Mountain Valley Pipeline proposal, Docket No. CP 16-10
Draft Environmental Impact Statement
Adverse Effects to Forest Resources are not Minimized

Dear Ms. Bose and Members of the Commission,

IND244-1 I am writing to comment on the Draft Environmental Impact Statement (DEIS) for the Mountain Valley pipeline application. My comments here concern the adverse effects on forest resources that are described by the DEIS.

DEIS terms are not clear, as they concern FERC Certification Policy[1]

The DEIS "Conclusions and Recommendations" state that

"We determined that construction and operation of the MVP and the EEP would result in limited adverse environmental impacts, with the exception of impacts on forested land."[2]

The DEIS also states

"… we conclude that the projects would have significant impacts on forest" [3]

"we have determined that the MVP would result in significant impacts on large acreages of upland forest" [4]

"In section 4.4.2.3, we determined that the MVP would result in significant impacts on large acreages of upland forest."[6]

and, when stating conclusions,

"…we conclude that the projects would have significant impacts on forest." [6]

FERC's Certification Policy for New Natural Gas Pipelines states that

"… the Commission will approve an application for a certificate only if the public benefits from the project outweigh any adverse effects."

The term "adverse effects" is of significance to FERC's execution of its mission, yet the DEIS fails to clarify if "significant impacts" to forest resources are equivalent to "adverse effects". Given that FERC is lead agency in preparing the DEIS, the DEIS should be clear in its statements and terms that concern FERC's own policies.

[1] Certification of New Interstate Natural Gas Pipeline Facilities, FERC Docket No. PL99-3-000. Statement of Policy issued September 15, 1999

[2] Section 5.1, Conclusions of the Environmental Analysis; p. 5-1 (p.756 of 781).

[3] DEIS, p. ES-6 (p. 39 of 781).

[4] DEIS, p. 4-146 (p. 393 of 781).

[5] DEIS, p. 4-162 (p. 399 of 481).

[6] Section 5.1.5, Vegetation; p.5-5 (p. 760 of 781)

IND244-1 The draft EIS concluded that the MVP would result in an adverse impacts on forest resources.

IND244-2

DEIS describes impacts to forest resources that are "adverse effects" under NEPA

The statements concerning forest resource impacts occur within a DEIS that has been prepared in accord with the National Environmental Policy Act (NEPA).[7] NEPA Section 102 states that

*"… all agencies of the Federal Government shall … include in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on … (ii) any **adverse environmental effects** which cannot be avoided should the proposal be implemented."* [emphasis added]

Federal regulations implementing NEPA define the term "effects" in a manner that makes it clear that the "impacts" to forest resources described by the DEIS are "effects" under NEPA:

"Effects and impacts as used in these regulations are synonymous. Effects includes ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems) …"[8]

The "significant impacts on forest" described by the DEIS are clearly adverse, and clearly environmental; and, hence and considering the above, those impacts are clearly "adverse effects" and "adverse environmental effects" under NEPA.[9]

IND244-3

DEIS fails describe forest resources effects in a manner that is consistent with NEPA

Federal regulations implementing NEPA state:

*"Effects include: (a) **Direct effects**, which are caused by the action and occur at the same time and place. (b) **Indirect effects**, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems."*[10] [emphases added]

The DEIS describes and quantifies certain direct effects of proposed pipeline construction on forest resources: It states clearly that forest ecosystems would be removed from areas planned for disturbance. Also, the DEIS includes qualitative descriptions of forest resource effects that would occur outside of areas proposed for disturbance;[11] such effects should be described as "indirect effects", since the DEIS is being prepared in accord with NEPA. The term "indirect effects" is not used in the DEIS; and the DEIS describes effects of pipeline construction (as proposed) in a manner that indicates direct effects constitute the totality of effects. For example, the DEIS states that

"Constructing the Mountain Valley aboveground facilities would affect about 86 acres of forest. Contractor yards would affect about 23 acres of forest. Operating the pipeline

[7] See 42 U.S. Code Chapter 55, and related sections of U.S. Code.

[8] 40 CFR 1508.8

[9] FERC's statement of "limited adverse environmental impacts, with the exception of impacts on forested land" (DEIS, p. p. 5-1, p.756 of 781) confirms this interpretation.

[10] 40 CFR 1508.8. Portions of this text are also quoted by the DEIS, p.4-1 (p. 238 of 781).

[11] Section 4.4.2.3 Interior Forest Fragmentation and Edge Effects, starts on p. 4-144 (p. 381 of 781).

IND244-2 See the response to IND244-1.

IND244-3 The draft EIS addresses both direct and indirect effects as applicable.

IND244-3 cont'd

would affect about 1,489 acres of forest. Operating the aboveground facilities would result in the permanent loss of about 20 acres of forest."[12]

Also, DEIS data presentations indicate that direct effects of pipeline construction -- forest removal within the construction corridor and for associated facilities -- constitute the full range of effects on forest resources:

Table 4.4.2-1. Vegetation Communities Affected by Construction and Operation of the Mountain Valley Project and the Equitrans Expansion Project.

Table 4.4.2-1. Core Forest Areas Affected by the Mountain Valley Project and Equitrans Expansion Project in West Virginia.

Table 4.2.2-2. Ecological Core Areas Affected by the Mountain Valley Project in Virginia.

Table 4.8.1-1. Land Use Types Affected by Construction and Operation of the Mountain Valley Project and the Equitrans Expansion Project

The above-listed tables and text are presented using the terms "affect" and "affected by" which indicate that tables describe "effects", when in fact those tables describe only direct effects and fail to describe indirect effects. Because indirect effects also occur, these presentations are misleading and incorrect in a NEPA context.

The DEIS should be clear in stating potential adverse effects on forest resources include both direct and indirect effects; and should be clear in describing proposed indirect effects.

IND244-4

DEIS fails to provide "detailed" description of adverse effects on forest resources: NEPA

As noted above, NEPA Section 102 requires that when preparing documents such as the DEIS, federal agencies shall include

"… a detailed statement by the responsible official on … (ii) any adverse environmental effects which cannot be avoided should the proposal be implemented."

The above statement includes the word "detailed", suggesting a quantitative presentation when possible. The DEIS proposes to cause adverse effects to forest resources. Given NEPA requirements, why does the DEIS fail to quantify *indirect* adverse effects to forest resources?

Clearly, lack of scientific information cannot be the reason. There is a depth of scientific literature that indicates distances by which effects of partial forest removal extend into the forest that remains. The DEIS acknowledges that by stating:

*"Interior forest is defined as forested areas **greater than 300 feet** from the influence of forest edges or open habitat (Jones et al., 2001); and it provides habitat for a variety of wildlife and plant species, including food resources, brooding habitat for wildlife, and protection from disturbance and predation. Interior forest has a higher habitat value for some wildlife species, and is generally considered rarer than forest edges which have lower habitat value for many species and can be created immediately with disturbance [and text following] …"*[13] [emphasis added]

"The loss of forest habitat, expansion of existing corridors, and the creation of open early successional and induced edge habitats could decrease the quality of habitat for forest interior wildlife species in a corridor much wider than the actual cleared right-of-way. The distance an edge effect extends into a woodland is variable, but most studies suggest

[12] DEIS, p. 4-141 (p. 378 of 781).
[13] DEIS, p. 4-131 (p. 368 of 781).

IND244-4 Sections 4.4 and 4.5 of the final EIS have been updated to discuss indirect effects on interior forest.

IND244-4 cont'd

at least 300 feet *(Rodewald, 2001; Jones, et al., 2000; Ontario Ministry of Natural Resources, 2000; Robbins, 1988; Rosenberg, et al., 1999). Edge effects within this distance could include a change in available habitat for some species due to an increase in light and temperature levels on the forest floor and the subsequent reduction in soil moisture; such changes may result in habitat that would no longer be suitable for species that require these specific habitat conditions, such as salamanders and many types of plants. …"*[14] [emphasis added]

Although the DEIS indicates minimum distances that indirect effects would extend into adjacent forest, it fails estimate that extent more precisely despite additional studies that do so. For example, Harper et al. (2005)[15] review scientific literature on forest "edge effects" and include a Table 3(b) which quantifies distance of edge influence for 21 edge effects which have been documented by scientific studies; those distances of edge-effect influence range up to 500 m for "species composition", a fundamental characteristic of forests. The article cites studies from eastern USA and from other areas as supporting studies

The DEIS should fully quantify the adverse effects to forest that are proposed by the DEIS. In addition to direct effects, the DEIS should quantify forest areas that are proposed for indirect adverse effects, and should state the nature of indirect adverse effects likely to occur over those areas if the pipeline were to be constructed as proposed. Only by doing so will the DEIS provide a "detailed statement" of "adverse environmental effects", as per NEPA requirements.

IND244-5

DEIS fails to prescribe "practicable means" that are available to mitigate adverse effects as per NEPA requirements

NEPA regulations require minimization of adverse effects when avoidance of such effects is not possible:

"Federal agencies shall, to the fullest extent possible … Use all ***practicable means,*** *consistent with the requirements of the Act and other essential considerations of national policy, to restore and enhance the quality of the human environment and avoid or minimize any possible adverse effects of their actions upon the quality of the human environment."*[16] [emphasis added]

Although FERC's Certification Policy does not appear to ***require*** that applicants avoid when possible, and minimize otherwise, adverse effects of new pipeline construction,[17] one can presume that FERC would require such given that the DEIS has been prepared in accord with NEPA.

The DEIS states that the adverse effects on forest resources would have temporal as well as spatial dimensions; as the time required for forest regeneration within temporary workspaces contributes to the adverse effects. For example, in discussing vegetation impacts, the DEIS states [with emphases added]:

"The degree of impact would depend upon the type and amount of vegetation, the ***rate*** *of vegetation regeneration …"*[18]

[14] DEIS, p. 4-161 {(p. 398 of 781}.

[15] Harper KA et al. 2005. Edge influence on forest structure and composition in fragmented landscapes. Conservation Biology 19: 768-782.

[16] 40 CFR 1500.2

[17] For example, the Policy states that applicants "are *encouraged* to submit applications designed to avoid or minimize adverse effects on relevant interests including effects … affected landowners and communities" p. 28.

[18] DEIS, P. 4-141 (p.378 of 781).

IND244-5 The final EIS has been updated in regard to potential mitigation for forest impacts.

IND244-5 cont'd

*"Following construction, temporary workspaces would be allowed to regenerate. However, in forest the regeneration of trees would take **many years**, resulting in a long-term effect on forested vegetation."* [19]

*"While the impacts at an ecoregion level would be small, the permanent removal of forest areas for the operation of the MVP, as well as **the time that would be needed for the forest to recover** within the temporary right-of-way, would be long-term. Therefore, despite impacting a small percentage of the surrounding ecoregions, collocating a portion of the pipeline with existing utilities, and implementing right-of-way restoration measures, we have determined that the MVP would result in significant impacts on large acreages of upland forest."* [20]

The DEIS also states Conclusions and Recommendations that include:

*"However, in considering the total acres of forest affected, the quality and use of forest for wildlife habitat, and **the time required** for full restoration in temporary workspaces, we conclude that the projects would have significant impacts on forest."* [21]

In other words, the expectation of lengthy recovery time of forest resources within temporary work areas was a factor considered by FERC in its designation of impacts to forest resources as "significant"; yet, the DEIS fails to prescribe practicable means to ensure and accelerate regeneration and to otherwise reduce or mitigate adverse effects. At least three methods, all practicable, are available.

1. A requirement for the applicant to re-establish in temporary workspaces[22] forest vegetation that has grown to height that is adequate to survive deer browse within some reasonable time frame.
2. A requirement for the applicant to prevent establishment, in previously forested areas disturbed by construction and in immediately adjacent forest, exotic and invasive plants that would cause additional adverse impacts.
3. A requirement for the applicant to ensure that its various "Plans", incorporated into the DEIS by reference,[23] will support (1) and (2) above and will be consistent with one another and with the DEIS proper.

I present these comments as an owner of forested land in Montgomery County, Virginia, who endeavors to maintain the majority of my property in a forested condition and to exclude exotic and invasive species in forested areas; and as a Ph.D. scientist who has published peer-reviewed articles that are of direct relevance to the issue at hand.

IND244-6

The DEIS fails to prescribe active reforestation of temporary workspaces, which is a practicable means for partial mitigation of adverse effects:

The DEIS assumes that forest vegetation similar to adjacent forest would re-establish via natural processes within temporary workspaces; this is highly unlikely given what is proposed by

[19] Ibid. (DEIS, P. 4-141, p.378 of 781).

[20] DEIS, p. 4-146 (p. 383 of 781).

[21] DEIS, p. 5-5 (p. 760 of 781).

[22] The term "temporary workspaces", as used here, is intended to mean all areas disturbed by construction that would not be within the 50-foot right-of-way easement, if the pipeline is constructed as proposed, and would not be required for continuing use by the pipeline. I add this footnote while noting that the DEIS uses the term "temporary work areas" and "temporary workspaces" multiple times but fails to define them.

[23] DEIS, Table 2.4-2 (p. 2-34 and 2-35; or p. 123-124 of 781); and subsequent revisions.

IND244-6 Invasive species are addressed in section 4.4 of the EIS. See also the response to comment IND343-1 regarding invasive species. The FERC would monitor Mountain Valley's invasive species program as part of its third-party monitoring program discussed in section 2.4 of the EIS and in the response to comment IND152-1. The FERC does not automatically require topsoil segregation in forested areas, but it can be requested by a landowner or land managing agency. Based on our experience with similar projects in West Virginia and Virginia, natural reforestation is effective.

IND244-6 cont'd

the DEIS due to the absence of invasive plant controls; even so, an active program to reestablish forest trees via replanting, protection, and follow-up management would accelerate forest regeneration in temporary workspaces relative to natural regeneration, and therefore would mitigate adverse effects to a greater extent than is proposed by the DEIS. Activities that could be conducted to ensure and accelerate forest regeneration in temporary workspaces, and mitigate adverse effects to forest resources to a greater extent that what is proposed by the DEIS, are practicable are described below.

Topsoil Salvage and Replacement: Mountain Valley Pipeline and the DEIS plan to disturb, severely and drastically, soils within the deforested areas. As noted by the DEIS,

> *"Clearing and grading would remove trees, shrubs, brush, roots, and large rocks from the construction work area and would level the right-of-way surface to allow operation of construction equipment."*[24]

Therefore, the surface soils that aid natural forest regeneration in areas of forest timber harvest will not be present, and thus will not contribute to forest regeneration within the construction areas. Although specifying topsoil segregation and respreading for agricultural and residential areas, that practice is not specified for forested areas. As described by the DEIS for residential and agricultural areas:

> *"Topsoil would be segregated over the trench line and spoil storage areas, except in certain locations such as saturated soils (see section 4.2.2). This would allow for the **existing seed bank** in the topsoil to be retained and **promote increased vegetation success**."*[25] [emphases added]

Since topsoil segregation and respreading are prescribed for agricultural and residential areas, it is clearly practicable over temporary workspace areas that are not excessively steep slopes. In essence, the DEIS proposes that surface soils within temporary workspaces would be composed primarily of subsoils following construction -- but while recognizing that surface soils hold seed and other propagules that aid revegetation; and, hence, would that aid in regeneration of vegetation if replaced. Hence, the DEIS fails to prescribe a practice that would aid in mitigation of adverse effects.

IND244-7

Amelioration of Soil Compaction: When discussing compaction-prone soils, the DEIS states:

> *"Potential impacts on compaction prone soils would be minimized by limiting construction traffic along the right-of-way. Mountain Valley's EIs would conduct topsoil and subsoil compaction tests in agricultural and residential areas using a penetrometer or other appropriate device at regular intervals. The results of the compaction tests would be compared and matched to undisturbed soil under similar moisture conditions to ensure any affected soils are properly decompacted. If compaction is found to have occurred, the area would be tilled and retested. If additional decompaction of the area is required, deep tilling would be used."*[26]

The DEIS, however, fails to specify that soil compaction testing, and decompaction of compacted soils, will be conducted in forested areas. Clearly, high soil densities (compacted soils) can limit establishment and growth of forest trees, as dense soils impair root growth, water movement, and soil air exchange, all processes that are essential to productive growth of forest

[24] Section 2.4.2.2 Clearing and Grading, p. 2-38 (p. 127 of 781).
[25] DEIS, P. 4-144 (p. 381 of 781).
[26] DEIS, p. 4-66 (p. 303 of 781).

IND244-7 The FERC does not require soil compaction testing and mitigation in forested areas.

IND244-7 cont'd

trees.[27] Amelioration of soil compaction, when compaction occurs on coal surface mines, is a recommended practice for reforestation of these areas,[28] and its effectiveness been demonstrated.[29]

The DEIS provides no reasoning for failing to propose soil compaction testing and decompaction procedures for temporary workspaces in forested areas. Amelioration of soil compaction in temporary workspaces can be expected to aid survival and growth of forest trees in these areas and, hence, to mitigate some of the adverse effects to forest resources that would occur if the pipeline is constructed.

Temporary workspaces in forested areas include 671 acres of access roads and work areas,[30] most or all of which can be presumed to experience soil compaction during construction since they will be subjected to traffic by construction equipment. Amelioration of soil compaction in these areas would be especially critical to the mitigation of adverse effects, given that forest regeneration in such areas would reduce forest fragmentation and edge effects. [31]

Given that soil compaction testing and decompaction procedures are prescribed by the DEIS for agricultural and residential areas, they are clearly practicable.

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[27] Numerous can be cited to support this statement, including:

Bassett IE et al. (2005). Consequences of soil compaction for seedling establishment: implications for natural regeneration and restoration. Australian Ecology 30: 827-833.

Bejarano MD et al. (2010). Effects of soil compaction and light on growth of Quercus pyrenaica Willd. (Fagaceae) seedlings. Soil and Tillage Research 110: 108-114.

Bulmer CE, DG Simpson (2005). Soil compaction and water content as factors affecting the growth of lodgepole pine seedlings on sandy clay loam soil. Canadian Journal of Soil Science 85: 667-679.

Day SD, NL Bassuk (1994). A review of the effects of soil compaction and amelioration treatments on landscape trees. Journal of Arboriculture 20: 9-17.

Kozlowski TT (1999). Soil compaction and growth of woody plants. Scandinavian Journal of Forest Research 4: 596-619.

Morris LA et al. (2006). An approach for using general soil physical condition–root growth relationships to predict seedling growth response to site preparation tillage in loblolly pine plantations. Forest Ecology and Management, 227; 169-177.

Siegel-Issem CM et al. (2005). Seedling root growth as a function of soil density and water content. Soil Science Society of America Journal 69: 215-226.

[28] Burger JA et al. 2013. Establishing native trees on legacy surface mines. US Office of Surface Mining Appalachian Regional Reforestation Initiative Advisory No. 11. http://arri.osmre.gov/

Sweigard R et al. 2007. Loosening compacted soils on mine sites. US Office of Surface Mining Appalachian Regional Reforestation Initiative Advisory No. 4. http://arri.osmre.gov/

[29] Fields-Johnson CW et al. 2014. Ripping improves tree survival and growth on unused reclaimed mined lands. Environmental Management 53: 1059-1065.

Burger JA, DM Evans (2010) Ripping compacted mine soils improved tree growth 18 years after planting. In: Proceedings of the 27th annual meeting of American Society for Mining and Reclamation, Lexington, KY, USA

Evans DM et al. (2013) Reforestation practice for enhancement of ecosystem services on a compacted surface mine. Ecological Engineering 51:16-23.

Skousen J et al. (2009) Hardwood tree survival in heavy ground cover on reclaimed land in West Virginia: mowing and ripping effects. Journal of Environmental Quality 38:1400–1409

[30] DEIS, Table 4.4.2-1, p. 4-142 (p. 379 of 781).

[31] The need for active and effective reforestation of non-corridor temporary workspaces areas, as a means of partially mitigating adverse effects to forest resources, is addressed further below in discussion of the Migratory Bird Conservation Plan.

IND244-8 *Re-Planting of trees and associated management:* FERC also fails to prescribe the practice that would be most effective if the goal is to accelerate forest regeneration: the re-planting of forest trees in association with management practices to encourage their survival and growth.

My own experience as an owner and manager in Montgomery County VA near the proposed corridor confirms the need for an active reforestation program to ensure forest tree re-establishment. Over 19 years, I have seen no voluntary re-establishment of native deciduous hardwoods on an ~3 acre area with herbaceous vegetation that is adjacent to a forested area with multiple native tree species and dominated by oaks (*Quercus spp.*); the boundary between these two areas is approximately 800 feet in length. In contrast, those native deciduous trees that I have planted in the herbaceous-vegetation area with protection from deer browse are established and growing well.

Although trees are typically not planted as a means of accelerating regeneration in Appalachian forest-harvest areas, regeneration in those areas is aided by the intact forest soils, which include living seeds and roots. Such soils are planned for removal by the DEIS.

My experience on Appalachian coal mine sites is that, in the absence of replanting, forest trees regenerate slowly if at all in those highly altered soils, even where soil chemical and physical properties appear as otherwise suitable for forest tree regeneration;[32] and that replanting of trees in suitable soils and with tree-compatible herbaceous vegetation accelerates forest re-establishment.[33]

Surface coal mines throughout Appalachia routinely plant forest trees on areas that are hundreds of acres in size.[34] Planting contractors servicing the coal mining industry have the capability to supply and plant 100s of thousands of trees on individual jobs; and individual contractors plant millions of trees annually in areas that include natural-gas pipeline corridors where tree-planting has been prescribed as a regulatory condition.[35] Hence, replanting of forest trees on temporary workspace areas by Mountain Valley Pipeline LLC, which proposes to spend more $3 billion for pipeline construction, is clearly practicable.

Although topsoil segregation and respreading can aid re-establishment of forest plant communities (including understory) in disturbed areas, it is typically not relied upon as a sole means for re-establishing forest trees. This practice is discussed in a peer-reviewed publication by a multi-national collaboration of experienced mine reforestation researchers:

> *"Plant propagules in forest floor material lose their viability quickly if the material is stockpiled prior to placement but direct placement of forest floor material can overcome this problem and has shown promise in trials in several different locations" [followed by several cited references]*

[32] Zipper CE et al. 2011. Forest restoration potentials of coal mined lands in the eastern United States. Journal of Environmental Quality 40:1567-1577.

[33] The discussion above is informed by my involvement in mine land reforestation research and outreach -- see the following and other publications that I have co-authored:

Zipper CE et al. 2011. Restoring forests and associated ecosystem services on Appalachian coal surface mines. Environmental Management 47:751–765.

Zipper CE et al. 2013. Rebuilding soils on mined land for native forests in Appalachia, USA. Soil Science Society of American Journal 77: 337-349.Appalachian Regional Reforestation Initiative,

http://arri.osmre.gov/Publications/Publications.shtm, Forest Reclamation Advisories (multiple authors, including CE Zipper).

[34] See US Office of Surface Mining Reclamation and Enforcement, Annual Evaluation Reports for States and Tribes, http://www.osmre.gov/Reports/EvalInfo/EvalInfo.shtm. For example, see reports submitted by Virginia and West Virginia state agencies, search on "forest".

[35] Personal communication, Rick Williams, Williams Forestry & Associates. 14 November 2016.

IND244-8 We do not believe that re-planting of trees in this ecoregion on this scale would provide a significant advantage to natural reforestation. Replanting would limit the species planted to what is commercially available on a very large scale. Natural recruitment would allow for a more highly variable plant species and also would allow for species to regenerate that are best suited for the local conditions.

IND244-8 cont'd

and who also note that, for the purpose of establishing forest trees

"the outcomes of natural regeneration are less predictable and generally much slower"

than re-establishing trees using the more common practice of hand planting.[36]

IND244-9

Protection from Deer-Browse: Deer browse is inhibiting regeneration by native trees in forested areas of my property, as I am seeing very little natural regeneration of the native trees even where the forest has suffered canopy loss. It is clear that this condition occurs due to excessive deer browse because groups of white-tailed deer are foraging during all seasons; native deciduous hardwoods are regenerating within deer exclosures that I have established; and the forest trees I have planted on my property with browsing protections are growing well but those established without such protections have not been successful. The contention that forest regeneration can be inhibited by excessive deer browse are confirmed by scientific literature.[37]. Based on my experience with property close to the proposed pipeline, corridor, it is clear that deer populations with potential to impair natural regeneration via excessive browsing occur in at least one section of the project area; they may occur in other sections also.

Forest trees are established routinely in many areas of the USA, including Appalachia, for the purpose of establishing riparian buffers for watershed protection purposes.[38] Devices to protect planted trees from browsing animals are available commercially, and are recommended for use in riparian buffer reforestation plantings when planted trees would otherwise be threatened by browsing wildlife.[39] Hence, mechanisms to protect planted trees from browsing animals, in areas of high white-tailed deer browsing pressure, are available for modest cost and, hence, are clearly practicable.

IND244-10

Invasive Plant Controls: Exotic invasive plant control would also be needed to enable establishment and regeneration in temporary workspaces of plant communities that would resemble those of adjacent forests when mature. I state the above while expecting that forest vegetation in many of the areas proposed for disturbance is comprised predominantly of solely of native plants, given that the proposed pipeline

"… would pass through 24 core forest areas in West Virginia … which would result in temporary impacts from construction on about 2,424 acres of large core forest areas (greater than 500 acres) and permanent impacts from operations on about 865 acres of

[36] Macdonald SE et al. (2015). Forest restoration following surface mining disturbance: challenges and solutions. New Forests, 46(5-6), 703-732.

[37] e.g., see Rossell CR et al. 2007. Effects of deer browsing on native and non-native vegetation in a mixed oak-beech forest on the Atlantic coastal plain. Northeastern Naturalist 14: 61-72.

Rawinski TJ & N Square. 2008. Impacts of white-tailed deer overabundance in forest ecosystems: an overview. USDA Forest Service, Newton Square, PA. https://www.na.fs.fed.us/fhp/special_interests/white_tailed_deer.pdf

DiTommaso A et al. 2014. Deer browsing delays succession by altering aboveground vegetation and belowground seed banks. PloS one, 9: p.e91155. http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0091155

Small CJ, JL Chamberlain. 2015. Forest diversity and disturbance: changing influences and the future of Virginia's Forests. Virginia Journal of Science 66(3&4): 1-21.

[38] Correll DL. 2005. Principles of Planning and Establishment of Buffer Zones. Ecological Engineering 24: 433–439.

Agouridis CL et al. Planting a Riparian Buffer. University of Kentucky Cooperative Extension Publication ID-185.

Palone R, A Todd. 1998. Chesapeake Bay riparian handbook: a guide for establishing and maintaining riparian forest buffers. USDA Forest Service. NA-TP-02-97. Radnor, PA.

[39] Agouridis CL et al. Planting a Riparian Buffer. University of Kentucky Cooperative Extension Publication ID-185. See Figure 3.

IND244-9 Since Mountain Valley has not proposed, nor will we require, re-planting of trees the concept of installing protection from deer browse is moot.

IND244-10 Invasive species are addressed in section 4.4 of the EIS. See also the response to comment IND343-1 regarding invasive species.

IND244-10 cont'd

large core forest areas. … In Virginia, the MVP would pass through 17 [ecological core areas] categorized as Outstanding, Very High, or High … Construction of the MVP in Virginia would result in temporary impacts on about 500 acres of ECA categorized as Outstanding to High and permanent impacts on about 195 acres of ECA categorized as Outstanding to High."[40]

For example: If exotic invasive plants that capable of occupying overstory, such as *Ailanthus altissima* and *Paulownia tomentosa,* or capable of invading and persisting in forest understories, such as *Elaeagnus umbellata*, *Lespedeza cuneata*, *Microstegium vimine*um, and *Rosa Multiflora* -– were to become established in temporary workspaces, natural regeneration would be unlikely to restore native forest plant communities. All of these species are present in the project area.[41] I discuss specifics concerning inadequacies of proposed exotic invasive plant controls below.

The Wildlife Habitat Council is cited at multiple locations in the DEIS. The Wildlife Habitat Council has prepared a document entitled "Invasive Species Project Guidance" to describe invasive species projects that can be implemented by corporate landowners for purposes such as wildlife habitat management and restoration.[42] The document describes measures that can be undertaken by corporate landowners for the purpose of preventing establishment of invasive exotic species, and for controlling or eradicating invasive species that do become established. The Wildlife Habitat Council is funded by corporate land managers, and provides recommendations for corporate land managers. Hence, a program for effective limitation and control of exotic invasive species is clearly practicable.

IND244-11

Monitoring and follow-up: Tree-planting on Appalachian mine sites is often followed by inspection and monitoring of planted areas, typically after the first growing season and sometimes thereafter. If areas are observed where survival of planted seedlings is not adequate to reforestation goals, those areas are re-planted. Some tree-planting contractors are able to provide such services. Hence, the post-planting monitoring and follow-up activities that can help to ensure successful forest re-establishment in temporary workspaces are clearly practicable.

IND244-12

Active and effective forest regeneration is needed to satisfy FERC and NEPA goals: While natural regeneration of *native* forest plant communities in temporary workspaces is possible such regeneration is unlikely[43] in the absence of an active and effective forest regeneration program. Whatever regeneration would occur under protocols proposed would progress more slowly than if an active and effective forest regeneration program were implemented. An active and effective forest regeneration program is essential to minimization of adverse effects.

Given the likelihood of exotic species' invasions in the absence of effective controls, an active and effective forest regeneration program is also needed to ensure "successful" revegetation, as that condition is defined by the DEIS:

[40] DEIS, p. 4-145 (p. 382 of 781).

[41] Personal observation; and DEIS, Table 4.4.1-4, p. 4-140 (p. 377 of 481).

[42] The Wildlife Habitat Council, http://www.wildlifehc.org/, is an organization that "promotes and certifies habitat conservation and management on corporate lands" and is cited repeatedly in the DEIS. The cited document can be accessed at http://www.wildlifehc.org/wp-content/uploads/2015/11/WHC-Invasive-Species-Project-Guidance.pdf

[43] I state that natural regeneration of *native* forest plant communities is "unlikely" based primarily on the potential for establishment and proliferation of exotic invasive species that would persist in a forest plant community, should such regeneration occur. Also, certain of those exotic invasive plant species are capable of suppressing natural regeneration of forest trees (supporting information is presented below).

IND244-11 Mountain Valley would be required to monitor revegetation for a minimum of two growing seasons following restoration and report their findings to FERC staff. In addition, FERC staff also would conduct site inspections following restoration.

IND244-12 See the response to IND244-8.

IND244-12 cont'd

"Revegetation of cleared areas would be considered successful when the cover and density of vegetation within the construction right-of-way is similar to the adjacent undisturbed land."[44]

The DEIS fails to demonstrate that the procedures proposed – "natural regeneration" after removal of topsoil to expose subsoil with no testing, assessment, or amelioration of compaction; hydroseeding the area with seed mixes comprised of either exotic plants (and perhaps highly invasive exotic plants that are hostile to forest tree establishment) or some as-yet unspecified species, and with no effective program to limit establishment and proliferation of exotic plants which have the potential to inhibit natural regeneration – would minimize adverse effects.

IND244-13

Active and Effective Forest Regeneration is Practicable: An active reforestation program, with a far higher likelihood of being effective than that proposed by the DEIS, is clearly practicable given that each of the procedures describe above have been demonstrated as such.

Furthermore, the Wildlife Habitat Council describes "Forest Projects" that may be implemented by corporate landowners to "manage or enhance existing forest habitat or create new tracts of forested habitat".[45] Such projects are described by that organization's documentation as incorporating methods such as tree planting and invasive species control. Given that the Wildlife Habitat Council has been cited elsewhere by the DEIS as if authoritative,[46] the Council's descriptions of such "Forest Projects" indicates clearly that a program for active and effective forest regeneration is practicable.

IND244-14

Exotic and Invasive Species Control Plan (EISC Plan) is inadequate and fails minimize adverse effects.

The EISC Plan[47] is inadequate to prevent exotic and invasive species from becoming established in the right-of-way and in temporary workspaces. If such species do establish, they would likely proliferate and would likely delay or prevent native forest species' regeneration in temporary workspaces. If such were to occur, some of those species exotic invasive species would also be likely to persist in regenerated forest plant communities, and to invade and proliferate in forest areas near the ROW and temporary workspaces. Such an outcome would be contrary to mitigation of adverse effects; and would, in fact, would cause adverse effects in addition to those described by the DEIS: Further degradation of forest ecosystems that suffer such invasions, and negative effects to landowners that would be subjected to exotic species invasions facilitated by the pipeline corridor.

Establishment, proliferation, and growth of certain exotic invasive species can suppress or prevent establishment of native plants including forest trees.[48] Two species of particular concern

[44] DEIS, p. 4-144 (p. 381 of 781).

[45] The Wildlife Habitat Council, http://www.wildlifehc.org/, is an organization that "promotes and certifies habitat conservation and management on corporate lands" and is cited repeatedly in the DEIS. The cited document can be accessed at http://www.wildlifehc.org/wp-content/uploads/2015/11/WHC-Invasive-Species-Project-Guidance.pdf

[46] The Wildlife Habitat Council may well be a competent and authoritative organization, but the DEIS presents no information to support that possibility.

[47] Mountain Valley's supplemental filing filed July 18, 2016 (accession number 20160718-5161), File 3, starts on p. 37 of 304.

[48] Orr SP et al. (2005) Invasive plants can inhibit native tree seedlings: testing potential allelopathic mechanisms. Plant Ecol 181, 153–165.

Nickelson JB et al. (2015) Previous land use and invasive species impacts on long-term afforestation success. Forests 6: 3123-3135.

IND244-13 See the response to IND244-8.

IND244-14 Invasive species are addressed in section 4.4 of the EIS. See also the response to comment IND343-1 regarding invasive species.

IND244-14 cont'd

here are autumn olive (*Elaeagnus umbellata*) and *Ailanthus altissima*. Both are highly invasive and present in the project area[49] and throughout the Virginia mountains.[50] Both are copious seed producers that can be dispersed over distances readily, autumn olive via birds that consume the seed and deposit them at some distance, and *Ailanthus altissima* via dispersal of seed by wind.[51] Once established, both can grow more rapidly than native trees, can produce seed at relatively young age, and can form dense thickets with will inhibit establishment of native trees by establishing a dense canopy[52] and via allelopathic mechanisms.[53] I have seen dense patches of each in areas where native trees would otherwise be expected but with such trees not present within those patches. Autumn olive has the capacity invade[54] and to persist in secondary forest; while *Ailanthus altissima* has the capability to persist and to grow tall enough to form forest-like overstory.[55]

Kuebbing SE et al. 2014. Effects of co-occurring non-native invasive plant species on old-field succession. Forest Ecology and Management 324: 196-204.

Small CJ, JL Chamberlain. 2015. Forest diversity and disturbance: changing influences and the future of Virginia's Forests. Virginia Journal of Science 66: 1-21.

Evans DM et al. 2013. Reforestation practice for enhancement of ecosystem services on a compacted surface mine: Path toward ecosystem recovery. Ecol Eng 51: 16-23.

[49] DEIS, Table 4.4.1-4

[50] Rose AK (2013) Virginia's Forests, 2011. Resource Bulletin SRS–197. USDA Forest Service, Southern Research Station, Asheville, NC. 92 p. (see table 7, Autumn olive and Tree-of-heaven).

[51] For autumn olive, see US Forest Service, Elaeagnus umbellata, http://www.fs.fed.us/database/feis/plants/shrub/elaumb/all.html; and Lafleur NE et al. (2007) Invasive fruits, novel foods, and choice: an investigation of European starling and American robin frugivory, Wilson Journal of Ornithology 119:429–438;

For ailanthus, see US Forest Service, Ailanthus altissima, http://www.fs.fed.us/database/feis/plants/tree/ailalt/all.html; Landenberger RE et al. (2007). Seed dispersal of the non-native invasive tree Ailanthus altissima into contrasting environments, Plant Ecology, 192(1), 55-70; and numerous other sources.

[52] See US Forest Service, Elaeagnus umbellata, http://www.fs.fed.us/database/feis/plants/shrub/elaumb/all.html. See also The Nature Conservancy, Autumn olive is an invasive species found in our wooded areas, http://www.nature.org/ourinitiatives/regions/northamerica/unitedstates/indiana/journeywithnature/autumn-olive.xml.

See also Evans DM et al. 2013 Reforestation practice for enhancement of ecosystem services on a compacted surface mine. Ecological Engineering 51:16-23.

[53] As defined by Merriem-Webster, the term "allolopathy" means "the suppression of growth of one plant species by another due to the release of toxic substances".

Ailanthus is strongly allelopathic; see numerous references including Mergen F (1959) A toxic principle in the leaves of Ailanthus. Botanical Gazette 121:32-36; and Heisey RM (1990) Evidence for allelopathy by tree-of-heaven (*Ailanthus altissima*), Journal of Chemical Ecology 16:2039-2055; and Heisey RM (1996). Identification of an allelopathic compound from Ailanthus altissima (Simaroubaceae) and characterization of its herbicidal activity. American Journal of Botany, 192-200; and US Forest Service, Ailanthis altissima, http://www.fs.fed.us/database/feis/plants/tree/ailalt/all.html

Allelopathic effects have also been observed for autumn olive, see Orr SP et al. (2005). Invasive plants can inhibit native tree seedlings: testing potential allelopathic mechanisms, Plant Ecology, 181(2), 153-165.

[54] Moore MR et al (2013). Distribution and growth of autumn olive in a managed forest landscape. Forest Ecology and Management 310: 589-599.

[55] I draw the above descriptions from my experience in managing my own property, from my professional experience in reforestation studies, and from published work such as:

Miller JH et al. 2015 A management guide for invasive plants in southern forests. USDA Forest Service, General Technical Report SRS-131, Southern Research Station, Asheville NC. http://www.fs.fed.us/database/feis/plants/tree/ailalt/all.html

Invasive species management flyers produced by entities such as National Park Service, US Forest Service, and The Nature Conservancy.

IND244-14 cont'd

If adverse effects of pipeline construction are to be minimized, it is imperative that exotic invasive plants capable of inhibiting natural forest regeneration, and exotic invasive plants capable of invading adjacent forest, be prevented from establishing and proliferating in right-of-way areas, temporary workspaces, and adjacent forest. Autumn olive and *Ailanthus altissima* are such species, but other exotic invasive species also have these capabilities. If these or other species with similar characteristics were to invade the right-of-way and temporary workspaces as a result of the EISC Plan's ineffectiveness, such result would be contrary to NEPA and to Executive Order 13112, described by the DEIS as directing federal agencies

> *"to prevent the introduction of invasive species; provide for their control; and minimize the economic, ecological, and human health impacts that invasive species can cause."*[56]

The Executive Order also states that

> *"federal agencies shall not authorize, fund, or carry out actions likely to cause or promote the introduction or spread of invasive … unless it has been determined … all feasible and prudent measures to minimize the risk of harm would be taken in conjunction with the actions."*[57]

The EISC Plan states that the applicant will monitor construction areas for two years following construction, and will remove invasive plants observed by using "hand cutting" as a standard method. The proposed EISC Plan would be ineffective.

IND244-15

Proposed monitoring/control plan, confined to 2 years, will be ineffective:

Invasive species are invasive, meaning that they are able to enter (often as live seed) and become established in areas where they have not been planted. Such invasion potential will occur throughout the project's lifetime and will not be confined to two years.

The pipeline's construction, if approved by FERC, will create conditions that are more conducive to invasion by invasive exotic plants than the natural forests that they replace.[58] Scientific literature demonstrates that disturbance, meaning alteration of natural ecosystems, increases the vulnerability of landscapes to exotic invasions;[59] and that open areas with light availability also create conditions that are more favorable to exotic species' invasions than are forested areas with full canopies that limit light penetration.[60] That literature also documents that

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Evans DM et al. 2013. Reforestation practice for enhancement of ecosystem services on a compacted surface mine: Path toward ecosystem recovery. Ecol Eng 51: 16-23.

Landenberger RE et al. 2007. Seed dispersal of the non-native invasive tree Ailanthus altissima into contrasting environments. Plant Ecology 192: 55-70.

Oliphant AJ et al. 2016. Autumn olive (Elaeagnus umbellata) presence and proliferation on former surface coal mines in Eastern USA. Biological Invasions, pp.1-17 (including validation field studies).

[56] DEIS, p. 4-137 (p. 376 of 781).

[57] DEIS, p. 4-137 (p. 376 of 781).

[58] Levey DJ et al. (2005). Effects of landscape corridors on seed dispersal by birds. Science 309: 146-148. As documented below, certain exotic invasive plant species occurring in the project area are dispersed as seed by birds.

[59] Hobbs RJ, LF Huenneke. 1992. Disturbance, diversity, and invasion: implications for conservation. Conservation biology, 6(3), pp.324-337.

Lake JC, MR Leishman, 2004. Invasion success of exotic plants in natural ecosystems: the role of disturbance, plant attributes and freedom from herbivores. Biological Conservation: 117: 215-226.

Jauni M et al. 2015. Non-native plant species benefit from disturbance: a meta-analysis. Oikos 124: 122-129.

Simberloff D et al. 2012. The natives are restless, but not often and mostly when disturbed. Ecology 93: 598-607.

[60] Blumenthal D. 2005. Interrelated causes of plant invasion. Science 310: 243-244.

IND244-15 The discussion regarding the duration of post-restoration vegetation monitoring has been updated in section 4.4 of the final EIS.

IND244-15 cont'd

forest-edge areas are at enhanced risk of invasion by exotic species[61] due to mechanisms that include transport by birds[62] and enhanced light availability relative to interior forest.[63]

Invasive plant species disperse across landscapes. An absence of invasive species within the construction area after two years will not guarantee a continuing absence given that pipeline's construction would create conditions favorable to invasion, and given the capabilities of exotic invasive plants to disperse across landscapes. Dispersal mechanisms occurring naturally include movement of live seeds by wind[64], birds,[65] and by other wildlife such as white-tailed deer and foxes.[66] Pysek and Hulme (2005)[67] documented rates-of-spread for >100 invasive plant taxa worldwide, and found that those rates vary from a few meters per year to 370 meters per year via natural processes. Pysek and Hulme (2005) also found that human-mediated dispersals can occur over longer distances, and documented rates of spread ranging from ~1 to >100 kilometers per year. Because the pipeline rights-of-way would remain as a non-forested corridor through forested areas and would in some areas include project-maintenance roadways, these corridors would likely attract human transit. Hence, both natural and human-mediated dispersal mechanisms can be expected to remain active within right-of-way and temporary workspace areas well beyond the two years proposed for monitoring.

Blair BC et al. 2010. Disturbance, resources, and exotic plant invasion: gap size effects in a redwood forest. Madroño 57: 11-19.

Davis MA et al. 2000. Fluctuating resources in plant communities: a general theory of invasibility. Journal of Ecology 88: 528-534.

Cole PG, JF Weltzin. 2005. Light limitation creates patchy distribution of an invasive grass in eastern deciduous forests. Biological Invasions 7: 477-488.

Warren RJ et al. 2011. Performance and reproduction of an exotic invader across temperate forest gradients." Ecosphere 2: 1-19.

[61] Vila M, Ibanez I (2011) Plant invasions in the landscape. Landscape Ecol 26: 461–472

[62] Gosper CR, Stansbury CD, Vivian-Smith G (2005). Seed dispersal of fleshy-fruited invasive plants by birds: contributing factors and management options. Divers Distrib 11: 549-558.

Lafleur NE, Rubega MA, Elphick CS (2007) Invasive fruits, novel foods, and choice: an investigation of European starling and American robin frugivory. Wilson J Ornithology 119: 429-438.

Honu YA, Gibson DJ (2008) Patterns of invasion: trends in abundance of understory vegetation, seed rain, and seed bank from forest edge to interior. Nat Areas J 28: 228-239.

Bonilla NO, Pringle EG (2015) Contagious seed dispersal and the spread of avian-dispersed exotic plants. Biol Invasions 17: 3409-3418.

[63] With KA (2002) The landscape ecology of invasive spread. Conserv Biol 16: 1192-1203.

Vila M, Ibanez I (2011) Plant invasions in the landscape. Landscape Ecol 26: 461–472.

Martin PH et al. 2008. Why forests appear resistant to exotic plant invasions: intentional introductions, stand dynamics, and the role of shade tolerance. Frontiers in Ecology and the Environment 7: 142–149.

[64] Miller JH, Manning ST, Enloe SF (2015) A management guide for invasive plants in southern forests. USDA Forest Service, General Technical Report SRS-131, Southern Research Station, Asheville, NC pp 120. Of highly invasive species within the project area, Ailanthus altissima is one with seeds that are easily dispersed by wind (see http://www.fs.fed.us/database/feis/plants/tree/ailalt/all.html)

[65] As documented above by footnote with citations for Gosper et al. (2011), etc. Within the project area, Elaeagnus umbellata and Rosa multiflora are two with seeds that are often dispersed by birds (see http://www.fs.fed.us/database/feis/plants/shrub/elaumb/all.html, http://www.fs.fed.us/database/feis/plants/shrub/rosmul/all.html

[66] Fowler LJ, Fowler DK, Thomas JE (1982) Dispersal of autumn olive seeds by foxes on coal surface mines in east Tennessee [Elaeagnus umbellata]. Journal of the Tennessee Academy of Science 57: 83-85. Williams SC, Ward JS (2006) Exotic seed dispersal by white-tailed deer in southern Connecticut. Nat Areas J 26:383-90

[67] Pyšek P, PE Hulme. 2005. Spatio-temporal dynamics of plant invasions: linking pattern to process. Ecoscience 12: 302-315.

IND244-15 cont'd

My own experience as a landowner validates these findings. I have eliminated from my property mature individuals of the following species stated by DEIS Table 4.4.1-4 as highly invasive: *Ailanthus altissima*, tree-of-heaven; *Elaeagnus umbellata*, autumn olive; and *Rosa multiflora*, multiflora rose. I am confident that my property does not harbor individuals of these species that are producing seed. Yet, each year I survey my property for these species and find additional individuals – dozens if not hundreds - apparently produced from seed that that has entered my property from elsewhere. As suggested by the above-cited studies, I find the most vulnerable areas to be forest edges and herbaceous areas that are partially or fully exposed to sun; but I also find occasional young individuals of these species within forested areas hundreds of feet from the forest edge.

IND244-16

Proposed "hand cutting" would be ineffective:

The EISC Plan proposes "hand cutting" as a means of removing exotic and invasive species found within the corridor during the first two years. However, many of the invasive plant species that occur within the project area cannot be removed by that method. Of the highly invasive species that I have found on my own property (*Ailanthus altissima, Elaeagnus umbellata* (autumn olive), *Lespedeza cuneata*, *Rosa multiflora*, *Coronilla varia*, *Lonicera japonica*, *Schedonorus phoenix*, *and Sorghum halepense*), none can be removed effectively by handcutting. In fact, at least two of these species (*Ailanthus altissima* and autumn olive) can be stimulated by hand cutting, as they can respond to such treatment by producing multiple additional stems as root sprouts.[68]

The DEIS proper includes at least one statement describing invasive and exotic species control that may not be consistent with the EISC Plan:

> *"Measures that would be implemented to reduce the introduction and spread of non-native invasive plants and weeds include … using selective treatments of invasive or noxious species such as removal by manual or mechanical treatments."*[69]

Does "manual or mechanical treatments" mean "hand cutting"? Or does it mean measures that (unlike hand cutting) might be effective -- such as removal of the exotic/invasive plant shoot and roots when the exotic/invasive plant is young and small, when that could be accomplished without significant environmental disturbance and prior to production of viable seed?

IND244-17

Additional EISC Plan deficiencies

The EISC Plan fails to describe a mechanism intended to prevent seed production by invasive exotic plants. Prevention of seed production is essential to exotic invasive species control because seeds, once produced, can be dispersed. Seasonal patterns of seed production vary among the exotic invasive species that occur within the project area, but the EISC Plan describes no method for seasonal scheduling of control measures to prevent seed production.

Another deficiency of the EISC Plan is its failure to emphasize active re-establishment of canopy cover by native forest trees in temporary workspaces as a control measure. Rapid re-establishment of native forest-tree canopies, to limit light penetration to the ground surface

[68] For Ailanthus, "Death or injury of the main stem usually results in prolific root sprouting" (quote from http://www.fs.fed.us/database/feis/plants/tree/ailalt/all.html). For Elaeagnus umbellata, "Solecki [53] and Szafoni [59] indicated burned, mowed, and cut plants "resprout vigorously." The Invasive Plant Atlas of New England website [37] reports that if autumn olive is cut, "it resprouts abundantly" (quoting from http://www.fs.fed.us/database/feis/plants/shrub/elaumb/all.html).

[69] DEIS, p. 4-149 (p. 386 of 781).

IND244-16 Mountain Valley would also use herbicides to control invasive species, if requested by the landowner or land managing agency.

IND244-17 We do not believe that seasonal control measures to prevent seed production by invasive species would be practical on the scale of this project.

IND244-17 cont'd

during the growing season, can be expected to reduce opportunities for invasion by invasive plants whose establishment is favored by light.

Another deficiency of the EISC Plan is its failure to describe thorough rinsing of hydroseeder tanks prior to use for application of seed on pipeline disturbed areas. Unfortunately, numerous highly invasive plant species remain in use for highway revegetation and other purposes in the project area. Such species include tall fescue, crown vetch, and sericea lespedeza (*Lespedeza cuneata*). Unless thoroughly cleaned, hydroseeders coming to the pipeline project from other jobs where such species were used may contain small amounts of residual seed which would then be spread on the right-of-way unless the tank is *thoroughly* cleaned.[70] Even small amounts of invasive-species seed contaminants would introduce such species to the disturbed areas, where those species would have opportunity to establish, reproduce, and proliferate.

IND244-18

DEIS Acknowledges that EISC Plan as proposed may be ineffective:

As stated by the DEIS:

"The new pipelines rights-of-way could also introduce non-native invasive species"[71]

"Removal of vegetation could increase the potential for the spread of invasive species in areas of ground disturbance and routine vegetation mowing during operation"[72]

Effective control of exotic invasive plants would be essential to mitigation of the adverse effects identified by the DEIS as a likely outcome of pipeline construction, and the DEIS indicates a likelihood that current plans for such would be ineffective. Yet, FERC fails to provide the applicant with any incentive to develop an effective EISC Plan.

Effective measures to control exotic invasive plants are practicable:

On my property, I am able to prevent seed production by the following species, which are present on adjacent properties and invade my property, with an expenditure of effort of less than one hour per acre per year: *Ailanthus altissima*, *Elaeagnus umbellata*, *Rosa multiflora*, *Paulownia tomentosa*. I am able to accomplish this because my property does not harbor seed-producing individuals; if I were to allow these species to establish and begin producing seed, I would be unable to control them with that level of time expenditure.

Another indication that effective control measures are practicable is a document prepared by the Wildlife Habitat Council, "Invasive Species Project Guidance", to describe invasive species projects that can be implemented by corporate landowners for purposes such as wildlife habitat management and restoration. [73] That document states

"Invasive species projects often require long-term commitment and involve the prevention of invasive species establishment, and the control or eradication of existing invasive species populations …"

[70] On one of our experimental field trials: The hydroseeder cleaned the tank by rinsing with two volumes of water before loading an experimental seed mixture, yet residual seed of crown vetch, *Coronilla varia* which had been seeded by the hydroseeder on a prior job but was not included in our seed mix, contaminated the seeding of the experimental area: see Fields-Johnson CW et al. 2012 Forest restoration in steep slopes after coal surface mining in Appalachian USA: Soil grading and seeding effects. Forest Ecology and Management. 270: 126–134.

[71] DEIS, p. 4-145 (p. 382 of 781).

[72] DEIS, p. 4-141 (p. 378 of 781).

[73] The Wildlife Habitat Council, http://www.wildlifehc.org/, is an organization that "promotes and certifies habitat conservation and management on corporate lands" and is cited repeatedly in the DEIS. The cited document can be accessed at http://www.wildlifehc.org/wp-content/uploads/2015/11/WHC-Invasive-Species-Project-Guidance.pdf

IND244-18 We conclude that the invasive species control plan would be adequate.

IND244-18 cont'd

"Invasive species projects may take one or more of the following approaches … Prevention … Early Detection-Rapid Response (EDRR) … Control and Restoration …"

The document contains no suggestion that effective control of invasive exotic species by corporate land owners and managers is cost-prohibitive or otherwise not practicable.

The EISC Plan, as proposed by the applicant, has no chance to be effective. FERC should incentivize the applicant to prepare a revised and improved EISC Plan that would have a high likelihood of mitigating adverse effects to forests and to other resources.

IND244-19

Erosion and Sediment Control Plans (ESC Plans) are inconsistent with other DEIS statements and Plans:

The ESC Plans[74] describe revegetation seed mixes for areas where soils and vegetation will be disturbed if the pipeline is constructed.[75] The ESC Plans, and Appendices N-11[76] and N-12[77] which are derived from those plans, recommend seeding with species that are described as "highly invasive" by the DEIS body,[78] additional species described as "Non-Native/Invasive Plant Species" by the EISC Plan's Table 1,[79] and additional species that are non-native.

The ESC Plans' recommendations of seeding mixtures (also in the DEIS as Appendices N-11 and N-12) conflict with other DEIS statements [*with emphases added*]:

*"Mountain Valley would revegetate the right-of-way after pipeline installation using seed mixes recommended by the **Wildlife Habitat Council** …"*[80]

*"The Applicants would conduct restoration activities in accordance with landowner agreements, permit requirements and written recommendations on seeding mixes, rates, and dates obtained from the **Wildlife Habitat Council** (for the MVP) …*[81]

[74] Submittal 20160226-5404 to FERC Docket CP16-10. 3 plans have been prepared: one for West Virginia (starts on p.66 of 730); another for above-ground facilities in West Virginia (starts on p. 211 of 730); and another as a DRAFT plan for Virginia (starts on p. 262 of 730).

[75] All in submittal 20160226-5404 to FERC Docket CP16-10: pages 19 and 20 of the West Virginia ESC Plan (p. 87-88 of 730); pages 11 and 12 of the West Virginia above-ground facilities plan (p. 224-225 of 730); Appendices A and B (p. 302-312 of 730).

[76] DEIS Appendices N-W as posted to FERC Docket CP16-10, P.621 of 894.

[77] DEIS Appendices N-W as posted to FERC Docket CP16-10, P.623-624 of 894.

[78] DEIS Table 4.4.1-4 describes tall fescue (*Schedonorus phoenix*) and crown vetch (*Coronilla varia*) as highly invasive, yet Kentucky 31 tall fescue is described as a component of the "Recommended seeding mixture" for "Permanent upland cover" by Appendix N-11, and as a component of seven "Recommended seeding mixtures" in Appendix N-12; and crown vetch is recommended for seeding on both Appalachian and Piedmont "Low-Maintenance Slopes" in Appendix N-12.

[79] Appendix N-11 describes as recommended for seeding "clover", but *Trifolium hybridum*, alsike clover; *Trifolium incarnatum*, crimson clover; *Trifolium pretense*, red clover; *Trifolium repens*, white clover; and *Melilotus officinalis*, sweetclover, are all listed as non-native invasive plants by the EISC Plan's Table 1). Appendix N-11 also lists birdsfoot trefoil (likely the same species as *Lotus corniculatus*, garden bird's-foot-trefoil, listed in the EISC Plan's Table 1); and orchardgrass, which is listed as *Dactylis glomerata ssp. glomerata*, orchard grass, in the EISC Plan's Table 1.

Appendix N-12 lists German millet as recommended species;Table 1, although with an incorrect scientific name (see USDA information sheet on Foxtail millet, https://plants.usda.gov/plantguide/pdf/pg_seit.pdf , which defines "german millet" as an alternate common name).

[80] DEIS, p. ES-4 (p. 37 of 781).

[81] DEIS, p. 2-42&43 (p.131-132 of 781).

IND244-19 The final EIS has been updated in section 4.4 regarding the apparent discrepancy between the seed mixtures listed in appendix N of the draft EIS and the list of invasive species described in section 4.4.

IND244-19 cont'd

*"To prevent soil erosion, Mountain Valley and Equitrans would follow BMPs … These BMPs include, but are not limited to: … revegetation using seed mixes recommended by the **Wildlife Habitat Council** (for the MVP)"*[82]

*"Mountain Valley would conduct restoration activities in accordance with landowner agreements, permit requirements, and written recommendations on seeding mixes, rates, and dates obtained from the **Wildlife Habitat Council** … Appendix N provides proposed seed mixes from Mountain Valley's project-specific Erosion and Sediment Control Plans"*[83]

*"In coordination with the **Wildlife Habitat Council**, Mountain Valley would plant seeds for **native plant species** during restoration and revegetation. Mountain Valley would minimize impacts with the implementation of the FERC Plan and Mountain Valley's project-specific Erosion and Sediment Control Plans"*[84]

*"To increase the speed and success of restoration of wildlife habitat, Mountain Valley would implement right-of-way restoration measures contained in Mountain Valley's Plan and Procedures, and solicit guidance from the **Wildlife Habitat Council** to restore the pipeline corridor using **native seed mixes** appropriate for each location, including diverse mixes of native flowering plants (see section 4.4 for a discussion of seed mixes). Further, Mountain Valley would follow integrative vegetation management techniques, in partnership with the Wildlife Habitat Council, to promote growth of ground cover species that flower for long durations throughout the growing season in an attempt to create new habitat for native and domestic pollinators such as bees and butterflies."*[85]

The ESC Plan is not consistent with the EISC Plan, which states:

*"The third strategy to be used in this plan involves MVP's commitment to using only native seed mixes during restoration ... Working with the **WHC** [Wildlife Habitat Council], MVP will also incorporate principles of Integrated Vegetation Management into MVP's right-of-way maintenance. Integrated Vegetation Management incorporates seed mix selection, vegetation maintenance scheduling, and selection of mechanical vegetation maintenance techniques to encourage a low ground cover of native species that flower for a long duration of the growing season."*[86]

The ESC Plan is not consistent with the Migratory Bird Conservation Plan, which states:

*"MVP is also partnering with the **Wildlife Habitat Council** (WHC), a nonprofit organization dedicated to assisting corporations, conservation organizations, and individuals with restoration and enhancement of wildlife habitat. The WHC is working with MVP on their commitment toward restoration of the pipeline ROW using native seed mixes and incorporating principals of Integrated Vegetation Management into MVP's ROW maintenance."*

The ESC Plans, and DEIS Appendices N-11 and N-12, prescribe seeding measures that are inconsistent with what is stated elsewhere in the DEIS; yet, I have not found any explanation for this inconsistency in the DEIS or associated Plans.

[82] DEIS, p. 4-65 (p. 302 of 781).
[83] DEIS, p. 4-144 (p.381 of 781).
[84] DEIS, p. 4-146 (p.383 of 781).
[85] DEIS, p. 4-162&163 (p. 399-400 of 781).
[86] Submittal 20160718-5161 to FERC Docket CP16-10, p. 47 of 304.

IND244-20

The ESC Plans, if implemented as presented, would hinder mitigation of adverse effects.

The ESC Plan's and DEIS Appendices' recommendations to seed highly competitive plant species on disturbed areas are not consistent with science-based strategies for re-establishing forest vegetation. For example, tall fescue is the most commonly recommended species the ESC Plan and DEIS Appendices. Yet, tall fescue is allelopathic to several native plants including forest trees,[87] harmful to certain game birds,[88] and not recommended for use as groundcover for forest plantings on coal surface mines.[89] Crown vetch, another species recommended for seeding by Appendix N-12, also interferes with natural regeneration of native plants on disturbed areas.[90] Both crown vetch and tall fescue are exotic and described by the DEIS as highly invasive.[91]

Franklin et al. (2012) review scientific studies that demonstrate interference by competitive herbaceous vegetation, seeded for the purpose of controlling erosion, with effective re-establishment of forest trees on surface coal mines.[92] The competitive interactions described are more general, however, and not unique to those areas. Dense herbaceous vegetation competes with growing trees for soil water and soil nutrients. Because fast-growing grasses such as tall fescue produce a dense root mass, they are able to prevent small tree seedlings from obtaining soil water and nutrients in quantities adequate to support vigorous growth and, in some cases, survival. If the herbaceous plants are taller than the seedlings, they compete with the seedlings for sunlight. Seeding with "tree compatible" herbaceous vegetation that will exert reduced competition is an essential practice when reforesting surface coal mines.[93]

As well as recommending species such as tall fescue, the ESC Plans (as per Appendices n-11 and N-12) recommend seeding rates that are excessive, given the DEIS proposal to mitigate adverse effects via natural regeneration of temporary work spaces, and exceed those that have been demonstrated to inhibit forest regeneration on surface coal mines. The "Permanent Upland Cover", "General Slope", and "Low-Maintenance Slope" recommended seeding mixtures of Appendices N-11 and n-12 include 90, 150, and 150 pounds per acre, respectively, of seed

[87] Orr SP et al. (2005) Invasive plants can inhibit native tree seedlings: testing potential allelopathic mechanisms. Plant Ecology: 181: 153-165.

Rudgers JA et al (2007) Forest succession suppressed by an introduced plant–fungal symbiosis. Ecology 88:18-25.

Rudgers JA., S Orr (2009). Non-native grass alters growth of native tree species via leaf and soil microbes. Journal of Ecology 97: 247-255.

[88] USDA, Plant Guide Tall Fescue, https://plants.usda.gov/plantguide/pdf/pg_loar10.pdf

[89] Burger JA et al. (2009) Tree-compatible ground covers for reforestation and erosion control. US Office of Surface Mining Reclamation and Enforcement, Appalachian Regional Reforestation Initiative, Forest Reclamation Advisory No. 6, http://arri.osmre.gov/

[90] I have seen this personally on areas described by the following publication that were seeded with species mixture that included inadvertent contamination by crown vetch: CW Fields-Johnson, CE Zipper, et al. 2012 Forest restoration in steep slopes after coal surface mining in Appalachian USA: Soil grading and seeding effects. Forest Ecology and Management. 270: 126–134.

[91] Table 4.4.1-4, p. 4-140 (p. 377 of 781).

[92] Franklin JA et al. (2012). Influence of herbaceous ground cover on forest restoration of eastern US coal surface mines. New Forests, 43(5-6), 905-924.

This logic is also reviewed in more concise form by: Zipper CE et al. (2011), Restoring forests and associated ecosystem services on Appalachian coal surface mines. Environmental Management 47:751–765 (see esp. FRA Step 3, Use less competitive ground covers that are compatible with growing trees, p. 754-755).

[93] Burger JA et al. (2009) Tree-compatible ground covers for reforestation and erosion control. US Office of Surface Mining, Appalachian Regional Reforestation Initiative, Forest Reclamation Advisory No. 6. http://arri.osmre.gov/

Burger JA et al. (2010). Establishing ground cover for forested post-mining land uses. Virginia Cooperative Extension Publication 460-124. http://pubs.ext.vt.edu/460/460-124/460-124_pdf.pdf

IND244-20 We conclude that trees will naturally recruit into an area stabilized by a grassy cover. See the response to IND244-19.