Dr. Homer Wilkes, Under Secretary, U.S. Department of Agriculture
c/o Jefferson National Forest MVP Project
5162 Valleypointe Parkway Roanoke, VA 24019

Re: Comments on USFS Draft Supplemental Environmental Impact Statement for the Mountain Valley Pipeline

February 21, 2023

Dr. Wilkes:

I am commenting on the Draft Supplemental Environmental Impact Statement (DSEIS) prepared by the United States Forest Service (USFS) for the proposed Mountain Valley Pipeline (MVP) crossing of the Jefferson National Forest (JNF).

Thank you for extending the comment period for this document.

The DSEIS does not meet the requirements of the the National Environmental Policy Act (NEPA).

Analysis of many issues required by NEPA has not been made, and analysis for other issues is incomplete or incorrect.

The USFS should choose the “No Action” alternative, and reject further disturbance to the JNF by the MVP. The MVP should not be allowed to further disturb the JNF.

My following comments explain why the JNF should not issue a permit to allow further MVP disturbance.

My comments are lengthy and detailed, yet written in language that is easily understandable. Every comment that I include is relevant to the USFS DSEIS.

Please also note that my comments are much shorter than the 188 page DSEIS, which is written, in large part, in technical language that may only be fully understood by experts trained in relevant disciplines.

Please have USFS staff contact me and let me know that my comments have been read in their entirety, and will be taken into account in preparing the DSEIS, as is required by NEPA.

I am happy to answer any questions that staff may have regarding my comments.

My comments cover the following issues:

- USFS Failure to Properly Serve the Public
- USFS Failure to Write The DSEIS In Plain Language In Violation Of NEPA
- Incorrect and insufficient Analysis of Trenchless Crossings
- The JFN Land Plan Should Not Be Amended
- MVP Threat To The Public Safety
- MVP Threat to Public Health
- The USFS Has Failed To Consider Alternate Routes That Would Reduce or Eliminate Impacts to The JNF
- The MVP Would Worsen Climate Change
- Incorrect Water Quality Monitoring and Analysis of Sediment Impacts
- Failure of FERC and PHMSA to comply with The Administrative Procedures Act, and Freedom of Information Act (FOIA) regulations, or otherwise release
information to the public regarding the MVP threat to public safety.
- USFS Incorrect Reliance on FERC Findings
- The USFS Incorrect Reliance on the Pipeline and Hazardous Materials Safety Administration (PHMSA) to Protect the Public Safety
- Attempts to Fast Track the MVP
- Conclusion

USFS Failure to Properly Serve the Public

My wife and I have found great joy and satisfaction in our national forests. We have spent many wonderful days camping, hiking the trails, walking through vast forests, looking out over scenic vistas, observing wildlife, and swimming in pristine lakes. For us, our national forests epitomized

“America The Beautiful”, public lands preserving the beauty, resources, and natural heritage of our country.

We were grateful to the USFS for providing us, and all Americans a place of refuge and inspiration in a time when rapid growth and development were consuming our natural heritage elsewhere.

That admiration has now been severely shaken. I find that the USFS is willing to relinquish our natural heritage for the unjust, destructive, and dangerous MVP. The public right to clean air, clean water, scenic beauty, a livable climate, health, personal safety, and a place of natural refuge is being sacrificed for a project that is taking those rights away.

The USFS has twice violated the law in issuing earlier permits to MVP to cross the JNF. Despite violating the law, the USFS has faced no punishment for these violations, other than the courts overturning the illegally issued permits.

The violations have forced others to take legal action against the USFS. The United States Department of Justice does not act on these violations. These legal actions had to be taken by private citizens at considerable expense and time.

These violations are consequential. They have resulted in the destruction of our natural forest along the MVP right of way (ROW) through the JNF. They have also resulted in USFS staff working many, many hours over several years giving their expertise and time to the MVP, rather than serving the public. The public has been deprived of the services that they deserve from the USFS for the past several years as those services have given to the MVP. The MVP is an unjust, destructive, and dangerous project with no public benefit that does not deserve special treatment, and should not be allowed to usurp USFS service to the public.

Now, for yet another time, the USFS is providing unwarranted time and services to the MVP, despite overwhelming citizen opposition to the project.

I, and other citizens don’t want the USFS to once again violate the law by

issuing an illegal permit to the MVP.

The USFS must obey the law, and there must be accountability for violating the law.

USFS Failure to Write The DSEIS In Plain Language In Violation Of NEPA

The DSEIS is written in a manner that cannot be adequately understood by many Americans. This excludes many Americans from satisfactory participation in the NEPA process, and prevents them from making meaningful comments to assist the USFS in their decision making responsibilities.

40 CFR 1500.2 b states that federal agencies “Implement procedures to make the NEPA process more useful to decision makers and the public; to reduce paperwork and the accumulation of extraneous background data; and to emphasize real environmental issues and alternatives. Environmental impact statements shall be concise, clear, and to the point, and shall be supported by evidence that agencies have made the necessary environmental analyses”.

40 CFR 1502.8 states that “Agencies shall write environmental impact statements in plain language and may use appropriate graphics so that decision makers and the public can readily understand such statements. Agencies should employ writers of clear prose or editors to write, review, or edit statements, which shall be based upon the analysis and supporting data from the natural and social sciences and the environmental design arts.”

Nevertheless, the DSEIS is 188 pages in length. It contains technical and obscure language that the public cannot readily understand. This language makes it very difficult for the public to fully comprehend the document, and make meaningful comments.

Two examples of this language follow:

- Page V…Effects on water resources would be minimized through

implementation of measures in the POD, such as best management practices (BMPs) and the use of ECDs as modeled in Revised Universal Soil Loss Equation, Version 2 (RUSLE2).

- Page 43…Under the Monitoring Plan, when thresholds were exceeded, Mountain Valley undertook response actions as outlined in Appendix F of the 2020 BO to determine the cause of elevated SSCs and perform appropriate remedies if necessary.

Technical and difficult to understand language is included in nearly all 188 pages of the document.

Use of references to other documents makes it even more difficult for the public, especially if they do not have access to those documents.

Everyday Americans cannot adequately understand this DSEIS, and are prevented from making meaningful and significant comments because of it.

Incorrect and insufficient Analysis of Trenchless Crossings

The USFS has not properly analyzed the environmental impacts of the proposed trenchless crossings.

There is a history of significant pollution from trenchless crossings

Kinder Morgan's Permian Highway intrastate gas pipeline drilling operation at the Blanco River in Texas in karst terrain spilled drilling mud, and contaminated six private drinking water wells in March, 2020. The wells could not be used for the remainder of that year. (1)

The Mariner East 2 Pipeline in Pennsylvania had more than 150 drilling mud pollution discharges to waterways and wetlands in Pennsylvania. The Pennsylvania Department of Environmental Protection issued numerous fines for these ongoing pollution incidents. (2)

The Energy News Network on May 12, 2017 reported that the Rover Pipeline discharged 2,000,000 gallons of drilling mud into or near Ohio

rivers in 2017. This included the discharge of drilling mud into wetlands in six different Ohio counties in April of 2017 alone. The Ohio EPA issued a fine of $431,000 for the discharge violations.

The MVP has already experienced significant problems while conducting boring operations. While attempting to bore under I-64 it was determined that the boring head had been deflected about 2 feet off course. MVP then decided to use another boring technique using drilling fluids and bentonite clay. They stated that they would fill the void they had initially created with grout to support the interstate highway. The bore was eventually completed. I am not aware of any damage that may have occurred to I-64. (3)

Drilling mud and lubricant pollution is likely to occur

The DSEIS states “conventional boring would result in fewer adverse effects on soils, water quality, and aquatic species compared to the originally proposed dry-ditch open cut method.” MVP has also stated that no drilling fluids or additives will be used in drilling.

Nevertheless, MVP used bentonite clay and drilling fluids after their initial failure to bore under I-64. This could very well occur on other boring attempts.

The recent history of boring operations in our country exposes large scale pollution discharges. MVP has a record of significant violations, including payment substantial fines for environmental violations. MVP has also been extremely irresponsible in project mismanagement, and this has resulted in significant threats to the public safety. See pipe safety and landslide public safety threats below.

The MVP cannot be trusted to carry out further drilling operations in the JNF, or anywhere along the route. The MVP has provided no guarantee that bentonite clay, and other drilling lubricants will not be used.

Bentonite clay is very harmful if released into waterways. Other lubricants used in drilling processes are as well. (4)

Drilling mud, including bentonite clay, is made up of very fine particles. These particles are much finer than most soils. The clay particles remain in suspension much longer than non clay soil particles, and they are more difficult to filter than typical soils.

Dewatering bore pits through filter cloth, filter socks, and settling basins cannot adequately filter out the very small bentonite clay particles as drilling mud contaminated water passes through them. The bentonite clay particles will pass through the filtering device, and pollute the receiving stream or wetland.

Other lubricants which may be used in the drilling process may enter the bore pit. Oil, grease, and fuel may also be present in the bore pit. These substances cannot be filtered in any way. They will pass though the settling basin, and pollute the receiving waterway or wetland.

Because of these properties, bore pit dewatering operations will likely result in significant pollution to receiving waters.

Drilling operations could also pollute private drinking water wells near the drilling operation, and private drinking water wells far from the drilling operation in karst areas.

MVP also states that bore pits will need significant dewatering, and pumping may need to occur 24 hours a day. This will result in a very large volume of polluted water over a long time that will be difficult to treat.

MVP further states that the pumps will discharge into temporary dewatering structures built in compliance with both the Federal Energy Regulatory Commission (FERC) and the Virginia Department of Environmental Quality. (VADEQ). They also state that pumping rates will be monitored and modified as needed to ensure that the structure does not overtop, and water is properly filtered.

The VADEQ specification for a dewatering basin requires 16 cubic feet of storage for every gallon per minute of pumping. At a pump rate of 100 gallons per minute the basin would need a volume of 1,600 cubic feet. (5) This would require basin dimensions of 32 feet by 25 feet by 2 feet deep,

or an equivalent size. Pumps used in dewatering operations can easily surpass a rate of 100 gallons per minute. The settling basin would need to be even larger for greater volumes.

Additionally, if pumping occurs 24 hours per day, the continual volume being pumped would not allow proper settlement, even if the settling basin was built to VADEQ specifications.

MVP also states that settling basins will be built in an upland area and will discharge onto stable ground. This is highly questionable as well, given the very large amount of earth disturbance required for this project. It is likely that the flow path from the settling basin to the receiving stream will erode, and carry pollutants from the bore pit, and sediment from the eroding flow channel into the receiving stream.

Only a few conventional boring operations have been completed by MVP thus far. They have taken much longer to complete than MVP stated. The same will probably hold true for borings in the JNF. The proposed boring duration of 10 weeks under the AT is particularly worrisome. I believe it will take much longer.

MVP has made a number of claims related to the trenchless crossings that are highly questionable. I hereby cite the claim and present information contrary to the claim.

- The trenchless crossings, as with all Project construction, will be conducted in accordance with all applicable environmental regulations, and approval of the project will not result in significant impact to the environment. **MVP has a long history of non compliance with environmental regulations that have resulted in significant environmental damage, and there is no assurance that the environment will not be further significantly harmed by attempts to complete trenchless crossings.** See further comments below.

- Environmental impacts will not be significantly different than open cut crossing methods. **Impacts will be significantly different due to (1) the required bore pits, (2) amount of spoil from construction of the bore pits and boring cuttings, (3) dewatering of the bore pits, (4) impacts**

on groundwater, (5) drilling mud and lubricant releases to the waterway or wetland, (6) the increased potential to encounter acid forming materials, and (7) potential for bore breach into the stream channel.

- Bore pits are sloped or shored to comply with safety regulations. **Data supplied by MVP for bore pits shows vertical sides. None of them show sloped sides. The sides are shown as vertical, and up to 45 feet deep. It is highly unlikely that all bore pits will be completely shored from top to bottom, and retain vertical sides. It is much more likely that the sides of the bore pits will be sloped to meet OSHA requirements. This will result in a larger volume bore pit, a larger volume that must be dewatered, and substantially more spoil material than is shown in the MVP submittal. Additionally, the MVP data does not show the trench adjacent to the bore pit. Much of this trench is below the top of the bore pit. It would fill with water from the bore pit, and further increase th volume that must be dewatered.**

- Conventional bores, which are planned to be used on the the majority of the crossings are non steerable, and subject to deflection. **This could result in misalignment, and breach of the stream channel bottom. Deflection would also result in the need for additional field bending of the pipe, with resultant pipe integrity and public safety concerns. (See Pipe Safety Issues Below). Since nearly all of the trenchless crossings will be attempted by conventional boring, misalignment, and stream channel breach threats will be present on nearly all of the crossing attempts.**

- No drilling fluids or high pressure drilling fluids will be used. Water, clay, or polymer based lubricants may be used, but will not adversely impact receiving waters. **These comments are contradictory. Clay and polymer based lubricants will very likely be released too, and pollute receiving waters.**

- A bentonite clay drilling mixture may be used. **As stated above, Bentonite clay is a pollutant that is particularly hard to filter due to very small particle size. The potential to pollute the waterway or wetland with Bentonite clay is significant.**

- Source water and volume comments from the MVP are vague and too open ended. **The USFS needs to require more specific information to prevent environmental damage to, and misuse of water resources.**

- Trenchless crossings will generally be made in conducive geological formations. **This does not mention the 5 proposed trenchless crossings in karst terrain, which is not geologically conducive. This comment is too vague. Conventional boring operations entail substantial environmental risk, especially when located in karst terrain.**

Negative environmental impacts from boring in karst areas may not be apparent until well after cumulative environmental damage occurs, if they are detected on site at all. Pollution incidents are more prone to occur, and continue undetected in drilling operations where the impacts under the stream are not readily apparent, more so then they would be during the original FERC approved open cut stream crossing method, where the work area is visible.

Substantial pollution to private drinking water wells and springs may occur both near the bore location, and many miles away in interconnected karst terrain. These drinking water sources could be rendered unusable. This distance from the MVP pollution source would make it difficult for a citizen whose drinking water source has been contaminated miles from the MVP crossing to successfully receive just compensation, or even be aware that the pollution came from boring operation.

It is possible that species that spend all or part of their life cycle underground in karst terrain could be impacted by pollutants from a boring location.

It is also possible that a boring operation in karst terrain could open a passage to the karst aquifer that remains undetected, allowing streamflow to enter the aquifer, significantly altering and polluting the karst water flow regime with surface water pollutants, while simultaneously reducing surface streamflow downstream from the boring location.

Trenchless crossings cannot safely be accomplished in karst terrain.

- Water would be discharged through sediment removal devices in well vegetated upland areas away from waterbodies and wetlands. **This is a vague statement, and may very well be disingenuous. The right of way is 125 feet wide, and if it is disturbed, or has been disturbed there will be no well vegetated area to discharge. Site diagrams show bore pits in close proximity to the streams, and not far upland. I have not seen a diagram showing the location of the sediment control devices. Compliance with this statement would require pumping water from the bore pit far uphill into a sediment control device. This is highly unlikely. The USFS should require site diagrams for each crossing that show the location of the sediment removal devices.**

- Dewatering operations would not impact surface waters. **Dewatering operations will flow quickly into surface waters after being discharged to the ground, and will substantially pollute receiving waters. This water will carry all pollutants from the trenchless crossing operation that cannot be filtered out, and they will also carry soil from erosion along the short path to the surface waters.**

I have not seen the cumulative amount of dewatering that will occur from all bore pits. Given the long duration required for the trenchless crossings, dewatering volume, and accompanying pollution is likely to be very large.

MVP should be required to submit the volume of dewatering that would be required at each proposed crossing, and specific sediment controls for each dewatering location.

- If the bore breaches the stream bottom…MVP would grout the breach hole and move the bore over. **It is highly unlikely that streamflow entering the underwater breach could be stopped and the breach grouted in a short period of time. This would require pumping the entire stream dry, setting up a coffer dam, or relocating the stream in order for the grouting attempt to have any chance of success.**

- There is little likelihood of the bore hole collapsing since it will be supported by the pipe being pulled through the bore hole. **See pipe safety**

comments below.

- No fluids will be used in conventional bore phase. **This contradicts the MVP above statement where MVP states that water, clay or polymer based lubricants will be used.**

- Trenchless crossings will result in reduced sedimentation to surface waters. **There is no justification for this statement. Significant sedimentation to surface waters is likely due to extensive excavation of bore pits, very high volumes of dewatering, and the discharge of sediment, bentonite clay, polymers, and other industrial pollutants that enter the bore pit. The proposed settling devices will not function as proposed, and erosion from the flow path to the receiving waters will occur.**

- Bore pits act as sediment traps for upland sediment delivery. **Bore pits are not sediment traps. Any sediment that enters the bore pits from adjacent areas will need to be pumped out, and eventually discharge to receiving waters.**

- Trenchless crossings will not result in a material change to to impacts and mitigation for endangered, threatened, and special concern species. **Impacts will be significantly different due to (1) the required bore pits, (2) amount of spoil from construction of the bore pits and boring cuttings, (3) dewatering of the bore pits, (4) impacts on groundwater, (5) drilling mud and lubricant releases to the waterway or wetland, and (6) potential for bore breach of the stream channel.**

- MVP commits to completing as much work as possible during daylight hours to avoid disturbances to the Indiana Bat. **This is a vague statement that offers no assurance of nighttime disturbances to the Indiana Bat. All work involving noise and lighting between sunset and sunrise should be prohibited.**

- Boring locations include karst terrain. **Trenchless crossings cannot safely be made in karst terrain. They should be prohibited.**

- MVP would employ the karst mitigation plan and a karst specialist team

to assist in mitigating negative impacts on karst features. **The karst mitigation plan and team would have no effect on a karst void breach during a trenchless crossing attempt. A karst void breach could contaminate the groundwater and private drinking water supplies for many miles around the attempted crossing location. Trenchless crossings in karst terrain should be prohibited. See comments above.**

- MVP submittals show the estimated volume of bore pits. **These volumes are greatly understated. Cross sections of the bore pits shown in appendix C show virtually all vertical sides on the bore pits to a depth of up to 45 feet. This is unrealistic, and disingenuous. The sides of the pit would have to be pulled back substantially to comply with OSHA safety standards, or the sides would have to be shored up with expensive and difficult to employ shoring devices. It is likely that in almost all case the sides of the pit would need to be pulled back. This would increase the volume of bore pit spoil. Adjacent trench excavations would also add to the volume of the bore pits, and the volume of polluted water which would need to be pumped out and treated.**

- I have not seen MVP submittals showing the location of bore pit and bore cutting spoil piles. **The location of the spoil piles must be shown. They must be located out of the 100 year floodplain to avoid being swept away, diverting floodwater, and severely polluting the waterway during flooding events. They must be located away from drainage channels, and tributaries to the waterbody being crossed. They cannot be located on steep slopes.**

- Where deemed necessary by MVP the EI will conduct analytical field procedures to identify and properly treat moderate and high acid forming materials in bore pits. **Acid forming materials have great potential to kill aquatic life. These procedures should be completed for all bore pits that have any potential to contain acid forming materials. It is doubtful that MVP will carry out this promise, especially if boring operations in different locations are carried out simultaneously.**

- I have not seen how acid forming materials that are encountered in the

bore hole would be treated. **This needs to be addressed.**

I was not able to find engineered drawings for the 4 proposed trenchless water crossings in the JNF despite extensive searching. I wanted to review and comment on these specific crossings but was unable to do so. **If this data was not included in the DSEIS, the DSEIS should be amended by adding this data.**

The DSEIS requirements for dewatering the bore pits and sediment controls for the trenchless crossings are generic and lack site specific engineered plans. Specific data that is missing includes:

- The location of the 100 year floodplain
- The location, volume, and cross sectional profile of all bore pit excavations.
The determination of the volume should include the volume created from sloped bore pit walls, and adjacent trenched areas that are lower in elevation than the top of the pit. Data supplied thus far by MVP does not include the sloped walls or trench volume, and does not correctly indicate the volume of polluted water that must be pumped from the bore pit.
- The rate, and duration of bore pit pumping based on the correct bore pit volume.
- The location and volume of all spoil piles.
- Sediment controls for the spoil piles.
- The location, dimensions, and volume of all dewatering basins based on the maximum bore pit dewatering rate and volume.
- The location of the flow path from the dewatering basin to the receiving waters, and the flow path lining that will be used to prevent erosion, based on an engineered analysis of the maximum expected volume, velocity of the discharge, and the slope of the flow channel. The flow path lining design must be determined through engineering analysis.
- The pollution control plan and methods that will be used to keep bentonite clay, lubricants, oil, grease, and other pollutants in the bore pit sump from polluting the receiving stream.

The JFN Land Plan Should Not Be Amended

The USFS should not amend the JNF land plan.

I provide the DSEIS proposed amendment comments followed by my comments against the amendment below:

Utility Corridors (FW-248). Short- and long-term minor beneficial effects would occur to the local and regional economy from increased employment and demand for services during construction and an increased tax base.

I agree that there may be minor economic gains for some, but they are insignificant compared to economic losses, and other losses that the DSEIS failed to analyze.

A rapid increase in temporary workers in the area strains local business and services. Businesses are required to increase inventory to meet demand, and when the workers leave the businesses are required to reduce inventory. Perishable goods could easily be lost. This is especially relevant since the MVP has not been able to provide steady employment for their workers. They have come and gone repeatedly due to MVP's inability to keep the project going.

The influx of temporary workers, mostly men, also results in friction and animosity between local residents and the workers. This is similar, although on a smaller scale than an influx migrants entering another country.

An influx of out of state workers also increases the risk of covid transmission into local communities.

Tourism benefits to local communities will be reduced as well. People seeking recreation and relaxation in a natural rural area will go elsewhere to avoid the disruption from pipeline construction. Recreational opportunities on impacted waterways, including fishing, canoeing, and swimming will be substantially reduced.

I agree that there may be minor economic gains for some, but they are erased into economic losses and other losses that the SDEIS

failed to analyze.

The most immediate economic issue is substantial loss of property value by those directly impacted and nearby the MVP route.

FERC's environmental impact statement indicates there will be no property value loss. I reviewed FERC's justification for that claim. I found that comments that stated that there would be no property value losses were criticized for not showing proof, or not providing enough proof to be valid. FERC cited several polls that found that people overwhelmingly believed that pipelines reduced property values. FERC dismissed these findings as well, and stated they were only opinions. FERC then stated that they conducted their own "independent' research and found a number of studies that found no property value losses. Many of these studies were conducted by the industry. Most of them used questionable methodology and data extrapolation. These studies lack reliability.

FERC did not visit landowners along the route to hear their concerns about property values, and the other negative impacts that would befall them.

There is no question that the MVP would reduce property values on or near the route. For most Americans of modest means purchasing their home and their property is the biggest investment of their lives. The MVP may make this the biggest loss of their lives.

Cumulative property value losses for thousands of property owners along the MVP likely runs well into tens of millions of dollars. This is essentially a transfer of wealth from low and middle income property owners to the MVP and their shareholders.

Another loss to people along the route, and to all of us comes from health problems and medical expenses caused by pollutant emissions from the MVP. A recent study by Yale found that 350,000 Americans die each year from breathing air polluted by the combustion of fossil fuels. That's as many as died on 9/11 every 3 days since 9/11. Many people near the MVP, and especially near

compressor stations will develop health problems. If they cannot afford to be treated they will have to live with those health problems. See my comments on the negative health impacts from the MVP.

The biggest economic loss for everyone in the world will come from damages from, and attempted mitigation of catastrophic climate change. This will be an astronomical economic loss, and will take away from other help and support that people need. This will be worse than the Great Depression, or the more recent Great Recession.

Improper Use of Eminent Domain

People directly impacted by the MVP have had their land taken from them by what I and many Americans believe is a twisted and perverted use of eminent domain. This allows a private company to take property for private gain. Besides being an immoral act, and contrary to our national priority of freedom for our citizens, the methods used by MVP to take that property are unconscionable.

It appears very likely at this time that gas transported through the MVP will not be used for energy needs in Virginia and North Carolina as was originally stated under the FERC certificate. It is very likely that the gas will be exported. Nevertheless, the eminent domain law still allows the MVP to take private property to ship gas overseas. Th elnited States is the biggest exporter of natural gas in the world.

Property owners are coerced and bullied into signing a right of way agreement, and told that if they don't accept the stated compensation for an MVP right of way that offer will be withdrawn, and they will never receive a better offer. They are also threatened with being taken to eminent domain court, and told that the judge will never match MVP's offer.

Property owners are also coerced into signing easement agreements whereby they are not allowed to make any public statements against the MVP, including comments to FERC or other regulatory during open comment periods, and at all other times. This is in direct

contradiction to our first amendment rights, which apparently have been ignored. They have also been coerced into agreeing that MVP is not responsible for any damages to their property, including damages to their drinking water, and damages to their homes from blasting.

Loss of Control and Use of Private Property

Landowners face a loss of control of their property. They are severely restricted in the use of their property. They cannot build in the right of way on their property. They cannot cross the right of way, except in a few locations. They cannot excavate in the right of way. There are restrictions regarding what crops can be planted. No trees can be planted.

Anger and Depression

Landowners have become angry and depressed that their sanctuary, their property, the place where they have planted their flag and call home has been violated, and will never be the same as the day they purchased their property, and laid down their roots.

FERC has not helped in this regard. A recent Virginia Tech study found that landowners who were upset and depressed because the MVP had taken their land, actually became more upset after they contacted FERC for help. I believe they learned that FERC has been captured by the industry, and will help the industry, but not them. I have experienced the same from FERC with both the Atlantic Coast Pipeline and the MVP. See further comments regarding FERC.

Losing one's property like this is very likely the worst experience a landowner has to endure, except for losing a loved one, or maybe a job that is needed to keep the family in food, clothing, and shelter.

Personal Safety

Landowners are aware of the significant public safety and public health risks from the MVP. They fear for the safety of their families

and their children. A mom directly impacted by the MVP asked me how she could put her children to bed at night with that pipeline back there. Her question really hit me hard, and I did not have an answer for her.

This applies to landowners who are directly impacted, and includes those within the very large blast zone and evacuation zone.

The same fears apply to landslides, not just from landslides entering their property, but also from landslides damaging the pipe and setting off a catastrophic explosion.

Landowners are also knowledgeable about the threat to the health of their families and their neighbors from the MVP.

Many people along the MVP bought their property in order to live in a quiet, natural, peaceful place with clean air and clean water. That has all been shattered by the MVP.

Please see further comments regarding significant pipe safety and public health threats elsewhere.

People impacted by the MVP have been attacked by the MVP and FERC for the past 8 years. A big part of their lives has been spent defending their property, their safety and their health. They are fatigued and battle weary. Some have passed as they fought for their property. Most are depressed that FERC and other regulatory agencies, both federal and state have not helped them, and instead have provided help to the MVP. They realize that their tax dollars are paying to prop up the MVP, instead of helping them and their families. This is more than a sorry state of affairs. It's an outrage, and it should not be tolerated.

The MVP has taken away the security and needs of those most impacted, and the security of others across our country as well. The MVP has now become a national issue, and people all over the country are aware that the MVP is taking away the needs and welfare of the people.

Soil and Riparian (FW-5, FW-8, FW-9, FW-13, FW-14, and 11-003). Minor adverse effects would occur from vegetation removal, erosion and sedimentation, soil compaction, soil porosity, runoff potential, soil fertility, revegetation potential, and soil carbon budget.

Vegetation removal will result in invasive species proliferation, and migration of those species into the nearby forested areas. It will also deprive wildlife of food and habitat.

Erosion and sedimentation has already resulted in soil loss from the project and sediment pollution to receiving streams. See further comments regarding water monitoring.

Attempts to loosen compacted soil and improve soil porosity will result in additional soil disturbance, erosion, and sedimentation.

Disturbed soil greatly increases stormwater runoff, and much more than runoff from the original forest.

Soil fertility is lost from the soil disturbance and disruption of the soil profile. Attempts to improve soil fertility with fertilizers will not completely renew the fertility. Soil erosion and runoff will result in the fertilizers being carried off site, and polluting receiving waters. Fertilizer pollution from construction sites is a well known pollution source.

Soil disturbance also results in carbon release into the atmosphere.

Revegation potential is reduced due to the disturbances cited above. Invasive species will thrive. Forest succession will be altered due to the impacts of climate change, which continue far into the future.

Old Growth Management Area (6C-007 and 6C-026). The project would result in the clearing of about two acres of old growth within areas designated as 6C (FERC FEIS, Sec. 5.1.8, p. 5-9). Although this is an adverse impact to old growth ecosystems, it is not a substantial adverse impact due to the limited extent of the impact (about 2 out of 30,200 acres

of old growth acres forest-wide).

Old growth forests are our natural heritage and should not be removed. We have lost too many old growth forests already. The Amazon basin is now a carbon emitter instead of a carbon capture and storage forest. We need to preserve our old growth forests, and all forests. We need to create forests, not destroy them.

Appalachian National Scenic Trail (4A-028). Temporary, minor adverse effects to trail users would occur from noise, dust, and visual intrusions from crossing the pipeline underneath the ANST via a 600-foot-long bore. The long-term effects would be minor due to an approximate 300-foot buffer on either side of the trail and vegetative screening of the bore holes. There are about 30,700 acres of the JNF allocated to management prescription 4A (Appalachian National Scenic Trail); approximately 2.5 acres of the ROW are within 4A, which is less than 0.01% of all 4A acres on the JNF.

The temporary impacts will very likely take much longer than the MVP stated 10 weeks to complete the bore. Earlier MVP boring operations have greatly exceeded their stated duration. The 300 foot buffer will not screen boring operations or the pipeline during half the year when the trees are bare. I can see my house from 600 feet away through 600 feet of very old growth forest when the leaves are off the trees. People hiking the AT would also be threatened by a pipeline explosion with a 1,115 blast zone and a 0.7 mile evacuation zone. See MVP threat to public safety.

Desecrating the AT with this unjust, destructive, and dangerous project is not acceptable.

Scenery Integrity Objectives (FW-184). The project would result in degradation of scenic quality inconsistent with the JNF Forest Plan Scenic Integrity Objectives (SIOs). Although this is an adverse effect to scenery, it is not a substantial adverse effect due to the limited extent of the project crossing the JNF (FERC FEIS p. 4-347), because SIOs should be met within five years, the project's proposed mitigation measures that would apply to temporary workspace, and the temporary and authorized ROW

that are found in the updated POD (Section 7.9).

Scenic integrity would be 100% degraded along the entire r/w in the JNF. Hikers through the forest will have to cross a foreign landscape if they come upon the MVP r/w. Scenic integrity objectives will not be met within 5 years, or even 50 years after project completion, which would be 80 years or more.

The scenic integrity analysis from the New River using GPS computer programs is an affront to common sense. The USFS should send someone down to river to take a look, and ask others, including people on the river, if scenic integrity has been lost. The faster the trees grow back the sooner scenic integrity is restored. Not allowing the MVP to cross the JNF would reduce that time from about 80 years to 50 years.

MVP Threat To The Public Safety

The USFS has not assessed the significant risk to the public safety from the MVP as required by NEPA.

I discussed pipe safety concerns with USFS staff in the summer of 2022. I am disappointed that USFS failed to include the significant public safety issues related to pipe integrity and landslides in the DSEIS.

The Mountain Valley Pipeline (MVP) is a significant threat to the public safety. It would threaten staff and visitors along the route through the Jefferson National Forest. It would also threaten wildlife, the forest, and downstream water quality.

The Federal Energy Regulatory Commission (FERC) and the Pipeline and Hazardous Materials Safety Administration (PHMSA) have not required satisfactory measures to protect the public safety. MVP has failed to carry out even the minimal measures required by FERC and PHMSA. FERC and PHMSA have failed to properly enforce those minimal measures.

Potential For Catastrophic Explosion

The Mountain Valley Pipeline (MVP) is 42 inches in diameter, and would carry 2 billion cubic feet of natural gas at a pressure of 1,480 pounds per square inch on pipe walls less than 5/8 inch thick along almost of the route. It is only six inches smaller than our country's largest pipeline, the Trans Alaska Pipeline at 48 inches in diameter, which carries much less explosive crude oil.

The scientific literature clearly demonstrates the positive relationship between gas pipeline diameter and pressure, and the "probability of ignition" in the event of a pipeline rupture. As the pressure and diameter of the pipe are increased, the likelihood of an explosion increases if the pipe is compromised. The industry understands that a pipe as large as, and under as much pressure as the MVP has an 80% chance of exploding if the pipe walls are breached.

An MVP explosion would be catastrophic. Under current calculations, which have recently been determined to understate the extent of an explosion, the MVP would have an impact radius of 1,115 feet in all directions from the point of explosion. This is the area where death and serious injury is likely. It would have an evacuation radius of 0.7 miles. This is the area that would have to be evacuated within minutes to avoid death or serious injury. The total area within the impact radius of the MVP would be 126 square miles. (6)The total area within the evacuation zone would be 425 square miles, or more than 1/3 the size of Rhode Island. (7)That's a very large number of families, properties, and buildings that would be placed in harm's way.

Please note however that on 8/15/22, following an investigation into a deadly Kentucky natural gas pipeline explosion, the National Transportation Safety Board (NTSB) determined that the formula for calculating the impact radius from a natural gas pipeline explosion significantly underestimates the danger. (9) The Kentucky explosion threw a section of pipe beyond the estimated blast zone.They called for a reassessment to accurately increase the size of the impact radius. That reassessment has yet to be made.

Based on the need for reassessment of the impact radius, It is now clear

that an MVP explosion would be larger, more devastating, and cover more area than my figures cited above, which were calculated under the old, and now inadequate formula.

This was a 30 inch pipe operated by Enbridge, Inc. An MVP explosion would dwarf this accident.

The NTSB indicated, among other failures, that a manufacturing defect, pipe degraded pipe coating, and failure of cathodic protection were the primary cause of the explosion, along with an insufficient integrity management plan.

Please see my comments below in which I indicate that information regarding the pipe, pipe coating, cathodic protection, and the integrity management plan for the MVP have not been provided to the public.

PHMSA records indicate that pipeline accidents are not uncommon in our country. Significant accidents have occurred an average of every 5.3 days over the past 20 years. (10) Significant accidents are defined as those that involve death, hospitalization, property damage in excess of $140,000, or large spills. Smaller accidents are not included in these records. An MVP explosion would dwarf most of all these accidents due to its very large size, and very high pressure.

Pipe Integrity Is Highly Questionable

The integrity of the MVP pipes is highly questionable. The pipes have not been properly protected from corrosion.

Ultraviolet light (UV) in sunlight degrades the FBE coating. Heat, humidity, rain, and moisture also degrade the coating. The degradation becomes more severe as the time of exposure increases. (11)

MVP understands this threat to pipe integrity, and the significant threat to public safety that it creates. Nevertheless, they have not taken appropriate actions to eliminate that threat.

MVP's Robert Cooper testified under oath about the pipe coating during

court appearances in January, 2018. He stated if the pipe is exposed to the sun until November of 2018 it will need to be recoated or rotated in storage to assure that the integrity of the coating is not compromised. Despite MVP's declaration in a court of law, a large amount of pipe remains on the ground 5 years later, with no pipe being recoated, and pipe rotation highly questionable. See below for amount of time that sections of pipe were left exposed to the sun and weathering.

Coating degradation reduces the thickness of the coating, making it more prone to perforation, and an opening to the pipe surface for corrosive materials. Degraded coating also becomes more brittle, more prone to cracking, less flexible, and more likely to separate from the pipe. This also leaves the pipe more susceptible to corrosion.

FBE coating is generally effective at preventing corrosion if the pipes are stored and handled per industry guidelines. These standards include protection from sunlight, heat, and moisture while the pipes are outdoors.

MVP has not followed these guidelines, and has left the pipes exposed to sun, heat, and moisture for many years. This has no doubt degraded the coating, and left the pipes more prone to corrosion, failure, and catastrophic explosion.

Numerous studies and reports show significant degradation of the coating when pipe is not properly protected.

Reports and Studies Indicating Pipeline Coating Degradation

FBE coating manufacturer 3M indicates that 0.375 to 1.5 mils of coating can be lost each year if pipe is exposed to the sun.

The National Association of Pipeline Coating Applicators states that pipe coated with FBE should not be left in the sun for more than 6 months.

A study by Cetiner, et al (12) found that FBE exposure to the sun resulted in the coating failing to pass a standard flexibility test less than one year after the coating was applied. This study was conducted in Grovedale, Alberta, Canada where solar intensity is much less than in more southerly

Virginia and West Virginia, where the MVP pipes have been exposed.

Of particular relevance is a 2018 study by T.C. Energy for the Keystone XL pipes. (13)This study found that the FBE coating for the pipes that were exposed to UV completely failed to retain its original properties and attributes. The coating failed tests for dry adhesion, cathodic disbondment, and flexibility. Coating thickness on most pipes was reduced by more than 50%. All of the pipes that were exposed to sunlight were deemed no longer fit for use.

The study goes on to state “However, common to all FBE coatings is their struggle to retain their original flexibility when examined in accordance with the Canadian Standards Association Z245.20 cold temperature flexibility test method. This aesthetic change of gloss and chalking is clearly accompanied by an embrittlement of the coating, as exhibited by loss of adhesion through the dry adhesion testing, and reduction of flexibility performance. Any form of reduction in the interaction of UV and the coating via tarping, whitewashing or any other means would therefore be clearly beneficial in reducing or eliminating the UV damage to the polymeric structure of the FBE.”

Prominent pipeline safety expert Richard Kuprewicz, President of Accufacts, Inc., reported on the Keystone study findings in a report for the Natural Resources Defense Council. He advised that all of the pipe that had been stored outside should be tested to see if it meets the minimum National Association of Corrosion Engineers (NACE) standards. He further advised that pipe segments whose FBE coating did not meet the NACE standards should be replaced with newly manufactured pipe, or have the FBE removed, stripped, and new coating reapplied.

At the Saskatchewan Oil and Gas Supply Chain Forum in Regina, Canada on October 4, 2018, Doug Bruning, pipeline manager for the Keystone XL, advised that if a pipe fails safety tests it is scrapped. Other pipe, whose coating thickness is too thin, is set aside to strip off the coating and then recoat the pipe. This cannot be done in the field. He advised that the pipe to be stripped and recoated would have to be transported back to the factory for that process, and then sent back to the line before usage.

A July 30, 2019 letter from Matthew Eggerding of MVP to FERC advised that the coating used on the MVP pipes is the same 3M FBE 6233.

The coating on the MVP pipes may have been subjected to even more degradation than the Keystone XL pipes due to high intensity UV light, heat, humidity, and precipitation, due to the warmer and more humid climate along the route of the MVP. See below.

A 5/13/22 report from the NIH Nations Center for Biotechnology Information by Hossein Zargarnezhad, et al indicates that information regarding moisture interaction with FBE coatings is lacking. It states in part…Stockpiling coated pipes prior to their service life is a common practice by industry. Combined with moisture uptake, UV exposure can significantly affect the barrier properties of coatings. Analysis of UV exposure effects on the mass transfer capacity of these materials is lacking and is a requirement for corrosion protection assessment. Wet-state use can change mass transfer properties of polymers, depending on their molecular structure, in different ways than dry state use. Therefore, analysis from a corrosion model based on data from dry conditions may not generate an accurate assessment for wet-state conditions. See comments below indicating high moisture interaction with MVP pipe.

Coating Is Especially Vulnerable to Degradation Due To Local Weather

FERC's environmental impact statement for the MVP describes West Virginia as having a humid continental climate, and Virginia as having a humid coastal climate. It shows that Virginia receives an average of 46 inches of precipitation per year, and West Virginia receives an average of 44 inches of precipitation per year. NOAA states that the national average for annual precipitation is 30 inches per year. Weather data shows that Virginia ranks as the 17th warmest state, and West Virginia as the 22nd warmest state.

This indicates that the climate along the route of the MVP is hotter, more humid, and with more precipitation than most locations in the United States. This leaves the pipe coating more vulnerable to degradation from heat, humidity and moisture than most locations.

This precipitation and moisture is not only acting on the exterior coating of the MVP pipes. It is entering the interior of the pipes as well. The pipes have been left along the MVP right of way for a number of years. The MVP has advised PHMSA that they are covering the pipe ends to keep water out of the pipes. This is simply not the case. There are numerous images, including many in the Roanoke Times and Virginia Mercury, that clearly show pipes that have been left out along the right of way that do not have protective barriers covering the ends. In fact, images show some pipe in standing water.

Images of large stockpiles of MVP pipe also show that the pipe ends are not covered, leaving the interior of those pipes exposed to rain, moisture, and corrosion as well.

Per a May 8, 2020 email from John Butler of MVP to Joseph Klesin of PHMSA, the MVP pipes have no internal coating to protect them from corrosion. Consequently, the pipe interior could be even more prone to corrosion than the outside of the pipes, even though the outside of the pipes has highly suspect coating.

Images from concerned citizens clearly show rust on the interior of pipes.

MVP Has Failed To Protect The Pipes and Pipe Coating From Degradation

MVP has not followed standard industry guidelines. They have left the pipes exposed to sun, heat, and humidity, which leaves them more prone to corrosion, pipe failure, and catastrophic explosion.

According to an MVP summary of pipe installation through the 4th quarter of 2019, MVP's weekly report #244 to FERC for the week ending 7/1/22, and stamped pipe coating dates from late December 2016 through June 30, 2017 a large number of pipes have remained above ground and exposed to sun, heat, humidity, and precipitation as follows:

- Almost all, or 302 miles, and nearly 40,000 pipes were exposed for at least 1 year after being coated

- 123 miles, or more than 16,000 pipes were exposed for at least 2 years after being coated
- 67 miles, or nearly 9,000 pipes were exposed for at least 2 1/2 years after being coated
- 48 miles, or over 6,000 pipes remain exposed for at least 5 1/2 years after being coated.

The approximate 462 segments of pipe which are designated to be placed in the ground in the JNF have been exposed for at least 5 1/2 years.

This leaves the integrity of the pipe coating and the pipes highly questionable.

Adequate Cathodic Protection for Pipe In The Ground Is Questionable

Pipe in the ground may not be properly protected as well. Pipe in the ground is also subject to corrosion. Cathodic protection must be applied to pipe in the ground to prevent corrosion.

The MVP summary stated above, and a letter dated July 21, 2021 from Matthew Eggerding to FERC, stated below indicate that over 100 miles of pipe in the ground was left with no cathodic protection for at least 2 1/2 years. This may have resulted in corrosion that leaves the pipe more susceptible to failure and catastrophic explosion.

Chlorides and other chemicals in the ground can accelerate pipeline corrosion. Interference from electrical impulses in the ground from nearby sources can interfere with cathodic protection systems. Industry cathodic protection standards emphatically state that a soil survey must be made prior to a cathodic protection system being installed to determine the adequate design of that system, and tests for electrical impulses must be conducted as well.

Pipe safety experts agree that leaving pipe in the ground without cathodic protection leaves the pipe vulnerable to corrosion.

PHMSA has failed to provide the public with PHMSA inspection reports of

the MVP showing inspector name, date, project, location of the inspection, and inspection findings. This should be public information.

Additionally, neither PHMSA nor MVP has provided adequate information to the public indicating that various required tests and procedures have been completed to assure the safety of pipe in the ground.

Misleading MVP Statements Regarding Pipe Safety

MVP has made a number of misleading statements regarding pipe safety issues.

I present the following MVP statements, followed by a response to those statements.

On July 30, 2019 Jeffrey Klinefelter, Vice President, MVP Construction and Engineering wrote to FERC, and commented about the integrity of the pipe coating and stated:

- Pipe coating thickness was tested in the summer of 2017 and found to be satisfactory.
- Stored pipe is shuffled to reduce UV exposure to the pipe ends
- In August of 2018 MVP discussed the minimum coating thickness with the coating manufacturer, and sampled average pipe coating thickness, and found it to be above the manufacturer's recommendation.
- MVP expects that all pipe will be installed well before the coating drops to an unacceptable level.

Response:

- Pipe coating thickness in 2017, 5 1/2 years ago, is irrelevant to pipe placed in the ground or remaining above ground after that date.
- Shuffling pipe in the stockpile is minimally effective. Not only are the pipe ends exposed to UV, but the entire 40 foot length of the pipe at the top and the sides of the stockpile is exposed as well. Industry standards for UV protection include covering the pipe with tarps, white washing the pipe, applying a second UV resistant coating, and most importantly, promptly getting the pipe in the ground.

- The average coating thickness in 2018 is irrelevant, and does not account for all pipe. Some pipe will have less thickness than the average pipe. No information is given regarding the original thickness, the current thickness, or the minimum safe thickness.
- MVP is well behind the 2019 schedule for pipe installation.

On July 21, 2021 Matthew Eggerding, MVP Assistant General Council wrote to FERC in response to an earlier letter from Preserve Bent Mountain and stated:

- FERC earlier expressed no concerns about the coating thickness.
- MVP inspects the pipes for coating issues and conducts periodic coating surveys.
- MVP installed temporary anodes at 230 locations since October, 2020.

Response:

- FERC's comments are irrelevant at this time.They were made 2 years ago.
- Both MVP and FERC fail to discuss several equally important coating safety concerns, including coating flexibility, brittleness, disbondment from the pipe, and uptake of chlorides and other substances that corrode the pipe.
- No comments were made by MVP or FERC regarding the corrosion status of the pipe interior. The interior of the pipe is not coated. It has been exposed to water due to the pipe ends being left open, and there are no records presented showing if the pipe interior has been inspected or tested, and the results of any inspections or tests that may have been conducted.

An MVP "Integrity Update July 2020" to PHMSA states:

- …the corrosion specialist firm hired by MVP has performed DCVGs on all continuous sections of pipe greater than 3 miles in Spreads A and B. At this time, approximately 38 miles of pipe have undergone a coating survey.

Response:

- DCVG or Direct Current Voltage Gradient tests are unable to detect coating flexibility failure, or corrosion causing chemical uptake into the coating.

- This only covers 38 miles of the 303 mile pipeline.

These MVP letters and the information provided to PHMSA are at best misleading, and lack pertinent information. See further comments regarding misleading information from MVP.

Incorrect Statement In FERC's Approval of MVP Extension Request

Please note that MVP has stated that they will physically inspect the pipe just before placing it in the ground as required by regulation. FERC has incorrectly stated in their approval of a four year extension of the MVP certificate that this assures the pipe will be safe. MVP states that MVP will also use Direct Current Variant Gradient (DCVG) assessment of the coating to assure the coating is satisfactory once the pipe is in the ground. Please note that (DCVG) cannot assess coating hardness, impact resistance, flexibility, and uptake of chlorides and other corrosive substances.

Comments From Experts Regarding Coating Protection

Richard B. Kuprewicz, President, Accufacts Inc. is perhaps the pre eminent pipe safety expert in our country. He has served as an expert witness, and has testified before Congress.

In an interview with the Roanoke Times published on September 2, 2022, in which he was asked about the MVP pipe, Mr Kuprewicz stated "It's probably in terrible shape." He also stated "Given what I've seen of this project, the public is raising valid concerns, and they need answers to those concerns".

Mr. Kuprewicz has also stated the following:

- DCVG surveys can not detect the flexibility of the coating nor other

chemicals that can cause external corrosion. It is an above ground survey technique that mainly tests for holes in the coating. Other surface measuring surveys methods are used in combinations with DVGA such as Close Interval Pipeline Survey Inspections (CIPS) to detect more concerning issues with coating and CP, such as coating disbondment from the pipe.

- PHMSA regulations do not require that cathodic protection systems need to be effective to assure pipe safety and there is much flexibility as to how CIPS and DVGA are utilized and interpreted to assure the systems are effective at reducing external corrosion to the pipeline.

- PHMSA regulations do not assure pipe safety, as they are minimum regulations and most prudent pipeline operators will exceed them in many important areas.

Stuart Croll, Professor Emeritus, Department of Coatings and Polymeric Materials, North Dakota State University advised that “It will be extremely expensive to remove, replace and repair all the sections of pipe that should be replaced”.

- Standard epoxies are notorious for suffering badly in UV - they are very good when used as primers but need a topcoat to protect them from sunlight.

- Fusion bonded epoxy exposed for 5 years could easily develop cracks, small holes, and other problems. Two years of exposure could easily start problems. If such pipe sections were to be used, the installers would have to be extremely thorough in testing the coating and the corrosion level. I would be inclined to say that they should replace the pipe sections with new.

- DCVG surveys can indicate where a problem might be, but they do not indicate the cause of the problem. Separate and different investigation is required for that.

The Pipeline Safety Trust issued a press release on September 23, 2022 stating the following:

“The Pipeline Safety Trust has deep safety concerns with the construction of this pipeline. The risk of a pipeline failure is a function of both probability and consequences. The pipeline’s large diameter and high pressure mean the MVP could dramatically damage a much larger area than most natural gas transmission pipelines, making the consequences of a potential failure greater. But there are also at least two other factors we are concerned about which increase the probability of a failure on the MVP:

1. Mountain Valley Pipeline is at risk of failure from movement of the steep slopes that it traverses, risking a catastrophic rupture in difficult terrain.
2. There are significant concerns about the effectiveness of the FBE epoxy coatings on the pipeline segments that have been exposed to sun and weathering for far longer than recommended by the manufacturer. The coating on a pipeline is critical in protecting against corrosion, a major cause of pipeline failures.”

Paul Davies, a retired Mechanical/Electrical Engineer, Corrosion/ Materials Specialist from Cambridge University stated the following. “The big problem with having a quite well coated pipeline in the ground with no CP is that the natural corrosion is all concentrated at the defect locations and because these are relatively small the rate of attack can be very high. Its very hard to predict actual corrosion rates in this condition because it is highly dependent on soil water content, soil chemistry, soil electrical conductivity, types of bacteria in the soil etc. and of course, the "stray" electric currents in the soil. However the damage can be serious and could lead to penetrating the pipe wall in a very few years.”

The industry has also expressed concern. A representative of leading pipeline manufacturer, who does not wish to be named, advised that there is a “one million percent chance” that the pipe needs to be repaired, or replaced.

In order to comply with NEPA the USFS should complete the following actions:

The USFS should require that an independent expert conduct

inspections of the pipe, test the pipe, and make recommendations to assure the pipe is safe.

The USFS can obtain list of pipe safety experts prepared by the Pipeline Safety Trust can be found on their website.

The expert should recommend the inspection and testing protocol.

The protocol should include a representative sample of pipe that should be tested. The sample should include pipe that remains above ground, including pipe strung along the right of way, pipe remaining in stockpiles, and pipe in the trench that is not covered with backfill. Pipe in the interior and on the outside of stacked pipe should be tested. Pipe strung along the right of way should include pipe that has been in standing water, pipe that has been in direct contact with the ground, pipe that has been handled or moved more than once, pipe that has been moved by flooding or rolling downslope, and pipe in the trench without backfill.

Pipe in the ground should be excavated and tested as well. This should include pipe that was been provided with cathodic protection, pipe that has received no cathodic protection, pipe that has been in the ground for varying lengths of time, pipe at low points along the right of way, pipe that has been bent, pipe on steep slopes, and pipe in locations where excessive stress is likely.

The coating should be tested for degradation, holidays, cracks, thickness, hardness, impact resistance, flexibility, disbondment from the pipe, and uptake of chlorides or other corrosive materials.

The pipe should be tested for dents, cracks, welds, movement, wall thickness, and corrosion, both on the exterior and interior.

The test procedures should be based on NACE International standards, or accepted industry standards, if no NACE International standard applies. If a concerning amount of tested pipe fails the expert should decide if further pipe should be tested, including the possibility that all of the pipe must be tested.

The expert should decide if pipe should be replaced, or if pipe can be repaired. The expert should decide if pipe that is to be repaired should be repaired in the field or the factory. Factory repair, completed by experts under standardized conditions, is much more reliable than field repair.

All pipe repair or replacement must be made prior to the pipeline going into operation.

MVP Landslide Threat To Public Safety

The USFS has not assessed the risk of landslides to the public safety and to our environment.

I discussed these issues with USFS staff in late summer, 2022.

Landslides along the MVP route further exacerbate the risk to public safety. Landslides can stress, crack, and separate the pipe, resulting in pipeline explosions. Landslides can kill or injure persons near the pipeline. Landslides can cause significant property damage. Landslides can result in significant negative environmental impacts, including major water pollution events.

FERC's approved route for the MVP crosses 203 miles with high landslide incidence and susceptibility. The route also crosses the Giles County Seismic Zone in Western Virginia

PipeSak, Inc. a company who provides cushions for pipes in trenches described the MVP route as "incredibly steep".

An earthquake in Giles County Seismic Zone occurred on July 14, 2021. (14) Another occurred on September 13, 2017. County officials issued a code red after the 2017 earthquake. Martin C. Chapman, Research Associate Professor at the Virginia Tech Department of Geosciences has stated that earthquakes in the Giles County Seismic Zone are not uncommon, and to date, over 200 earthquakes have been recorded.

Further earthquakes are inevitable.

MVP construction disturbance on the extremely steep, and landslide prone mountainsides has created soil conditions that are more prone to landslides. This increases the public safety risk from landslides and landslide caused pipeline explosions.

The extreme route, and lack of adequate landslide mitigation measures has already caused numerous landslides.

High Prevalence of MVP Landslides

The MVP has caused a landslide that extended well beyond the right of way, and forced two families to evacuate their homes. Another landslide moved the pipe in three places.

According to a January, 2022 FERC approved variance spreadsheet, FERC had approved over 79 variances to the MVP certificate for landslides that required attempts to repair the landslides from beyond the MVP right of way, and onto private property.

Numerous other variances for landslides which did not extend beyond the right of way have been granted in the field by FERC Environmental Compliance Inspectors. This is problematic. Landslide repair and mitigation is a complex and difficult issue which requires extensive training. The inspectors may not have the training and expertise to keep these landslides from recurring or increasing in size. In fact, numerous attempts to prevent landslides from continuing have failed, and landslides continue.

MVP's FERC Approved Landslide Mitigation Plan Is Ineffective

MVP's FERC approved landslide mitigation has failed to prevent these landslides, and new landslides are inevitable.

Section 5.0 of the plan states "The basic strategies to protect against landslides and slope instability along the pipeline corridor during construction are stabilization, drainage improvement, and erosion and

runoff control." Nevertheless, very many landslides continue to occur. The basic strategies, as stated in the mitigation plan, have failed to prevent landslides.

Table 1 in the MVP landslide mitigation plan lists a total of 37 landslide concern areas along the route. Nevertheless, only 10 of the FERC approved variances for attempted landslide repair beyond the right of way were listed in these areas, according FERC's variance spreadsheet of January 3, 2022. The vast majority of variances, were issued for landslides outside of the MVP plan's landslide concern areas. The large landslide at milepost 91 was not within a landslide concern area, nor was the landslide that moved the pipe in 3 places at milepost 56.7. This clearly indicates that there are many more landslide concern areas than the plan identified.

Future monitoring for landslides is deficient as well. The mitigation plan relies on once per year LiDAR imaging to determine if land movement has occurred. This is not real time notification. There are no slip detectors installed, and no slip detection notification systems planned, even though these systems are readily available. There are no warning systems to notify nearby residents or emergency personnel that a landslide is imminent, or in progress. There are no evacuation plans.

Future Precipitation Events Further Threaten Landslide Risk

All of these landslides have occurred without the MVP experiencing the amount of rain that a hurricane or tropical storm will bring in the future. In 2018 tropical storms Michael and Florence dealt glancing blows along the MVP route. Weather records indicate just 3 inches of rain from Michael in the Roanoke/Blacksburg area, and no rain in Elkins, West Virginia. Nevertheless, the rain from Michael washed 4 segments of connected pipe an estimated 600 to 1,000 feet across a cornfield, and was only held back from washing into the Blackwater river by a narrow barrier of trees. Following this event open ended pipe was left periodically submerged in a nearby trench from the October storm event until the summer of 2019. Massive sediment runoff to receiving streams and properties occurred as well during both storm events.

Hurricane and tropical storm threats to the MVP are being exacerbated by increased precipitation from climate change. These threats will increase as extreme precipitation events increase in the future.

There is no question that a hurricane or tropical storm will directly strike the MVP in the future. This could result in devastating landslides.

Extreme weather events are already commonplace.

Wilmington, North Carolina received over 100 inches of rain in 2018 and is located only about 200 miles from the MVP terminus. (15) Elizabethtown, North Carolina received 36 inches of rain in September, 2018, and is only about 150 miles from the MVP. (16) Several other locations in southeast North Carolina received more than 30 inches of rain in 2018 from Hurricane Florence alone.

Greenbrier County, West Virginia, along the MVP route, received 8 to 10 inches of rain in about 12 hours in June, 2016. That extreme event took 22 lives in West Virginia. Fortunately, MVP construction had not started prior to this extreme weather event.

Recent Proximate Landslide Related Pipeline Explosions

Landslide caused pipeline explosions are not uncommon. In just the past several years two large pipelines near the MVP have exploded as a result of landslides. The 36 inch diameter Leech Express “Best In Class” Pipeline exploded on June 7, 2018 near Moundsville West Virginia, just 6 months after it went into service, and only hours before a pipeline crew was to arrive on the site. (17) The 24 inch diameter Revolution Pipeline exploded just one week after going into operation on September 10, 2018 near Pittsburgh, Pennsylvania. That explosion destroyed a home, barn, several cars, and collapsed 6 high voltage transmission towers. (18)

These explosions would be dwarfed by an explosion of the 42 inch diameter MVP. Additionally, the MVP could be more prone to explosion than the Leach Express of Revolution pipelines. The MVP would be operating with pipes that had been left in the sun for over 5 years, lacking cathodic protection for 2 years, located in a large active seismic zone,

traversing many miles of landslide prone slopes, and already experiencing landslides on a continual basis.

In order to comply with NEPA the USFS should have an independent expert or experts assess the risk of landslides on USFS property, and make recommendations to eliminate that risk. The expert(s) should trained in potential landslide recognition and prevention, as well as the risk to the pipe from earth movement, stresses to the pipe, and landslide impacts to the pipe.

This should include a an independent assessment of landslides that have already occurred, determination of why they occurred, and what could have been done, if anything, to prevent their occurrence. It should include an assessment of the risk from earthquakes. The assessment should also identify other areas where landslides may occur, and make recommendations to prevent further landslides.

The USFS should require that MVP immediately make corrective actions to comply with the expert recommendations, maintain and follow all recommendations prior to placing pipe in the ground, and follow a rigorous inspection program to identify indicators of imminent landslides, and actions to address those landslides to protect the public safety, property, and the pipe.

MVP Terrorist Threats to Public Safety

There are no safety measures in place to protect the MVP from a terrorist attack.

The top of the MVP pipe is only 3 feet under the surface of the ground in many locations. The pipe walls are less than 5/8 thick. Access to the pipe is not restricted by physical barriers. There are no warning systems in place to alert authorities if a terrorist is excavating the ground above the pipe, or preparing to set off an explosive device.

A single terrorist with hand tools could easily detonate the MVP, resulting in a catastrophic explosion. This would also result in very large power outages to downstream users. A coordinated attack against U.S. natural

gas pipeline system could cripple our country's power supply.

Page 4-573 of FERC's environmental impact statement for the MVP reads "The Commission, in cooperation with other federal agencies, industry trade groups, and interstate natural gas companies, is working to improve pipeline security practices, strengthen communications within the industry, and extend public outreach in an ongoing effort to secure pipeline infrastructure." This is virtually meaningless, and would do nothing to protect the public from a terrorist attack on the MVP.

The DEIS does not analyze the significant threat to the public safety form the MVP.

The USFS should consult with the Department of Homeland Security or safety experts to determine actions needed to prevent terrorist acts against the MVP on USFS property. The USFS should require MVP to implement recommended actions before the pipeline goes into operation.

MVP Threat to Public Health

The USFS has failed to analyze the negative health impacts from the MVP. This analysis must be made in order to comply with NEPA

The MVP would be a significant threat to the public health. Our fellow citizens near and downwind of compressor stations would be most threatened, but anyone on and near the MVP would be threatened, including those within the JNF.

FERC's earlier assessment of the public health impacts from the MVP was inadequate and outdated.

My comments below include studies which find significant negative health impacts from natural gas pipelines, and a critique of FERC's inadequate and flawed analysis.

Studies and Findings Indicating Negative Public Health Issues From

Compressor Station Discharges

Hendryx et al, 2020 conducted a county-level ecological study, using VOC emission data from the 2017 National Emissions Inventory, and found that total age-adjusted mortality, controlling for covariates (race/ethnicity, education, poverty, urbanicity, smoking and obesity rates), was significantly higher in association with greater non-methane VOC emissions from compressor stations. Twelve individual VOCs were also associated with significantly higher adjusted mortality. (19)

Payne et al, 2016, found high methane readings in areas downwind of compressor stations during periods of air inversion. The study conducted sampling at 9 compressor stations, seven in Pennsylvania, and two in New York. High methane reading would indicate high levels of other pollutants in the gas stream since they are all much heavier than methane, and would tend to drop out of the discharge plume closer to the compressor station. (20)

The data indicates that the areas downwind of compressor stations during periods with winds exceeding 3 meters per second will be exposed to methane plumes, and any other co-emitted pollutants released by compressor stations. Residents and properties downwind under prevailing wind conditions will likely be subjected to a disproportionate burden of contaminants from compressor stations, especially those closer to the station under light prevailing wind conditions. Conditions at night and during other low wind periods may result in particularly high methane burdens for residents and properties located downslope from compressor stations, especially during atmospheric temperature inversions.

The study concluded that the data indicate that compressor stations are likely sources of methane emissions and presumably co-emitted air contaminants, and can sporadically/episodically emit methane at relatively high levels.

University at Albany researchers investigated health harms associated with chemical emissions from natural gas compressor stations in New York State. Between 2008 and 2014, 18 gas compressor stations (out of 74 compressors in the state) released a total of 36.99 million pounds of air

pollutants, excluding methane and carbon dioxide. Thirty-nine of the chemicals released were human carcinogens. (21)

The Federal Agency for Toxic Substances and Disease Registry (ATSDR) released a report in 2016 on air quality near a natural gas compressor station in Brooklyn Township, Susquehanna County, Pennsylvania (22), finding levels of fine particulate matter (PM2.5) at levels that can damage human health in those with long- term exposure. Evaluating data from an 18-day EPA field air monitoring event, the report found that the average ambient 24-hour PM2.5 concentration observed at one residence (19 µg/m3) was higher than the nearest regional National Ambient Air Quality Standards (NAAQS) monitoring station (12.3 µg/m3) in Scranton, PA, over the same period. ATSDR concluded that there was evidence that long-term exposure to PM2.5 at the levels found can cause an increase in mortality, respiratory problems, hospitalizations, preterm births, and low birth weight. The agency said that in the short term, exposure could be harmful to sensitive populations, such as those with respiratory problems or heart disease. The agency recommended that sensitive individuals monitor air quality and limit activity accordingly, and that the PA DEP work to reduce other sources of PM and its precursors.

ATSDR, in collaboration with the EPA Region 3 Air Protection Division, conducted an exposure investigation in 2016 to evaluate exposures of residents living near the Brigich natural gas compressor station in Chartiers Township, Washington County, Pennsylvania. (23) ATSDR concluded that, although exposure to the levels of chemicals detected in the ambient air was not expected to harm the health of the general population, “some sensitive subpopulations (e.g., asthmatics, elderly) may experience harmful effects from exposures to hydrogen sulfide and PM 2.5 [and] some individuals may also be sensitive to aldehyde exposures, including glutaraldehyde.” According to ATSDR, one of the study’s limitations was that the sampling “may not have adequately captured uncommon but significant incidents when peak emissions (e.g. unscheduled facility incidents, blowdowns or flaring events) coincide with unfavorable meteorological conditions (e.g. air inversion).” ATSDR recommendations included reducing exposures to the chemicals of concern to protect sensitive populations, continued collection of emissions

data for long-term and peak exposures, and air modeling to better understand ambient air quality.

The American Medical Association (AMA) in 2015 adopted a resolution, "Protecting Public Health from Natural Gas Infrastructure," that was based on a resolution adopted by the Medical Society of the State of New York. (See below.) The resolution states, "Our AMA recognizes the potential impact on human health associated with natural gas infrastructure and supports legislation that would require a comprehensive Health Impact Assessment regarding the health risks that may be associated with natural gas pipelines."

The Southwest Pennsylvania Environmental Health Project, as part of a literature review on the health impacts of compressor stations reported in 2015 that peak emissions of fine particles tended to occur during construction time, that day-to-day emissions during operational time can fluctuate greatly, and that a compressor blowdown typically represented the single largest emission event during operations. Hence, documentation of these fluctuations cannot be captured by calculating yearly averages. (24) A blowdown is an intentional or accidental release of gas through the blowdown valve that creates a 30- to 60-meter-high gas plume. Blowdowns, which are used to release pressure, can last as long as three hours. The authors noted that blowdowns result in periods of high levels of volatile organic compound releases and that anecdotal accounts associate blowdowns with burning eyes and throat, skin irritation, and headache.There is neither a national nor state inventory of compressor station accidents, nor a body of peer-reviewed research on the public health impacts of compressor stations.

David O. Carpenter at University at Albany in 2014 found high levels of formaldehyde near 14 compressor stations in three states. (25) In Arkansas, Pennsylvania, and Wyoming, formaldehyde levels near compressor stations exceeded health-based risk levels. The authors noted that compressor stations can produce formaldehyde through at least two routes: it is created as an incomplete combustion byproduct from the gas-fired engines used in compressor stations. It is also created when fugitive methane, which escapes from compressor stations, is chemically converted in the presence of sunlight. Formaldehyde is a known human carcinogen. Other hazardous air pollutants detected near compressor

stations in this study were benzene and hexane. One air sample collected near a compressor station in Arkansas contained 17 different volatile compounds.

The Clean Air Council report prepared in January, 2013 by an independent consulting firm to evaluate air quality impacts from the Barto Compressor Station in Penn Township, Lycoming County, Pennsylvania predicted “large exceedances” of the nitrogen dioxide (NO2) 1-hour NAAQS. (26) Researchers used allowable emissions in the PA DEP permit, the 2006-2010 meteorological data and the latest EPA modeling guidance for the model’s prediction. Three techniques were used, and for two of the techniques, NAAQS exceedances occurred within a mile of the plant. The report concluded, “NO2 impacts from the Barto plant alone are very significant since its emissions cause large exceedances of the 1-hour NAAQS.”

A **Pittsburgh Post-Gazette** March 9, 2020 article found that residents living a quarter-mile from a compressor station in rural Washington County, Pennsylvania indicated that the persistent low-frequency sound from the station “gives them headaches and feels like torture.” The township does not regulate low-frequency noise. A member of the same family was recently diagnosed with multiple myeloma, a blood plasma cancer linked to benzene and other pollutants. This compressor station emitted 1.2 tons of benzene in 2018, “making it the third biggest source of the carcinogen in the seven-county southwestern Pennsylvania region,” according to data obtained from the Pennsylvania Department of Energy Emissions Inventory. Washington County has 40 compressor stations pushing gas through the pipelines.

Dr. Mark Baskaren, Wayne State University found significantly elevated levels of lead-210 and polonium-210 at the fenceline of Eagle Compressor Station in Chester Springs, PA. (27) This was 200 feet from Fellowship Fields, a community recreation center with playing fields.

Testimony at The National Press Club against the Federal Energy Regulatory Commission in December, 2016 described with great emotion a New York City Firefighter who responded to the Twin Towers during the 9/11 terrorist attack. (28)He survived, but his lungs were damaged. His doctor told him that he would have to leave New York City

due to air pollution in the city. He moved to a rural location in upstate New York. Shortly after moving he learned that a natural gas compressor station would be built nearby. His doctor told him he would have to move again due to unhealthful air pollution from the compressor station.

The Data, Methodology, And Regulatory Requirements That Were Used in FERC's Assessment Are Outdated, And No Longer Valid

Much of the data that FERC used in its assessment was taken from MVP's FERC approved Resource Report 9, which discusses air quality impacts. This report was submitted to FERC in October, 2015, over 7 years ago. FERC's certificate for the MVP was issued October 13, 2017. The report used data that was collected up to 12 years ago.

Resource Report 9 states that FERC's 2002 Guidance Manual for Environmental Report Preparation was used in producing it. This guidance document is also outdated. FERC's current Guidance Manual for Environmental Report Preparation Guidance Manual For Applications Filed Under the Natural Gas Act is dated February 2017. The Guidance Manual used by MVP is now 20 years old, and 15 years older than FERC's 2017 manual.

The negative public health impacts from the MVP would continue for decades, and that impact cannot be properly assessed from data, reports, and information that is no longer applicable.

Changes in regulations, our understanding of public health impacts from natural gas facility emissions, and methods for assessing the volume and concentrations of pollutant discharges have taken place since this assessment was made 7 years ago, especially since the assessment was based on data from 12 years ago.

The MVP report used AERMOD version 15181. This is the 2005 version of AERMOD. It is now 17 years old, and has been replaced by newer versions of AERMOD…see below. (29)

Other regulations and procedures that were included in the MVP

Resource Report #9 may have changed as well.

Compressor Station Weather Information and Ambient Air Quality Data Is Highly Suspect

Ambient air quality data for the MVP compressor stations was estimated by using air quality readings from 13 separate locations, under different air quality sources, with an average distance of 103 kilometers from the respective compressor stations. The most proximate reading was 35 kilometers away, and the furthest was 204 kilometers away. These readings are all at least 7 years old, and very much outdated. (30)

Existing sources of air pollution proximate to the compressor stations were not taken into account, or even mentioned in the report.

Weather data was also determined from remote locations, and is now very much outdated, especially with climate change rapidly changing weather conditions.

Resource Report 9 states that 7 of the 10 named pollutant emission factors from turbine combustion were based on a statement from the turbine manufacturer. This is likely biased and unreliable data, and is not acceptable.

The turbine manufacturer states that almost all emissions will be PM1. There has been no modeling for PM1, and this modeling is now available.

This outdated data is highly questionable, and may very well be inaccurate. Actual air quality and weather data should have been, and could have been recorded at the compressor stations themselves, but the MVP failed to do so. Current air quality and weather conditions at the compressor stations has not been accurately determined due to MVP's failure to present recent on-site data, and FERC's failure in accepting this unreliable data.

The Accuracy and Completeness Of The Air Modeling Is Highly Suspect

The model that was used was AERMOD version 15181. This is a 2005 model. More recent AERMOD models are significantly more capable of more accurate modeling. AERMOD 22122 is the current model.

EPA Region 3 staff advised me in writing on July 13, 2022 that ”The EPA requires the use of the latest AERMOD versions for air programs. I cannot speak for what the Federal Energy Regulatory Commission (FERC) requires."

EPA’s August, 2019 AERMOD Implementation Guide offers some insight into changes in AERMOD procedures that have occurred since 2005.

Beginning with version 16216 (12/20/16), AERMOD includes regulatory options for modeling capped and horizontal stacks using the POINTCAP and POINTHOR source types, respectively.

The 2018 Mesoscale Model Interface Program, or MMIF Document offers new recommendations on the use of prognostic data from remote locations.

There are certainly other changes to AERMOD since 2005.

EPA states that all AERMOD models are gaussian models that are not capable of accurately predicting pollutant dispersion in changing weather conditions, or as a result of chemical reactions in the turbine exhaust emission plume.

Volume 82, Number 10 of the Federal Register, dated January 17, 2017 under 40 CFR Part 51 the EPA issued a final rule revising guidelines on air quality models. (EPA -HQ-OAR-2015-0310; FRL-9956-23-OAR) RIN 2060-AS54.

This rule states under 2.1 (i) Gaussian plume models use a steady-state approximation, which assumes that over the model time step, the emissions, **meteorology and other model inputs, are constant throughout the model domain**, resulting in a resolved plume with the emissions distributed throughout the plume according to a Gaussian distribution…. **However, this formulation allows for only relatively**

inert pollutants, with very limited considerations of transformation and removal (e.g., deposition), and further limits the domain for which the model may be used. Thus, Gaussian models may not be appropriate if model inputs are changing sharply over the model time step or within the desired model domain, or if more advanced considerations of chemistry are needed.

Compressor station turbine manufacturer Solar Turbines states that there will be significant chemical reactions in the plume, with significant chemical transformation of emitted pollutants. (31) Therefore, AERMOD modeling may not be appropriate for MVP compressor stations.

Air modeling should be completed using a model that accurately predicts the deposition, distribution, and concentration of pollutants discharged from the MVP compressor stations during variable discharges, and under all weather conditions. The ADMS-3 model, an approved EPA alternate model, predicts wet deposition, dry deposition, gravitational settling, short term fluctuations in concentration, chemical reactions, radioactive decay, and gamma dose.

ADMS-3 modeling should be completed for the MVP compressor stations to more accurately predict pollutant concentrations, dispersion, deposition, and impacts to the public health.

Solar Turbines states that most of the emissions from the turbine combustion emission will be PM1 or smaller. (31)

Modeling has not been completed, and sampling is not planned for PM1 emissions. PM1 sampling techniques are currently available. PM1 is widely accepted as a more severe public health threat than PM2.5 or PM10.

EPA has advised me that particulate matter inhalation is a greater risk to the public health than previous thought. They advised that a new rule regarding PM will be issued in the near future.

Leaks, venting, and blowdowns are not modeled. These are significant pollution sources, which have not been taken into account.

Radon and Other Radioactive Emissions Have Not Been Analyzed

Radon-222 emissions, and it's radioactive byproducts, including lead-210, bismuth-210, and polonium-210, all of which are hazardous air pollutants (HAPS) by EPA, have not been analyzed. EPA estimates that radon causes 21,000 lung cancer deaths per year in our country. According to a 2015 Pennsylvania DEP study radon concentrations averaging 40 PiC/L were found in natural gas transmission lines. This is 100 times higher than EPA's ambient air concentration of 0.4 PiC/L.

Radon-222 will be discharged through combustion emissions, blowdowns, venting and leakage. Lead-210 and polonium-210 form highly radioactive scales inside transmission lines and pipes that carry natural gas. A study by Nowak, Jodlowski, and Macuda found that lead-210 has been found in black powder in natural gas transmission lines at concentrations of 500 to 17,000 Bq/Kg. and could be emitted as particulate matter in combustion exhaust, blowdowns, venting, and leaks. (35) Particulate polonium-210 will likely be emitted as well.

Another source of radiation exposure are the scales and sludges, including lead-210 and plutonium-210, that are deposited along the inside of the pipelines as radon-222 decomposes.

Some of these are removed during pipe maintenance operations, and they must be disposed of properly in order to protect the public, and industry workers. However, due to the federal RCRA exemption for these materials, and all materials that come from an oil or gas well, they are not considered hazardous waste, and do not have to be treated under hazardous waste requirements. The ultimate disposal of these radioactive substances has not been covered in FERC's environmental impact statements. Radon-222, lead-210, and polonium-210 are considered hazardous under all other circumstances, and still classified as Hazardous Air Pollutants (HAPS).

Radioactive scales along the inside of the pipes, and possibly radioactive sludge will remain in the pipes after the project is completed, and gas is no longer being transported. The MVP has no close out plan, or any

requirement for removal and proper disposal of these radioactive substances. It is likely that the pipes will be left in place with this radioactive material inside them.

As long as this material is left in the pipes it may not generally be a public health problem, because the emission are in the form of gamma rays, which cannot penetrate the pipe walls. Nevertheless the pipes will eventually collapse, and these dangerous substances will be released. Due to the long half life of lead-210, the amount of radiation in the pipes could increase for over 100 years.

These substances are very dangerous to human health, yet are not mentioned whatsoever in the FERC approved Resource Report 9.

FERC does mention radon-222 in the EIS for the MVP, but only in the context of negative health impacts inside homes where natural gas is used. The EIS then states that accounting for radon-222 discharges into homes is beyond the scope of the EIS. Discharges of radon-222, lead-210, and polonium-210 from the MVP into communities in proximity to the compressor station and pipeline are within the scope of the EIS, but are not included. FERC has failed to address this significant public health issue.

The DSEIS fails to analyze radioactive substances that would be discharged from the MVP.

I have have much more information regarding radioactive substances that would be created and discharged form the MVP. I would be happy to share that information with USFS staff.

Direct Impacts to JNF

Public health impacts to the JNF include pipe leaks of toxins and highly radioactive substances within the pipe.

All pipelines leak, and the MVP would be no exception. In fact, due to the very high volume of 2 billion cubic feet per day proposed for the MVP, and the highly questionable pipes, the volume of leakage is likely to be higher

than other pipelines. (36)

PHMSA requires that some leaks be repaired, although the regulations give the operator ample to time to make the repair. During that time the leak continues. Other leaks can continue indefinitely. PHMSA does not require repair of what they call non hazardous leaks. I believe that the term “hazardous” as used by PHMSA, refers to the potential for explosion, and not to health concerns. These leaks would continue indefinitely, and may actually increase over time.

These leaks, including all of the toxins and radon-222 would discharge into the ground along the MVP right of way. They may migrate and enter the groundwater, or be discharged through springs to surface waters. They could enter karst voids and be transported underground for long distances. They could enter private drinking water supplies for people living along the right away outside of the JNF.

The radioactive scales of polonium-210 and lead-210 will remain within the pipes. FERC has not required a close out plan for the MVP and, unless the USFS requires removal upon project completion those pipes may remain in place. As long as the pipes remain intact the alpha radiation generated by lead-210 and polonium-210 will remain within the pipes, since it cannot penetrate the pipe walls. Nevertheless the pipes will eventually fail, collapse, and release this very dangerous radiation to the ground where it may migrate as may radon. This will essentially leave a radioactive superfund site along the entire 303 mile route, including the 3.5 miles within the JNF.

The USFS should consider the negative health impacts from the MVP. They should discuss this issue with CDC and EPA. They should discuss the inadequacies in the MVP air pollution plan with FERC, and discuss leak issues with PHMSA.

The DSEIS fails to consider the significant threat to health for the MVP.

The USFS Has Failed To Consider Alternate Routes That Would Reduce or Eliminate Impacts to The JNF

NEPA requires analysis to consider reduced or no impacts. A USFS analysis of alternate routes has not been completed.

The DSEIS fails to consider alternate routes.

The MVP Would Worsen Climate Change

Climate change impacts from the MVP would not only negatively impact the JNF. They would negatively impact all of our national forests, our entire country, and the rest of the world.

I personally believe that climate change will kill more people than all previous wars combined. This is likely to occur due to conditions that make life impossible in large parts of the world, loss of food and natural resources, conflicts between nations and groups within nations due to the influx of climate refugees, and worldwide deprivation and strife.

A very large amount of new information regarding the impact of greenhouse gases on climate is now available since FERC issued the MVP certificate in 2017.

President Biden is aware of this data, and pledges that he will act forcefully to combat climate change.

On July 20, 2022 President Biden addressed the nation regarding climate change and stated, “This is an emergency and I will look at it that way.” Later in his address he stated, “Let me be clear, climate change is an emergency, and in the coming weeks I’m going to use the power I have as President to turn these words into formal, official government actions through the appropriate proclamations, executive orders and regulatory power that a president possesses.”

Other leaders in our country and around the world have made similar declarations.

More and more persons are aware of the horrific impacts of climate

change, and are working together to combat it. Many of these are young people who face an increasingly hostile climate for the rest of their lives, and through no fault of their own.

Sixth UN IPCC Report

The 6th IPCC report, issued in 2021, indicates a rapidly deteriorating climate, with methane and other fossil fuels as the primary driver of climate change. This is a truly frightening scientific account of the catastrophic changes that methane and other fossil fuels have brought about, and the horrific impact they are causing at this time. These impacts will only worsen for future generations.

Excerpts from that report indicating changes to the climate at this time are as follows:

It is unequivocal that human influence has warmed the atmosphere, ocean and land. Widespread and rapid changes in the atmosphere, ocean, cryosphere and biosphere have occurred.

Current global surface temperature is 1.07 C higher than 1850 - 1900 levels.

Precipitation has increased.

Mid latitude storm tracks have shifted poleward.

There has been a retreat in glaciers, and melting of Arctic sea ice. The rate of ice sheet loss increased by a factor of four between 1992–1999 and 2010–2019. Together, ice sheet and glacier mass loss were the dominant contributors to global mean sea level rise during 2006-2018.

Upper ocean temperatures have risen.

Sea level has risen 0.2 meters since 1900. The rate of sea level rise has accelerated in more recent years. Global mean sea level has risen faster since 1900 than over any preceding century in at least the last 3000 years.

CO_2 levels are the highest in 2 million years.

Methane levels have increased 154%, and are at the highest level in the past 800,000 years.

NO_2 levels are the highest in the past 800,000 years.

Weather extremes are more frequent and intense, both heat, precipitation, and category 3-5 tropical cyclones.

Ocean warming accounts for 91% of current global warming.

Each of the last four decades has been successively warmer than any decade that preceded it since 1850.

An estimated increase in global surface temperature of 0.19 C has occurred since 2003–2012.

It is unequivocal that human influence has warmed the atmosphere, ocean and land. Widespread and rapid changes in the atmosphere, ocean, cryosphere and biosphere have occurred.

Globally averaged precipitation over land has likely increased since 1950, with a faster rate of increase since the 1980s.

Human influence is very likely the main driver of the global retreat of glaciers since the 1990s and the decrease in Arctic sea ice area between 1979–1988 and 2010–2019

The global ocean has warmed faster over the past century than since the end of the last deglacial transition, around 11,000 years ago. It is virtually certain that the global upper ocean (0–700 m) has warmed since the 1970s and extremely likely that human influence is the main driver.

It is virtually certain that human-caused CO_2 emissions are the main driver of current global acidification of the surface open ocean.

There is high confidence that oxygen levels have dropped in many upper ocean regions since the mid-20th century.

The scale of recent changes across the climate system as a whole and the present state of many aspects of the climate system are unprecedented over many centuries to many thousands of years.

In 2011–2020, annual average Arctic sea ice area reached its lowest level since at least 1850. Late summer Arctic sea ice area was smaller than at any time in at least the past 1000 years. The global nature of glacier retreat, with almost all of the world's glaciers retreating synchronously, since the 1950s is unprecedented in at least the last 2000 years.

It is virtually certain that hot extremes (including heatwaves) have become more frequent and more intense across most land regions since the 1950s, while cold extremes (including cold waves) have become less frequent and less severe,

The frequency and intensity of heavy precipitation events have increased since the 1950s over most land areas for which observational data are sufficient for trend analysis.

It is likely that the global proportion of major (Category 3–5) tropical cyclone occurrence has increased over the last four decades,

The report considers five scenarios, and their impact on our future climate…very high, high, medium, low, and very low greenhouse gas emissions emissions into the future. These predictions are as follows:

Global warming will exceed 2C this century unless deep reductions in GHG emissions are made.

Under the very high emission scenario a 2.4C increase is likely by around 2050, and a 4.4C increase by around 2090.

Under the very low emission scenario a 1.6C increase is likely by around 2050 dropping back to 1.4C increase by around 2090.

Heavy precipitation events are likely to continue to increase with rising temperatures, including more category 3-5 tropical storms

The global water cycle is expected to become more variable and extreme

Natural carbon sinks in the land and ocean will be less effective in removing carbon emissions, leaving more carbon in the atmosphere.

Changes in sea level, ice sheets and glaciers, and ocean acidification and deoxygenation will occur, and be irreversible for centuries or millennia.

Relative to 1995-2014, the likely global mean sea level rise by 2100 is 0.41M under the very low emissions scenario, and 0.82M under the very high emissions scenario. A 2M rise cannot be ruled out due to uncertainty about ice sheet processes.

Sea level will be up 13 feet by 2300 even under the very low emissions scenario.

Sea level is committed to rise for centuries to millennia due to continuing deep ocean warming and ice sheet melt, and will remain elevated for thousands of years.

U.S. Fourth National Climate Assessment - 2018

The United States Fourth National Climate Assessment, published in 2018, shows similar catastrophic impacts from climate change. It summarizes the actual impacts that climate change is having, and will have on different aspects of our society. These findings are summarized below.

Communities - Climate change creates new risks and exacerbates existing vulnerabilities in communities across the United States, presenting growing challenges to human health and safety, quality of life, and the rate of economic growth.

Economy - Without substantial and sustained global mitigation and regional adaptation efforts, climate change is expected to cause growing

losses to American infrastructure and property and impede the rate of economic growth over this century.

Interconnected Impacts - Climate change affects the natural, built, and social systems we rely on individually and through their connections to one another. These interconnected systems are increasingly vulnerable to cascading impacts that are often difficult to predict, threatening essential services within and beyond the Nation's borders.

Aspects To Reduce Risks - Communities, governments, and businesses are working to reduce risks from and costs associated with climate change by taking action to lower greenhouse gas emissions and implement adaptation strategies. While mitigation and adaptation efforts have expanded substantially in the last four years, they do not yet approach the scale considered necessary to avoid substantial damages to the economy, environment, and human health over the coming decades.

Water - The quality and quantity of water available for use by people and ecosystems across the country are being affected by climate change, increasing risks and costs to agriculture, energy production, industry, recreation, and the environment.

Health - Impacts from climate change on extreme weather and climate-related events, air quality, and the transmission of disease through insects and pests, food, and water increasingly threaten the health and well-being of the American people, particularly populations that are already vulnerable.

Indigenous Peoples - Climate change increasingly threatens Indigenous communities' livelihoods, economies, health, and cultural identities by disrupting interconnected social, physical, and ecological systems.

Ecosystems and Ecosystem Services - Ecosystems and the benefits they provide to society are being altered by climate change, and these impacts are projected to continue. Without substantial and sustained reductions in global greenhouse gas emissions, transformative impacts on some ecosystems will occur; some coral reef and sea ice ecosystems are already experiencing such transformational changes.

Agriculture - Rising temperatures, extreme heat, drought, wildfire on rangelands, and heavy downpours are expected to increasingly disrupt agricultural productivity in the United States. Expected increases in challenges to livestock health, declines in crop yields and quality, and changes in extreme events in the United States and abroad threaten rural livelihoods, sustainable food security, and price stability.

Infrastructure - Our Nation's aging and deteriorating infrastructure is further stressed by increases in heavy precipitation events, coastal flooding, heat, wildfires, and other extreme events, as well as changes to average precipitation and temperature. Without adaptation, climate change will continue to degrade infrastructure performance over the rest of the century, with the potential for cascading impacts that threaten our economy, national security, essential services, and health and well-being.

Oceans and Coasts - Coastal communities and the ecosystems that support them are increasingly threatened by the impacts of climate change. Without significant reductions in global greenhouse gas emissions and regional adaptation measures, many coastal regions will be transformed by the latter part of this century, with impacts affecting other regions and sectors. Even in a future with lower greenhouse gas emissions, many communities are expected to suffer financial impacts as chronic high-tide flooding leads to higher costs and lower property values.

Tourism and Recreation - Outdoor recreation, tourist economies, and quality of life are reliant on benefits provided by our natural environment that will be degraded by the impacts of climate change in many ways.

United Nations 2021 Report On the Need to Reduce Methane Emissions

This report was led by Drew Shindell, Distinguished Professor of Earth Science at Duke's Nicholas School of the Environment, and was produced by the United Nations Environment Programme and the Climate and Clean Air Coalition. It was first posted online on May 6, 2021

Findings from the report are summarized below.

Reducing emissions of methane is the most cost-effective way to slow the rate of Earth's warming in coming decades.

Growing scientific consensus indicates that curbing emissions of methane is essential to slow global warming in the short term and will greatly help avoid temperatures rising above more than 1.5C.

By slowing the rate of global warming would prevent 73 billion hours of lost labor from extreme heat, and 26 million tons of crop losses worldwide each year.

Methane emissions could be cut by as much as 180 million tons, or about 45%, a year by 2030 with existing technologies and practices, and would avoid about 0.3°C of global warming over the next two decades.

IPCC Working Group III - Climate Change 2022 - Mitigation of Climate Change

Findings from the report are summarized below.

Total net anthropogenic GHG emissions have continued to rise during the period 2010–2019.

From 2010 to 2019, there have been sustained decreases in the unit costs of solar energy (85%), wind energy (55%), and
lithium-ion batteries (85%), and large increases in their deployment, e.g., >10× for solar and >100× for electric vehicles (EVs)

Cumulative and per capita greenhouse gas emissions from the United States and Canada are by far the highest in the world.

Global GHG emissions in 2030 associated with the implementation of Nationally Determined
Contributions (NDCs) announced prior to COP26 would make it likely that warming will exceed 1.5°C during the 21st century.

All global modeled pathways that limit warming to 1.5°C (>50%) with no or

limited overshoot, and
those that limit warming to 2°C (>67%), involve rapid and deep and in most cases immediate GHG
emission reductions in all sectors.

Reducing GHG emissions across the full energy sector requires major transitions, including a substantial reduction in overall fossil fuel use, the deployment of low-emission energy sources, switching to alternative energy carriers, and energy efficiency and conservation. The continued installation of unabated fossil fuel infrastructure will 'lock-in' GHG emissions.

Accelerated and equitable climate action in mitigating, and adapting to, climate change impacts is critical to sustainable development.

There is a strong link between sustainable development, vulnerability and climate risks.

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More and more persons are aware of the horrific impacts of climate change, and are working together to combat it. Many of these are young

people who face an increasingly hostile climate for the rest of their lives, and through no fault of their own.

Existing Impacts of Climate Change

Ample evidence of climate change impacts already exists, and these impacts will only get worse unless we dramatically reduce GHG emissions.

The Western United States is experiencing record wildfires. The wildfire season has now been extended year round. The largest wildfire in New Mexico occurred earlier this year. A recent wildfire threat the Mariposa Grove of Sequoia trees in Yosemite Park. The park has to be evacuated as well. Many in the west are breathing unhealthful air from the ongoing wildfires. Parts of southern Europe are burning as well.

The western United States is experiencing its worst drought in over 1,000 years. Mandatory water rationing in the west has become commonplace. Local governments have had to hire personnel to enforce mandatory water rationing. Farmers in Texas are selling off cattle because they can not feed them because livestock feed crops are not growing. The price of feed has more than tripled in some areas.

The central and southern United States have experienced an unprecedented heat wave over the past month, with record temperatures occurring most every day. Some of these records were much hotter than the previous records. As of July 24th of this year there have only been 4 days where the temperature did not reach 100 degrees.

London reached 104 F recently, the hottest temperature ever recorded in Great Britain, which has the longest recorded temperature in the world. Most people living in Great Britain have no air conditioning, due to the usually cool climate, and the death toll in England from this unprecedented heat wave has not yet been tallied. This heat wave has struck all of Europe. There have been over 1,700 heat related deaths in Spain and Portugal so far from this heat wave.

Hurricanes and tropical storms are increasing in intensity. They are rapidly

intensifying as they approach the coast due to warmer subsurface waters not being able to moderate storm intensity as in the past. Hurricanes and tropical storms are also stalling out as they reach land, and causing record rainfall, and catastrophic flooding. As previously stated Elizabethtown North Carolina received 35 inches of rain from tropical storm Florence. Tropical Storm Harvey stalled out over Houston, Texas, and dropped an incredible 50 inches of rain.

Since FERC issued the certificate of public convenience and necessity to the MVP nearly 5 years ago we now better understand the horrific impacts of climate change. The recent studies cited above, and the increasing impacts of climate change that we have seen since then indicate a clear and present danger that will only worsen in the future, and could very well end civilization as we know it.

Children born today will face a perilous future where impacts from climate change may cause catastrophic damage and greatly reduce the natural resources that our planet provides to sustain them.

Reducing emissions of methane and other greenhouse gases at this time, by not extending the certificate for the MVP, will lessen the negative impacts of a worsening climate in the near and long term. We cannot leave those who will follow us with a nightmare scenario of a climate in which they will not prosper, and one which will in which they cannot survive.

Climate change will cause major harm to our national forests. I am certain that USFS staff are aware of this impending disaster.

Our national forests will not be able to provide the sustainable resources that they provide for us now, as climate change worsens.

The USFS should not issue a permit for the MVP to cross the JNF due to project impacts which would increase climate change.

In the spring of 2022 FERC stated that it had not properly evaluated the impacts of greenhouse gas emissions in earlier certificate approvals for natural gas projects. They essentially admitted that they violated NEPA

requirements in this regard. They essentially admitted that their certificate approval for the MVP, and other natural gas projects was incorrect in not analyzing the impacts of the MVP to climate change.

The DSEIS fails to analyze climate change impacts from the MVP.

Incorrect Water Quality Monitoring and Analysis of Sediment Impacts

The water monitoring analysis and conclusions are based on faulty data, and are not valid.

Water monitoring conducted by the USGS, VADEQ, USFWS, and MVP used faulty methodology.

In the following I include questionable and incorrect information in the DSEIS, and then state why it is invalid.

Page 39 The DSEIS states “the USGS in-stream monitoring station drainage areas do not include NFS lands”…

This data is irrelevant to water pollution from the MVP and NFS service lands since it does not measure pollution runoff from MVP ground disturbing activities from NFS lands.

Page 39 The DSEIS states “ At each pair of USGS stations, the difference between the drainage area of the upstream station and the drainage area of the downstream station is referred to as the incremental drainage area.”

Water monitoring should be conducted just upstream of where the discharge enters the receiving waters, and just downstream of the mixing zone. This will eliminate faulty data from incremental drainage areas.

Incremental drainage areas completely invalidate any USGS data indicating water quality from MVP runoff. This USGS data should be removed from the DSEIS.

Page 42-43 The DSEIS refers to MVP water quality monitoring and states “ Per the terms of the 2020 FWS BO, MVP installed in-stream water

quality monitoring stations off NFS lands in 21 FWS-identified Mixing Zones. Of these, six Mixing Zones have “commissioned” only 6 of the 21 stations and are included in the monitoring program reporting because pipeline construction had occurred nearby. The other stations were not included because of a variety of reasons, including unavailable land access, the FWS BO Mixing Zone monitoring requirement was discontinued due to ROW restoration, or an impoundment was installed (MVP 2022b). Some non-commissioned stations are collecting data, but no construction has occurred near them and, therefore, no analysis of pre- or post-construction is possible. The commissioned station data are relevant to this DSEIS because some commissioned stations were installed in watersheds that were part of the Hydrologic Analysis model and because the Monitoring Plan was informed by the Hydrologic Analysis model and therefore satisfies the Fourth Circuit’s remand to consider real-world data as it may relate to the Hydrologic Analysis.

The exclusion of 15 of the 21 monitoring stations may be arbitrary and capricious since the reasons for not monitoring these stations were not fully explained. Right of way restoration is not a valid reason for discontinuing monitoring and not including monitoring results prior to discontinuation. Monitoring results prior to restoration may be valid if properly administered, as well as monitoring results following restoration, because increased sediment runoff occurs for a number of years following restoration, and MVP may not correctly complete restoration.

Additionally, the above comment does not fully identify the term “restoration”. This could mean restoration with permanent stabilization or temporary stabilization. Temporary stabilization allows around 4-5 times more erosion and sediment runoff then does permanent stabilization. Portions of the right of way through the JNF that are only temporarily stabilized will contribute much more sediment to receiving waters than permanently stabilized areas. West Virginia sediment control regulations acknowledge this, and require that temporary stabilization can remain for no more than 6 months, and then receive permanent stabilization, regardless if additional ground disturbance will occur. Areas that have sat idle in JNF that have been idle for 6 months should be permanently stabilized to reduce pollution to downstream waters.

Page 43 The DSEIS states “Although non-pipeline land uses could also be contributing to elevated SSCs within the tributaries, the FWS Monitoring Plan conservatively assumed all measured SSC contributions at the tributary monitoring stations were attributable to the MVP”.

This is a blatantly false assumption. Lower SSC from drainage areas that are not impacted by MVP land disturbing activities can mix with higher SSC from drainage areas disturbed by MVP land disturbing activities, and dilute the SSC findings.

This is invalid data, and it should be removed from the SDEIS.

Page 43 of the DSEIS further states “ Excepting higher rain events, low flows and low turbidity were measured within the monitored tributaries where construction occurred.”

This is blatant “cherry picking” of data. Higher turbidity is expected with higher runoff from higher storm events.

Page 43 also states in footnote 22 “Exceedances reported by Mountain Valley in the Suspended Sediment Monitoring Analysis (MVP 2022b) were caused by equipment malfunction, equipment detachment, and/or equipment recalibration issues.”

This is a highly questionable statement, and one would expect that the same issues would invalidate all monitoring results, and not just exceedances. All MVP data should be excluded from the DSEIS as unreliable and inconsistent with established water monitoring guidelines.

Page 44 The DSEIS states “ The VDEQ monitoring program and associated inspections are relevant to this DSEIS because they utilize the USGS data collected in watersheds that were included in the Hydrologic Analysis model and include on-site pipeline ROW inspections.”

The VDEQ monitoring program is unreliable because it utilized unreliable USGS data.

Page 45 of the DSEIS states “ “VDEQ reports no widespread impacts, fish

kills, or citizen identified violations, or ongoing significant regular violations as asserted by the public."

This statement is extremely vague and does not fully explain VDEQ findings. Many violations could have been found by VDEQ, and dismissed as not being widespread in this very misleading statement.

VDEQ should have noted all violations. This statement should be removed form the DSEIS.

Page 45 of the DSEIS also states " These counties were chosen because their topography and land use / land cover are most similar to the JNF. A total of 135 inspection reports from January 2021 through August 2022 were available on the VDEQ website (VDEQ 2022). In summary, the review found that, in 125 of 135 inspection reports, erosion "controls were installed and implemented in accordance with the approved [Erosion and Sediment Control Plan (ESCP)] and stormwater management plans." In 113 of 135 inspection reports, erosion "control measures were properly maintained in effective operating condition in accordance with good engineering practices and, where applicable, manufacturer specifications." Where improper maintenance or ineffective operation conditions of erosion controls were identified, they were classified by VDEQ as Routine Maintenance (requiring corrective actions within 72 hours from notification) or Ineffective Controls (requiring corrective actions within 24 hours from notification).

This indicates that 23 and 10 inspections found that controls were not properly implemented or maintained. This is not a commendable record of compliance. Failure to maintain sediment controls allows sediment to leave the site and threaten downstream water quality.

Page 46 The DSEIS states, in reference to VDEQ monitoring and inspection, "In this role, the monitoring and inspection program reveals that the pipeline is regularly inspected, ECDs are maintained and repaired as needed, and the vast majority of inspection reports did not identify any environmental harm".

This is a misleading statement. It could also be worded as "A number of

inspections found that sediment controls were not maintained, which would result in sediment leaving the site, and possibly polluting receiving waters".

Pages 46 and 47 state " This analysis demonstrates that the available relevant data, including the Forest Service and BLM's consideration of monitoring information from USGS data, MVP, VDEQ, and Transcon, are all consistent with the conclusion that the ECDs as modeled in RUSLE2 on the JNF continue to be effective in minimizing sediment runoff, and that observations of elevated sediment levels within the watershed likely result from multiple land uses. With continued implementation and monitoring of ECDs, short-term adverse effects on water resources would be minor to moderate. Over the long term, adverse effects are anticipated to be minor because the POD and Project Design requirements would minimize construction-related effects to soils, such as trench excavation, backfilling, contouring, and the movement of construction equipment."

These are invalid assumptions based on unreliable water monitoring data. Additionally, the POD and project design requirements are minimal measures to prevent pollution. The requirements should have included stronger measures to prevent pollution. Further, MVP's record of violations resulting in very high fines indicates that they may not implement the POD or Project Design requirements.

The data does not include an analysis of landslide impacts to downstream water quality.

As previously stated, many landslides have occurred along the MVP. An MVP landslide entered Sam's Run in Wetzel County. A very large landslide likely entered the Salem Fork of the Elk River. Other landslides have entered waterways as well.

Slopes within the JNF are as steep and steeper than slopes along the rest of the right of way.

A landslide within the JNF could easily enter a waterway, or a drainage channel leading to a waterway. This would result in very high sedimentation levels downstream, and data reflecting this scenario has

not been analyzed.

A landslide could also block the entire waterway, further increasing sediment pollution.

A landslide which does not directly enter a waterway would also increase sediment pollution due to the disturbed and exposed soils it would create.

The DSEIS uses the Revised Universal Soil Loss Equation (RUSLE) methodology, which does not consider water pollution from landslides.

Conclusions from pages 33-46 of the DSEIS regarding water quality monitoring are invalid. Data from USGS monitoring, MVP monitoring, and VA DEQ monitoring are flawed due to incorrect methodology an assumptions.

USFS Incorrect Reliance on FERC Findings

The DSEIS incorrectly relies on conclusions regarding the MVP from the Federal Energy Regulatory Commission (FERC).

FERC is fully funded by the energy industry. In my 7 years of dealing with FERC I have found them to be extremely biased toward the industry, while ignoring the public. In almost all cases FERC accepts invalid information from the industry as justification for approving projects, and ignores information from the public. FERC has approved over 99% of natural gas projects in the past 20 years. They have been captured by the industry, and are a rubber stamp for the industry.

I was shocked to learn this. I always thought our federal government was working for everyday Americans through adequate regulation. Is it also deeply disturbing to learn that the fossil fuel industry, which is largely responsible for climate change, also is controlling our government to the extent that it does.

FERC issued the Certificate of Public Convenience and Necessity for the MVP, and has now twice extended it. 92% of the public comments received regarding the last extension were opposed to the extension. (37)

Nevertheless, FERC approved the extension despite overwhelming citizen opposition. I spoke to a representative of FERC regarding the decision to extend the Certificate, and was advised that 92% of the comments in opposition to an extension was not significant.

FERC just announced that it will not write environmental impact statements for natural gas projects. (38) This is yet another indication that FERC does not properly consider our environment, our climate, or the many other negative impacts that their approvals bring to our people, our fellow living creatures, and our planet.

Information and conclusions from FERC in the DSEIS are highly suspect, and in many cases incorrect.

The USFS should not follow FERC down the path of indifference to the many negative impacts of this project, while giving deference to the MVP.

The DSEIS is unacceptable based on USFS use of invalid and unreliable information and conclusions from FERC.

The USFS Incorrect Reliance on the Pipeline and Hazardous Materials Safety Administration (PHMSA) to Protect the Public Safety

PHMSA regulations, actions, and lack of enforcement regarding MVP pipe integrity and landslide issues do not adequately protect the public, and leave the public at significant risk. See comments form Richard Kuprewicz above.

Failure of FERC and PHMSA to comply with The Administrative Procedures Act, and Freedom of Information Act (FOIA) regulations, or otherwise release information to the public regarding the MVP threat to public safety.

Neither I, nor the public have been given FERC and PHMSA records that fully show the status of the pipe, information regarding the numerous landslides, nor MVP compliance status with the requirements of the FERC certificate or PHMSA regulations. We have not been provided with

inspection reports indicating inspector name, project name, location of inspection on the project, and inspection results. We have not been advised, nor given information regarding any records of tests that have been conducted to determine if the pipe is fit for use, much less the results of any tests that might have been completed.

Other important public safety records that have been withheld include the following:

- The exact length of time that all pipe has remained exposed to damaging UV and weathering
- The length of time that pipe has been in the ground with no cathodic protection
- The location of cathodic protection equipment.
- Inspection reports showing project name, location, date, inspector name, and if the inspection found the site in compliance with, or in violation of the regulations.
- Tests for the above coating properties
- The results of those tests, if they were completed
- Records of PHMSA meetings or discussions regarding pipe safety issues.
- Records of meetings or communications between PHMSA and FERC concerning landslides.
- The dimensions, volume, depth, and degree of slope of the landslides
- A description of MVP attempts to stop the landslides, and prevent them from sliding again.
- MVP's integrity management plan, which shows actions that MVP will take to maintain the public safety.

I have filed numerous FOIA requests with both FERC and PHMSA over a 6 year period, and these, and other very important public records have not been released. ***This has prevented me and the public from obtaining important information about the MVP that is needed to better understand the public safety risk, and make meaningful comments to the USACE and other regulatory agencies regarding the risk.***

The DSEIS should include the information listed above, and review them to determine the public safety risk from the MVP. the USFS

should have consulted with FERC and PHMSA regarding this information. The USFS should have also had these records reviewed by an independent pipe safety expert in order to assess the risk to the public safety, and to comply with NEPA requirements.

The USFS should make these records available to the public, and further extend the comment period to provide adequate time for the public to read, understand, and comment.

Attempts to Fast Track the MVP

I'm sure the USFS knows that the MVP is Senator Joe Manchin's pet project, and he has introduced legislation that would require fast tracking the MVP. That legislation has been defeated. However, I cannot rule out that Congress will pass it, or a similar bill in the future. If the bill passes, and the MVP is fast tracked, it will further endanger the JNF, our environment, our climate, the public safety, and th epublic health.

The federal government has no business fast tracking the MVP. Delays in completing the project, enormous cost overruns, and investor divestment are not the fault of our government, nor the fault of the citizens whom our government is required to represent. The delays and overruns are the result of MVP incompetence, MVP misrepresentation of the facts, and MVP failure to properly construct the project.

Fast tracking the MVP would also result in further concessions to the MVP, further lack of enforcement, and a reduction in common sense protective requirements.

The MVP has incompetently failed on numerous project requirements, and especially in protecting the public safety. Rewarding and fast tracking a failed project that leaves the public at risk is flat out wrong. PHMSA and FERC have already essentially fast tracked the project by allowing the MVP to proceed in a sloppy, reckless, and unsafe manner. Neither PHMSA nor FERC have issued any fines to MVP, despite 5 years of ongoing and increasing threats to public safety. If PHMSA and FERC further fast track the MVP the public safety will be even more compromised.

The USFS cannot fast track a decision on this permit application. This is a very important decision that will have major impacts. Virtually all of the impacts from this project are negative, and it should not be allowed to pass through the JNF.

The USFS should resist efforts to fast track, ignore, or otherwise bypass any and all requirements regarding a permit decision for the MVP.

Conclusion

Based on the above preponderance of evidence the USFS DSEIS for the MVP does not adequately analyze the impacts of this project.

The USFS should chose Alternate 1, and reject MVP construction through the Jetterson National Forest.

Thank you again for the opportunity to comment.

I would be happy to discuss these issues with USFS staff.

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