Mountain Valley Pipeline and Equitrans Expansion Project

Final Supplemental Environmental Impact Statement
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Abstract: The Mountain Valley Pipeline (MVP) and Equitrans Expansion Project (EEP) Final Supplemental Environmental Impact Statement (FSEIS) supplements the June 2017 Federal Energy Regulatory Commission (FERC) Final Environmental Impact Statement (FEIS). The USDA Forest Service (Forest Service), as the lead agency, and the Bureau of Land Management (BLM), as a Federal cooperating agency, have decisions to be made based on a review of the 2017 FEIS.

The purpose for agency action is to respond to a proposal from Mountain Valley, LLC, relating to the MVP and EEP. The proposal seeks approval to construct and operate a buried 42-inch natural gas pipeline across approximately 3.5 miles of the Jefferson National Forest (JNF). To approve the proposal, a project-specific Forest Plan amendment is required. The Forest Service would provide construction and operation terms and conditions to protect resources and the public interest. Additionally, the proposal requires a right-of-way (ROW) grant, in this case, from the BLM to cross the JNF. The BLM would review the proposal and issue a decision consistent with the Mineral Leasing Act (MLA). A decision to issue a ROW grant/temporary use permit for a term of 30 years would include terms and conditions. The Forest Service is required to provide concurrence to the BLM prior to the BLM’s decision to issue the ROW grant and the permit (43 CFR § 2884.26).

This FSEIS responds to the July 27, 2018 United States Court of Appeals for the Fourth Circuit decision that vacated and remanded the Forest Service’s decision approving the JNF’s plan amendment. The Court also vacated the BLM’s ROW decision and ROW grant/temporary use permit across National Forest System (NFS) lands. The supplemental analysis addresses the issues identified by the Court and any relevant new information and changed circumstances. The FSEIS evaluates the no action and the proposed action alternative.
This decision will not be subject to either the 36 CFR Part 218 or 36 CFR Part 219 pre-decisional administrative review because the responsible official is the Under Secretary of Agriculture, Natural Resources and Environment (36 CFR § 218.13(b); 36 CFR § 219.13(b)). Per 40 CFR 1506.10(b)(2) (1978, as amended in 1986 and 2005), a 30-day waiting period will begin when the Notice of Availability is published in the Federal Register. After the 30-day period ends, the Forest Service and the BLM can sign their agency-specific records’ of decision.

The Under Secretary for the U.S. Department of Agriculture, Natural Resources and Environment, has identified Alternative 2 – the Proposed Action as the preferred alternative.
Summary

The Forest Service, and the Bureau of Land Management (BLM) as a cooperating agency, prepared this final supplemental environmental impact statement (FSEIS) in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations. According to Title 40 of the Code of Federal Regulations (CFR) § 1502.9(c)(1)(ii) (1978, as amended in 1986 and 2005), a supplemental environmental impact statement (SEIS) shall be prepared if: (i) the agency makes substantial changes in the proposed action that are relevant to environmental concerns; or (ii) there are significant new circumstances or information relevant to concerns and bearing on the proposed action or its effects. This FSEIS supplements the June 2017 Federal Energy Regulatory Commission’s (FERC) Mountain Valley Project and Equitrans Expansion Project Final Environmental Impact Statement (FERC FEIS).

Background

The Mountain Valley Pipeline (MVP) is a proposed 303.5-mile interstate natural gas pipeline that would cross about 3.5 miles of the Jefferson National Forest (JNF), in Monroe County, West Virginia and Giles and Montgomery counties, Virginia. The Forest Service and BLM participated as cooperating agencies with the FERC in the preparation of the FERC FEIS. On June 29, 2017, the Notice of Availability for the FERC FEIS and the Forest Service Draft Record of Decision for the Mountain Valley Project Land and Resource Management Plan Amendment was published in the Federal Register.

On December 1, 2017, the Forest Service adopted the FERC FEIS and a Record of Decision (ROD) was signed by the JNF Forest Supervisor (Forest Service 2017a). The ROD amended the January 2004 Jefferson National Forest Revised Land and Resource Management Plan (Forest Plan) to modify certain Forest Plan standards that precluded the use of standard pipeline construction methods for the MVP. The ROD included resource protection terms and conditions that would condition the Forest Service’s concurrence to the project, should BLM decide to grant a right-of-way (ROW).

Project implementation on National Forest System (NFS) lands began in March 2018 and continued until July 27, 2018, when the United States Court of Appeals for the Fourth Circuit (Fourth Circuit or the Court) vacated and remanded the Forest Service’s decision approving the Forest Plan amendment based on violations of the National Forest Management Act (NFMA) and NEPA. The court vacated BLM’s Mineral Leasing Act (MLA) ROW decision for the portion through NFS lands based on violations of MLA. After implementation ceased, the Forest Service required Mountain Valley to conduct stabilization on NFS lands (Forest Service 2018, 2019a, 2019b, and 2019c). The Forest Service’s independent contractor is conducting daily monitoring on NFS lands.

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1 On September 14, 2020, the Council on Environmental Quality’s (CEQ) revised NEPA regulations became effective (see 85 FR 43304). Those regulations apply to NEPA processes begun after September 14, 2020 (40 CFR § 1506.13). While agencies may apply CEQ’s revised regulations to ongoing activities and environmental documents begun before September 14, 2020, the Forest Service has elected to complete this NEPA process using the prior regulations, recognizing that where existing agency NEPA procedures are inconsistent with CEQ’s revised regulations, CEQ’s revised regulations govern unless there is a clear and fundamental conflict with the requirements of another statute.
On May 1, 2020, Mountain Valley Pipeline, LLC (Mountain Valley) submitted a revised MLA ROW application to the BLM seeking to construct and operate the natural gas pipeline across the JNF. Mountain Valley also requested that the Forest Service amend the Forest Plan consistent with the issues identified by the Court. On May 29, 2020, the BLM deemed Mountain Valley’s revised application complete.

Purpose and Need
The Forest Service’s purpose and need for action is to respond to a proposal from Mountain Valley to construct and operate a buried 42-inch interstate natural gas pipeline that would cross NFS lands on the JNF along a proposed 3.5-mile corridor. A Forest Service amendment is needed because the project would not be consistent with several Forest Plan standards. Relatedly, there is a need to determine what terms and conditions should be provided to the BLM for incorporation into the ROW grant in order to protect resources and the public interest consistent with the MLA (30 U.S.C. § 185(h)). In addition, there is a need for the Forest Service, at a minimum, to demonstrate that an independent review of the sedimentation analysis has occurred and that predicted effects are supported with rationale.

The BLM’s purpose and need for action is to respond to Mountain Valley’s revised MLA ROW application for the MVP project to construct and operate a natural gas pipeline across NFS lands consistent with the MLA at 30 U.S.C. § 185 and BLM’s implementing regulations at 43 CFR Part 2880. Under the MLA, the BLM has responsibility for reviewing Mountain Valley’s ROW application and authority to issue a decision on whether to approve, approve with modifications, or deny the application.

Proposed Action
The Proposed Action for the SEIS includes the following interrelated components: issuance of a ROW; construction, operation, and maintenance of a pipeline; and amendment of the 2004 Jefferson National Forest Revised Land and Resource Management Plan.

The Forest Service would provide construction and operation terms and conditions as needed for the actions listed below. The terms would be submitted to the BLM for inclusion in the ROW grant. Forest Service concurrence is needed for the temporary use during construction and for the BLM’s issuance of the 30-year ROW.

The Proposed Action for BLM is the issuance of a ROW through the JNF to allow for the construction, operation, and maintenance of the MVP. The issuance of the ROW on NFS lands includes any terms and conditions that are required for protection of the environment and the public interest. In accordance with 43 CFR Part 2880, Mountain Valley is required to provide the BLM with a final plan of development (POD), which details and guides pipeline construction, operation, and maintenance.

Eleven Forest Plan standards on the JNF are proposed to be amended to allow the project to be consistent with the Forest Plan, which would allow the BLM to grant a ROW. The standards to be amended are: Forest Wide (FW)-248 (utility corridors); FW-5 (revegetation); FW-8 (soil compaction in water saturated areas); FW-9 (soil effects from heavy equipment use); FW-13 and FW14 (exposed soil and residual basal area within the channeled ephemeral zone); 11-003 (exposed soil within the riparian corridor); 6C-007 and 6C-026 (tree clearing and utility corridors in the old growth management area); 4A-028 (Appalachian National Scenic Trail [ANST] and utility corridors); and FW-184 (scenic integrity objectives).
Key Issues

This FSEIS focuses only on key issues that are relevant to the decisions to be made by the Forest Service and the BLM that have not already been analyzed in the 2017 FERC FEIS.

Key issues that are the focus of the FSEIS analysis, including those identified by the Court, are:

1. The purpose and effect of the Forest Plan amendment on the utility corridor management area and resources including soil; riparian; water; threatened and endangered species; old growth; the ANST; and scenic integrity;
2. The feasibility and practicality of utilizing ROWs in common on federal land; and
3. The potential for erosion, sedimentation, and adverse water quality effects in relation to the anticipated effectiveness of mitigation measures.

It is important to note that comments, objections and other public input into the 2017 FERC FEIS and 2017 Forest Service Record of Decision reflect the Agency’s position on the project and issues raised during at that time, and not necessarily the position of the Agency in this 2020 analysis. Any issues identified during previous work on the MVP proposal, that were found to be germane to this analysis were incorporated, but not specifically called out in this FSEIS.

Decision to be Made

The responsible official will review the proposed action including the POD, alternatives, the terms and conditions, the environmental consequences that would be applicable to NFS lands, public comments, and the project record in order to make the following decisions:

1. Whether to approve a Forest Plan amendment that would modify 11 standards in the Forest Plan;
2. Determine whether to issue a concurrence letter to BLM for the ROW grant and what terms and conditions should be included in that letter; and
3. Whether to adopt all or portions of the FERC FEIS that are relevant to NFS lands. Additionally, the BLM must decide whether to issue a decision to approve, approve with modifications, or deny the application for a right-of-way grant to cross NFS lands consistent with 30 U.S.C. § 185.

Alternatives

Alternative 1 – No Action

Under the No Action alternative, the Forest Plan would not be amended, and no concurrence would be provided to the BLM for granting of a ROW across NFS lands for the construction, operation, and maintenance of the MVP. Concurrence for issuing the temporary use permit (TUP) for the construction phase of the project would not be provided. BLM would not issue a ROW or a TUP. The current Forest Plan would continue to guide management of the project area. Mountain Valley would have to utilize other lands for the pipeline in order to satisfy the stated demand for natural gas and energy in the project area, or end users would have to seek alternate energy from other sources such as other natural gas transporters, fossil fuels, or renewable energy (FERC FEIS, Section 3.1).

Mountain Valley would be required to restore the JNF project area to its pre-project condition, including planting shrubs and sapling trees to re-establish the ROW (POD Appendix H [MVP 2020h]). Materials including sections of pipe would be removed from the ROW (pipe has been laid on the ROW surface, but no trenching has occurred and no pipe has been installed on NFS lands), stockpiled topsoil would be amended as needed and spread over the disturbed portion of the ROW, and the ROW would be restored. Restoration activities would take multiple years and the Forest Service, in coordination with the BLM, FWS, and FERC, would determine when it
would be considered completed. Upon successful restoration, erosion control devices (ECDs) would be removed.

**Alternative 2 – The Proposed Action (Preferred Alternative)**

Alternative 2 is the Forest Service’s preferred alternative, which would amend the Forest Plan as necessary to allow for the MVP to cross the JNF. The Forest Service would provide construction, operation, and maintenance terms and conditions as needed for the actions listed below. The Forest Service would submit the terms to the BLM for inclusion in the ROW grant. The Forest Service would provide concurrence to the BLM to proceed with the ROW grant and with issuing a TUP for the construction phase. Consistent with the Forest Service’s plan amendment, the BLM would grant a ROW and a TUP under the MLA, 30 U.S.C. § 185, for the project to cross the JNF. The MLA ROW would include terms to protect the environment and the public. The construction, operation, and maintenance actions that need terms (and Forest Service concurrence) include:

- Construction of a 42-inch pipeline across 3.5 miles of the JNF.
- The use of a 125-foot-wide temporary construction ROW for pipeline installation and trench spoil. Once construction is complete, the MVP would retain a 50-foot permanent ROW to operate the pipeline.
- The use of above-ground facilities, limited to pipeline markers (e.g., at road and trail crossings) to advise the public of pipeline presence, and cathodic pipeline protection test stations that are required by U.S. DOT.

Since publication of the FERC FEIS, it has been determined that the ROW can be accessed using only off-NFS roads; use of Pocahontas and Mystery Ridge roads for project access is not part of the Proposed Action in this FSEIS.

Since publication of the FERC FEIS, the FERC has approved a variance request from Mountain Valley to change the crossing method of the four unnamed tributary streams on NFS lands from a dry-ditch open cut method as indicated in the FERC FEIS to conventional bores in order to reduce effects to Waters of the United States and potential sedimentation effects in the JNF (FERC 2020c). Water Crossing Plans can be found in the POD Appendix K (MVP 2020v) and are discussed in the 2020 Biological Opinion (BO) (FWS 2020b). This FSEIS analyzes both the originally proposed dry-ditch open cut crossing method and the conventional bore method in the variance. Conservation measures would be implemented to reduce potential risks to aquatic habitats during construction of stream crossings (see Section 2.2.2.2).

**Comparison of Alternatives**

This section briefly compares the environmental consequences of the two alternatives based on the effects analyses presented in Chapter 3.

**Alternative 1 – No Action**

**Soils**

With continued implementation and monitoring of ECDs, adverse effects on soil resources would be minor and would occur during the restoration period. Given consideration of these factors, effects under the No Action Alternative would be consistent with those analyzed in the FERC FEIS. To facilitate restoration activities, soil amendments would be used to increase soil quality.
of stockpiles and help restore soil productivity to pre-project conditions over the long-term (Forest Service 2018, Forest Service 2019a, and Forest Service 2019c). Soil amendments, including lime, fertilizer, carbon-source organic matter, and biotic soil additives, such as mycorrhizae inoculations, would facilitate root growth and improve soil quality by increasing soil microbial activity, nutrient cycling, and soil aggregate stability. The soil impacts under the No Action Alternative are within the scope and range of impacts of the alternatives previously analyzed in the FERC FEIS.

Water Resources
With continued implementation and monitoring of ECDs, adverse effects on water resources would be minor and would occur over the short term. Given consideration of these factors, effects would be consistent with those analyzed in the FERC FEIS and associated studies including the updated Hydrologic Analysis for the JNF (Geosyntec Consultants 2020b). Long-term water resource effects would be minor and are associated with restoring the JNF project area to its pre-project condition.

Threatened, Endangered, and Sensitive Species
No detrimental effects to threatened and endangered species would occur as a result of the No Action Alternative beyond those which already occurred during the partial pipeline implementation. Long-term effects would be minor and beneficial as restoration activities would return the project area to its pre-project condition.

National Forest Management Act
The JNF Forest Plan would not be amended and there would be no effects.

Alternative 2 – The Proposed Action

Soils
Effects associated with the anticipated two-year-long construction period would be minor to moderate, which is consistent with the conclusions in the FERC FEIS. Long-term impacts associated with post-construction restoration, and operation and maintenance would be minor in intensity, which is consistent with the conclusions in the FERC FEIS. Mitigation measures in the POD and project design requirements would minimize construction-related effects to soils, such as clearing, grading, trench excavation, backfilling, contouring, and the movement of construction equipment. To facilitate restoration activities, soil amendments would be used to increase the soil quality of stockpiles and help restore soil productivity to pre-project conditions over the long-term.

Water Resources
Effects associated with the anticipated two-year-long construction period would be minor, which is consistent with the conclusions in the FERC FEIS. Construction activities are not likely to significantly affect groundwater resources because the majority of construction would involve shallow excavations. The project would prevent or adequately minimize accidental spills and leaks of hazardous materials into groundwater resources during construction, operation, and maintenance by adhering to its spill prevention, control, and countermeasure plan in the POD. To reduce effects on waterbodies, the POD identifies measures to minimize effects, such as Best Management Practices (BMPs) and ECDs. Long-term impacts would be associated with post-
construction restoration, operation, and maintenance and would be minor in intensity, which is consistent with the conclusions in the FERC FEIS.

Threatened, Endangered, and Sensitive Species
A total of 16 species listed under the Endangered Species Act (ESA), one species proposed for ESA-listing, and 21 Regional Forester Sensitive Species (RFSS) species could be affected by the MVP in or adjacent to the JNF. Collectively, these species are referred to as threatened, endangered, or sensitive species (TES). The Forest Service determined that the MVP on NFS lands May Affect, Likely to Adversely Affect three species: candy darter, Indiana bat, and northern long-eared bat (FERC 2020b). While the overall project May Affect, Likely to Adversely Affect the Roanoke logperch (FERC 2020b), the species is not found in rivers on the JNF (FERC 2017c, FWS 2020b, MVP 2020a). Roanoke logperch are known to occur downstream of the MVP waterbody crossings within the North Fork Roanoke River; however, the occurrences are outside of the project area and are beyond the extent of increased sedimentation modeled for the waterbody crossings within the JNF. The United States Fish and Wildlife Service (FWS) 2020 BO determined appropriate avoidance and mitigation measures for potential effects to ESA-listed species (FWS 2020b). The Forest Service determined that the project would have no impact or would be unlikely to cause a Trend Toward Federal Listing or Loss of Viability for RFSS. Implementation of required conservation measures in the POD would help reduce project effects to threatened, endangered, and sensitive species.

National Forest Management Act
Utility Corridors. Short- and long-term beneficial effects to the local and regional economy are expected to occur from increased employment and demand for services during construction and an increased tax base.

Soil and Riparian. Modifications to six soils and riparian standards would result in greater adverse effects in the JNF to erosion and sedimentation, soil compaction, soil porosity, runoff potential, soil fertility, revegetation potential, and soil carbon budget. Mitigation measures, ECDs, and BMPs included in the POD would ensure that a substantial lessening of protections to soils, riparian, and water resources do not occur (36 CFR Part 219). There are about 73,600 acres of the JNF allocated to management prescription 11, but these areas are not mapped. However, the MVP project would only cross 4 streams on the JNF and if conventional boring under the streams were to occur, this would substantially minimize impacts to riparian areas.

Old Growth Management Area. Amendments to Standard 6C-007 and 6C-026 would result in effects to old growth forest as well as create more forest edge habitat. However, the limited area (2 acres out of approximately 30,200 acres of JNF old growth or about 0.00007% of the total old growth on JNF) of effect on old growth forests has resulted in a minor effect that was adequately analyzed in the FERC FEIS.

Appalachian National Scenic Trail (ANST). Minor temporary adverse effects to trail users would occur from noise, dust, and visual intrusions from crossing 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.

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Scenery Integrity Objectives (SIO). Degradation of scenic quality may be inconsistent with the JNF Forest Plan SIOs for a period of up to five years. 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), the project’s proposed mitigation measures that would apply to temporary workspace and the temporary and permanent ROW that are found in the updated POD (Section 7.9).
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<th>Description</th>
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<tbody>
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<td>ACP</td>
<td>Atlantic Coast Pipeline</td>
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<td>CFS</td>
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<td>CGV</td>
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<td>COVID</td>
<td>'CO' stands for 'corona,' 'VI' for 'virus,' and 'D' for disease</td>
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<td>Deoxyribonucleic Acid</td>
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<td>eDNA</td>
<td>Environmental Deoxyribonucleic Acid</td>
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<td>GHG</td>
<td>Greenhouse Gas</td>
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<td>GWJ</td>
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**Jefferson National Forest**
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<td>ITS</td>
<td>Incidental Take Statement</td>
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<td>KOP</td>
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<td>Liquefied Natural Gas</td>
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<td>PA</td>
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<td>PHMSA</td>
<td>Pipeline and Hazardous Materials Safety Administration</td>
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<td>POD</td>
<td>Plan of Development</td>
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<td>PRISM</td>
<td>Parameter-elevation Relationships on Independent Slopes Model</td>
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<tr>
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<td>Standard Form</td>
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<td>SIO</td>
<td>Scenic Integrity Objective</td>
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<td>SPCCP</td>
<td>Spill Prevention, Containment, and Counter Measures Plan</td>
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<td>SSC</td>
<td>Suspended Sediment Concentration</td>
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<td>Stormwater Pollution Prevention Plan</td>
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**Jefferson National Forest**

xiv
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<td>United States Department of Agriculture</td>
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<td>VDGIF</td>
<td>Virginia Department of Game and Inland Fisheries</td>
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<td>Water Erosion Prediction Project</td>
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<td>Wildlife Environmental Review Map Service</td>
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<td>WMA</td>
<td>Wildlife Management Area</td>
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1 Purpose of and Need for Action

1.1 Introduction

The Forest Service, and Bureau of Land Management (BLM) as a cooperating agency, prepared this final supplemental environmental impact statement (FSEIS) in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations. According to Title 40 of the Code of Federal Regulations (CFR) § 1502.9(c)(1)(ii) (1978, as amended in 1986 and 2005), a supplemental environmental impact statement (SEIS) shall be prepared if: (i) the agency makes substantial changes in the proposed action that are relevant to environmental concerns; or (ii) there are significant new circumstances or information relevant to concerns and bearing on the proposed action or its effects. This FSEIS supplements the June 2017 Federal Energy Regulatory Commission’s (FERC) Mountain Valley Project and Equitrans Expansion Project Final Environmental Impact Statement (FERC FEIS).

1.2 Background

The Mountain Valley Pipeline (MVP) is a proposed 303.5-mile interstate natural gas pipeline that would cross about 3.5 miles of the Jefferson National Forest (JNF), in Monroe County, West Virginia and Giles and Montgomery counties, Virginia (Figure 1). The Forest Service and BLM participated as cooperating agencies with the FERC in the preparation of the FERC FEIS. On June 29, 2017, the Notice of Availability for the FERC FEIS and the Forest Service Draft Record of Decision for the Mountain Valley Project Land and Resource Management Plan Amendment was published in the Federal Register (FR).

On December 1, 2017, the Forest Service adopted the FERC FEIS and a Record of Decision (ROD) was signed by the JNF Forest Supervisor. The ROD amended the January 2004 Jefferson National Forest Revised Land and Resource Management Plan (LRMP or Forest Plan) to modify certain Forest Plan standards that precluded the use of standard pipeline construction methods for the MVP. The ROD included resource protection terms and conditions that would condition the Forest Service’s concurrence to the project, should BLM decide to grant a right-of-way (ROW).

Under the Mineral Leasing Act (30 United States Code [U.S.C.] § 185 et seq.) (MLA), the BLM is the Federal agency responsible for issuing ROW grants for natural gas pipelines across Federal lands under the jurisdiction of two or more Federal agencies. The BLM is, therefore, responsible for considering the issuance of a ROW grant for the MVP for pipeline construction and operation across the lands under the jurisdiction of the Forest Service and the United States Army Corps of Engineers.

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2 On September 14, 2020, the Council on Environmental Quality’s (CEQ) revised NEPA regulations became effective (see 85 FR 43304). Those regulations apply to NEPA processes begun after September 14, 2020 (40 CFR § 1506.13). While agencies may apply CEQ’s revised regulations to ongoing activities and environmental documents begun before September 14, 2020, the Forest Service has elected to complete this NEPA process using the prior regulations, recognizing that where existing agency NEPA procedures are inconsistent with CEQ’s revised regulations, CEQ’s revised regulations govern unless there is a clear and fundamental conflict with the requirements of another statute.

3 The proposed ROW on NFS lands in the Peters Mountain area is approximately from mileposts 196.2 to 197.8 and 198.3 to 198.4. On NFS lands in the Brush Mountain area it is approximately from mileposts 218.5 to 219.4 and 219.8 to 220.7.
In 2017, the BLM received written concurrence to the project from both federal agencies and on December 20, 2017, issued a ROD approving the MLA ROW grant to construct and operate the MVP across Federal lands. The BLM ROD included a temporary use authorization to allow the proponent to use and occupy the land necessary to construct the pipeline.

Project implementation on NFS lands began in March 2018 and continued until July 27, 2018, when the United States Court of Appeals for the Fourth Circuit (Fourth Circuit or the Court) vacated and remanded the Forest Service’s decision approving the Forest Plan amendment based on violations of the National Forest Management Act (NFMA) and NEPA. The court also vacated and remanded BLM’s MLA ROW decision for the portion through National Forest System (NFS) lands based on violations of MLA.

The Court found that the Forest Service, in amending certain Forest Plan standards with the 2017 ROD, did not comply with its regulations for implementing NFMA, because the agency failed to properly identify which Forest Service’s Planning Rule (Planning Rule) requirements were directly related to the amended standard as required under 36 CFR § 219.13(b)(5).

The Court also found the 2017 Forest Service ROD violated NEPA because the agency was arbitrary and capricious in adopting the sedimentation analysis in the 2017 FERC FEIS. The Court found the Forest Service failed to properly conduct an independent review of the FERC FEIS and ensure that the agency’s concerns regarding the sedimentation analysis were satisfied as required under 40 CFR § 1506.3(c) (1978, as amended in 1986 and 2005).

The Court found BLM’s decision approving the MLA ROW across the JNF failed to comply with MLA (30 U.S.C. § 185(p)) because the BLM did not analyze and determine whether the proposed route utilized ROWs in common (i.e., collocation with other existing ROWs) to the extent practical. However, the Court did not vacate the ROW across U.S. Army Corps of Engineers lands and that decision remains in place. The Court also upheld the BLM’s adoption of and reliance on FERC’s FEIS as satisfying the requirements of NEPA in support of the MLA ROW decision across federal lands.

On May 1, 2020, Mountain Valley Pipeline, LLC (Mountain Valley) submitted a revised MLA ROW application to the BLM seeking to construct and operate the natural gas pipeline across the JNF. Mountain Valley also requested that the Forest Service amend the Forest Plan consistent with the issues identified by the Court. On May 29, 2020, the BLM deemed Mountain Valley’s revised application complete (43 CFR § 2884.11). More detailed information on the background and history of the MVP project is available on the project website.

The FERC Order Issuing Certificates and Granting Abandonment Authority (Certificate) for the MVP project was due to expire on October 13, 2020. On October 9, 2020, the FERC extended that deadline to October 13, 2022 (FERC 2020a).

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4 To date, approximately 256 miles of the 303.5 miles of pipe is laid and 155 miles of land along the pipeline ROW is in final restoration.
Figure 1. Project Location on the Jefferson National Forest
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1.3 Purpose and Need for Action

The overall purpose of the MVP project is described in the FERC FEIS and is generally to transport natural gas produced in the Appalachian Basin to markets in the Northeast, Mid-Atlantic, and Southeastern United States. Specific description of the purpose of the MVP project is found in the FERC FEIS, page 1-8. Despite the remand of the 2017 Forest Service ROD and the BLM’s MLA ROW decision, the project purpose articulated in the FERC FEIS remains valid.

However, the Forest Service’s and BLM’s purpose and need for this FSEIS is narrower than that described in the FERC FEIS. This is because the agencies’ decisions are narrower and within the context of the FERC decision to issue an Order Issuing Certificates and Granting Abandonment Authority (Certificate) for the MVP project, which is still valid.

The Forest Service’s purpose and need for action is to respond to an application from Mountain Valley to construct and operate a buried 42-inch interstate natural gas pipeline that would cross NFS lands on the JNF along a proposed 3.5-mile corridor. A Forest Service amendment is needed because the project as proposed would not be consistent with several Forest Plan standards including utility corridors, soil, riparian, old growth, the Appalachian National Scenic Trail (ANST), and scenic integrity without a project-specific amendment. Relatedly, there is a need to determine what terms and conditions should be provided to the BLM for incorporation into the ROW grant in order to protect resources and the public interest consistent with the MLA (30 U.S.C. § 185(h)). In addition, there is a need for the Forest Service, at a minimum, to demonstrate that an independent review of the sedimentation analysis has occurred and that predicted effects are supported with rationale.

The BLM’s purpose and need for action is to respond to Mountain Valley’s revised MLA ROW application for the MVP project to construct and operate a natural gas pipeline across NFS lands consistent with the MLA at 30 U.S.C. § 185 and BLM’s implementing regulations at 43 CFR Part 2880. Under the MLA, the BLM has responsibility for reviewing Mountain Valley’s ROW application and authority to issue a decision on whether to approve, approve with modifications, or deny the application. Consistent with 30 U.S.C. §185(p), BLM must require utilization of rights-of-way in common to the extent practical. The BLM’s review of the ROW application will focus, in part, on the Forest Service supplemental analysis for NFS lands to make their decision, but also intends to rely on the FERC FEIS, consistent with the Fourth Circuit’s decision. The BLM will work as a cooperating agency with the Forest Service to complete the necessary environmental analysis to address the issues identified by the Fourth Circuit.

1.4 Proposed Action

The Proposed Action includes the following interrelated components:

- Issuance of a ROW
- Construction, operation, and maintenance of a 42-inch nature gas pipeline
- Amendment of the Forest Plan

1.4.1 BLM Issuance of a ROW and Temporary Use Permit

The Proposed Action for BLM is the issuance of a ROW through the JNF to allow for the construction, operation, and maintenance of the MVP. The issuance of the ROW includes any...
terms and conditions (including stipulations) that are required for protection of the environment and the public interest. In accordance with 43 CFR Part 2880, Mountain Valley is required to provide the BLM with a final plan of development (POD), which details and guides how the pipeline construction, operation, and maintenance would be conducted.

The BLM is required to obtain the concurrence of the Forest Service before the BLM may issue the ROW grant across NFS lands. The BLM decision for the ROW grant across federal lands would be documented in a ROD issued by the BLM. Additionally, the BLM would issue a Temporary Use Permit (TUP) in association with the ROW authorizing the use of temporary workspace outside of the permanent ROW that is needed for ancillary construction needs on the JNF during the construction phase and other activities associated with implementation. This temporary use authorization on NFS lands also requires Forest Service concurrence.

The environmental effects of a ROW or TUP depend upon how the ROW will be used. In this instance, the TUP and ROW effects will be the same effects as those incurred by the construction, operation, and maintenance of a pipeline and the implementation of stipulations. Therefore, the effects for the ROW and TUP are considered through the analysis of the other components of the Proposed Action.

1.4.2 Construction, Operation, and Maintenance of a Pipeline

In response to the purpose and need, the Forest Service would provide construction, operation, and maintenance terms and conditions as needed for the actions listed below. The terms would be submitted to the BLM for inclusion in the ROW grant. Forest Service concurrence would be needed for the temporary use during construction and for the BLM’s issuance of the 30-year ROW grant. Actions that need terms and Forest Service concurrence include:

- Construction of a 42-inch diameter pipeline across 3.5 miles of the JNF.

- The use of a 125-foot-wide temporary construction ROW for pipeline installation and trench spoil. The BLM would issue a TUP to authorize use within the construction ROW. Once construction is complete, the BLM would issue a 50-foot ROW to operate the pipeline.

- The use of above-ground facilities, limited to pipeline markers (e.g., at road and trail crossings) to advise the public of pipeline presence, and cathodic pipeline protection test stations that are required by United States Department of Transportation (DOT).

The pipeline would be designed, constructed, operated, and maintained in accordance with DOT regulations under 49 CFR Part 192 and other applicable federal and state requirements. Mountain Valley would comply with siting and maintenance requirements under 18 CFR § 380.15 and other applicable federal and state regulations and implement various forms of mitigations as defined in 40 CFR § 1508.20 (1978, as amended in 1986 and 2005). They would adopt FERC’s general construction, restoration, and operational mitigation measures as outlined in FERC’s Upland Erosion Control Revegetation and Maintenance Plan (FERC Plan) (FERC 2013a) and Wetland and Waterbody Construction and Mitigation Procedures (FERC Procedures) (FERC 2013b). Construction plans include some modifications to FERC Procedures and more details can be found in Section 2.4.1.1 of the 2017 FERC FEIS (FERC 2017a).

An integral part of the proposed action for the Agencies (Forest Service, BLM, and FERC) is the POD that guides pipeline construction, operation, and maintenance. The POD is a detailed project description plan which requires the applicant/proponent to provide details about the
After the POD is finalized (through project implementation), any requests made by the company for activities not included in the approved POD or that fall outside of the ROW must be requested to the FERC as a variance, with concurrence from the Forest Service and/or BLM as a variance. If accepted, the variance becomes a POD Plan Amendment. The Amendment must be approved prior to the activity taking place (POD Appendix N [MVP 2020w]).

Prior to issuing a ROD granting a ROW, the BLM is again required to submit a Notice to Congress demonstrating intent to issue a ROW together with detailed findings regarding the BLM’s proposed terms and conditions it will impose in the ROW grant. At that time, a Final POD must be submitted by Mountain Valley before BLM can move forward with a decision of approval.

The POD can be found on the project website.

1.4.3 Forest Plan Amendment

Eleven Forest Plan standards on the JNF are proposed to be amended to allow the project to be consistent with the Forest Plan, which would allow the BLM to grant a ROW. Standards include: FW-248 (utility corridors); FW-5 (revegetation); FW-8 (soil compaction in water saturated areas); FW-9 (soil effects from heavy equipment use); FW-13 and FW14 (exposed soil and residual basal area within the channeled ephemeral zone); 11-003 (exposed soil within the riparian corridor); 6C-007 and 6C-026 (tree clearing and utility corridors in the old growth management area); 4A-028 (ANST and utility corridors); and FW-184 (scenic integrity objectives).

The Forest Service’s Planning Rule at 36 CFR § 219.13(b)(2) requires responsible officials to provide notice of which substantive requirements of 36 CFR §§ 219.8 through 219.11 are likely to be directly related to the amendment. Whether a Planning Rule provision is directly related to an amendment is determined by any one of the following: the purpose for the amendment, a beneficial effect of the amendment, a substantial adverse effect of the amendment, or a substantial lessening of plan protections by the amendment (36 CFR § 219.13(b)(5)).

Based on those criteria, the substantive Planning Rule provisions that are directly related to the amended standards are: § 219.8(a)(1) (terrestrial ecosystems); § 219.8(a)(2)(ii) (soils and water productivity); § 219.8(a)(2)(iii) (water quality); § 219.8(a)(2)(iv) (water resources); § 219.8(a)(3)(i) (ecological integrity of riparian areas); § 219.9(b) (contributions to recovery of threatened and endangered species); § 219.10(a)(3) (utility corridors); § 219.10(b)(1)(vi) (other designated areas); § 219.10(b)(1)(i) (scenic character); and § 219.11(c) (timber harvesting for purposes other than timber production).

1.4.3.1 Additional Information on the Proposed Action

See Section 2.2.2 for additional details on the proposed action alternative, including the existing and proposed modification of the Forest Plan standards.
1.5 Decision Framework

For the Forest Service, the responsible official is the USDA Under Secretary for Natural Resources and Environment. For the BLM, the responsible official is the Eastern States State Director.

1.5.1 Nature of Decision to Be Made

1.5.1.1 Forest Service

The FERC, as the lead federal agency for proposals under the Natural Gas Act (NGA), prepared the 2017 FEIS to assess the environmental effects that were predicted to occur from constructing and operating the MVP and issued its decision in the Certificate on October 13, 2017. The Forest Service was a cooperating agency under NEPA to the FERC FEIS. For this FSEIS and its issues specific to NFS land, the role of the Forest Service has changed to a lead agency. Although the Forest Service’s role is now lead agency, the Fourth Circuit affirmed the Forest Service’s limited role in the broader MVP project stating “the Forest Service was tasked with determining whether to amend its Forest Plan, and whether to join in the BLM’s decision to grant a right of way. It was not tasked with approving the project as a whole – nor could it under the Natural Gas Act.”

Given the purpose and need, the Forest Service responsible official will review the proposed action including the POD, alternatives, the terms and conditions, the environmental consequences that would be applicable to NFS lands, public comments, and the project record in order to make the following decisions: (1) Whether to approve a Forest Plan amendment that would modify 11 standards in the Forest Plan; (2) Determine what terms and conditions should be included with the Forest Service concurrence to the project; (3) Whether to adopt all or portions of the FERC FEIS that is relevant to NFS lands; and (4) whether to concur with the ROW grant.

1.5.1.2 Bureau of Land Management

Consistent with the MLA, 30 U.S.C. § 185, and BLM’s implementing regulations, 43 CFR Part 2880, the BLM will review Mountain Valley’s revised MLA ROW application, the FERC FEIS, and the Forest Service supplemental analysis to determine whether to approve, approve with modifications, or deny the MLA ROW application and temporary use authorization through the NFS lands. As a cooperating agency, the BLM intends to rely on and adopt the Forest Service supplemental analysis for its decision, as long as the analysis provides sufficient evidence to support the decision. Before issuing a decision on Mountain Valley’s application, the BLM would need the Forest Service’s written concurrence. The Forest Service may condition its concurrence to the BLM by including any terms and conditions that are deemed necessary to protect the environment and otherwise protect the public interest consistent with 30 U.S.C. § 185(h); 43 CFR § 2885.11. If the decision is to approve the ROW grant, the BLM also would need to determine whether the proposed route utilized ROWs in common (co-location with other existing ROWs) to the extent practical, as required by the MLA, 30 U.S.C. § 185(p). As noted earlier, the BLM and Forest Service will be issuing separate RODs.

1.6 Public Involvement

The FERC FEIS, Section 1.4 (pp. 1-27 to 1-38), documents the public involvement that occurred from April 2015 through the DEIS comment period that ended on December 22, 2016, and is

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5 Sierra Club Inc., et al. v. United States Forest Serv., 897 F.3d 582, 600 (4th Cir. 2018) (emphasis in original).
incorporated by reference. In summary, Section 1.4 describes the publication of the Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) in the FR on April 17, 2015. The NOI was sent to 2,846 parties, including federal, state, and local government agencies; elected officials; environmental groups and non-government organizations; Native Americans and Indian tribes; affected landowners; local libraries and newspapers; and other stakeholders who had indicated an interest in the MVP.

The NOI initiated a 60-day formal scoping period and the FERC sponsored six public scoping meetings in the project area. Approximately 650 people attended those meetings. In addition to the NOI and the public scoping meetings, the FERC sent out brochures that updated the status of the environmental review process. The FERC received 964 comment letters during the scoping period and 428 letters after the scoping period had ended.

Table 1.4-1 in the FERC FEIS summarizes the environmental issues and concerns identified by the commenters during the scoping process and identifies the EIS section where each issue is addressed. The topics that generated the most interest and concerns over potential effects included water quality and aquatic resources, socioeconomics, and geology and soils.

On September 16, 2016, the Notice of Availability for the DEIS was published in the FR, and the 90-day comment period ran until December 22, 2016. The notice was sent to approximately 4,400 parties and during the comment period, seven meetings were held in the vicinity of the project area. The FERC received 1,237 written individual letters or electronic filings commenting, and Table 1.4-2 in the FERC FEIS summarizes the topics and where they are addressed in the FEIS. The topics that were of most concern included water quality and aquatic resources (including wetlands) and geology and soils.

In response to issues relative to the project and NFS lands, the FERC evaluated route alternatives and eliminated from detailed analysis some routes that would have located the project off of NFS lands (FERC FEIS, Section 3.4). Environmental effects specific to the JNF are disclosed in Section 4.

Some time passed after the Fourth Circuit remanded and vacated the Forest Service ROD in 2018 (Section 1.2 of this FSEIS). The environmental analysis for the project was re-initiated in 2020 when the BLM accepted the updated MVP application and the NOI to prepare an SEIS was published in the FR (July 30, 2020).

The Forest Service SEIS NOI clarified that scoping, a requirement for an EIS (40 CFR § 1501.7 (1978, as amended in 1986 and 2005); 36 CFR § 220.4(c)(1)), was completed and summarized in the FERC FEIS (Section ES-1.4). White House Council on Environmental Quality (CEQ) regulations do not require scoping for an SEIS (40 CFR 1502.9(c)(4)) (1978, as amended in 1986 and 2005). Written, specific comments, including those that were relevant to NFS lands, identified concerns and issues that were addressed in the FEIS, particularly in Section 3.4 (Route Alternatives) and Section 4.0 (Environmental Analysis). The Forest Service SEIS NOI stated additional opportunities for public comment would be provided when the Draft SEIS became available. Additionally, the Forest Service SEIS NOI served as the public notification requirements of the proposed MLA application consistent with the BLM’s MLA implementing regulations at 43 CFR § 2884.20(a). A revised NOI was published on December 1, 2020.

On September 25, 2020, the Notice of Availability for the Draft SEIS was published in the FR (85 FR 60458). The publication of the Notice of Availability initiated a 45-day comment period which ended on November 9, 2020. Approximately 4,400 comment letters were received during
the 45-day comment period. Timely comments were given full consideration and were analyzed for substantive content (40 CFR 1503.3 and 40 CFR 1503.4) (1978, as amended in 1986 and 2005). Content from analysis of comments yielded 134 statements which summarized the concerns expressed through public comment. These concern statements and agency responses can be found in Appendix C of this FSEIS. The responses to comments are a part of this FSEIS.

Literature and references submitted with public comments were reviewed for consideration. Where new information was found, it was assessed and, in some cases, resulted in changes to this FSEIS. Changes between the Draft SEIS (DSEIS) and FSEIS are disclosed in Section 1.7.

The support and opposition to the MVP project remains a constant since the 2017 FERC FEIS. This is not a changed condition or new information which requires supplementation in the Forest Service’s FSEIS. The public exercising their rights to free speech is typically a nominal effect on NFS lands and to that that extent, there is no need to conduct additional analysis.

1.7 Changes Between the DSEIS and FSEIS

A number of changes, corrections, and clarifications from the DSEIS were made based on public comments and internal reviews. The most notable changes are summarized below. Minor edits and corrections are not included in this list.

- Clarifications regarding pre-project conditions, old growth impacts, short-term durations, restoration activities, stipulations, violations, ECD enhancements, and agency roles (throughout FSEIS)
- Additional information about comments and literature provided through public comment (Section 1.6)
- Disclosure of changes made to the DSEIS in response to comments (Section 1.7)
- Improved articulation of Forest Service consideration of off-NFS routes such as route variants and collocation alternatives considered in the BLM Practicality Analysis and the inclusion of the Burnsville Weston Gauley Alternative (Sections 1.9.2 and 2.3)
- Improved organization and articulation of amendments, standards, substantive requirements, and the Planning Rule (Sections 2.2.2.1 and 3.4.4)
- Consideration of three alternatives recommended in public comments on the DSEIS (Table 3; Section 2.3.1)
- Additional information about the hydrologic analyses and associated reports (Section 3.1.1)
- Clarifications regarding socioeconomic resources, geologic resources, aquatic species, and transportation (Section 3.3)
- Transportation and access clarifications, specifically regarding construction-related impacts to roads no longer used for access (Mystery Ridge Road and Pocahontas Road) (Sections 3.3.14)
- Additional information about soil surveys conducted on the proposed ROW (Section 3.4.1)
1.8 Scope of Analysis

The scope of analysis refers to the proposed action, alternatives to the proposed action, and potential effects of the proposed action that the Forest Service will consider in this FSEIS. This FSEIS supplements the analysis in FERC’s FEIS. The scope of analysis for this FSEIS seeks to address the deficiencies identified in the Fourth Circuit’s decision and any changed circumstances and new information from June 2017 (i.e., the date of the FERC FEIS) until present identified by the Forest Service or the BLM that are relevant to the environmental concerns, decision framework, and bearing on the proposed action or its effects.

Recent federal court decisions related to NEPA, NFMA, and the MLA have been issued which further inform the Forest Service’s responsibilities and decision space as it relates to the MVP project. For instance, the D.C. Circuit Court upheld the FERC Certificate of Need and FEIS for the MVP project.6 A Fourth Circuit panel took issue with portions of the NFMA and NEPA analysis conducted by the Forest Service when the Forest Service was responsible for issuing a Special Use Authorization for the Atlantic Coast Pipeline.7 That panel also held that the Forest Service lacked authority under the MLA to issue a pipeline crossing of the ANST when the ANST traversed NFS lands, which was overturned by the Supreme Court of the United States.8 These decisions have changed the legal framework within which the Forest Service must make its determinations.

In July 2018, the Fourth Circuit found the Forest Service’s December 2017 ROD to be in violation of NEPA and NFMA and the BLM’s 2017 decision in violation of the MLA. This FSEIS is developed in response to the changed condition of the vacatur of the decisions and new information contained in the decision. This FSEIS responds to the narrow and specific Court-identified deficiencies which were:

- The Forest Service acted arbitrarily and capriciously in adopting the 2017 FEIS because the agency failed to explain how the FEIS took a hard look at sedimentation given the agency’s concerns during review of the hydrologic analysis drafts. Mountain Valley has since provided an updated hydrologic analysis, and the Forest Service and other federal

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8 United States Forest Serv. v. Cowpasture River Pres. Ass'n, 140 S. Ct. 1837, 1843 (2020)
The Forest Service improperly applied the Planning Rule (36 CFR Part 219) in the Forest Plan amendment, specifically the Court found the Forest Service did not consider both the purpose for and the effects of the amendment, consistent with 36 CFR § 219.13(b)(5), when determining whether the substantive requirements of the Planning Rule regarding soil and riparian resources were directly related to the Forest Plan amendment. However, to ensure all resources potentially affected by the amendment receive equal consideration the Planning Rule requirements and evaluation of the purpose and effect of the amendment to water, threatened and endangered species, old growth, the ANST, and scenic integrity will be considered.

The BLM failed to demonstrate that alternatives that would make greater use of existing ROWs were impractical as required by the MLA. To address this concern, the BLM conducted a practicality analysis of collocation, which is included as Appendix A in this FSEIS. Consistent with requirements for joint use of rights-of-way for pipelines through federal lands (30 U.S.C. § 185(p)) and the U.S. Court of Appeals for the Fourth Circuit’s decision in Sierra Club, Inc. v. U.S. Forest Serv., 897 F.3d 582 (4th Cir. 2018), reh’g granted in part, 739 Fed. App’x 185 (4th Cir. 2018), the BLM analyzed whether the alternatives provided for collocation of the proposed ROW on federal land to the extent practical. On August 23, 2018, the BLM prepared an analysis of the route alternatives examined in the FERC FEIS, outlining in detail the criteria it used for assessing the practicality of each alternative. In connection with MVP’s revised MLA ROW application, the BLM provided an addendum to the August 23, 2018, practicality analysis in order to analyze two additional route alternatives not considered in the FERC FEIS. The BLM’s addendum relied on the same criteria outlined in the August 23, 2018, practicality analysis. Together these analyses are reasonable and sufficient, satisfying the requirement in 30 U.S.C. § 185(p).

Federal Agencies shall prepare supplemental EISs if “(i) The agency makes substantial changes in the proposed action that are relevant to environmental concerns; or (ii) There are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts.” 40 CFR § 1502.9(c)(1)(i)-(ii) (1978, as amended in 1986 and 2005). The Forest Service and the BLM reviewed the FERC FEIS to identify if there are changed circumstances or new information that should be analyzed in this FSEIS. The majority of the analyses within the FERC FEIS are still applicable and relevant, however, there are some portions of the analyses that warrant supplementation because of changed circumstances or new information, including:

- In framing the scope of the MVP SEIS analysis, the Forest Service reviewed the Fourth Circuit’s decision in Cowpasture River Preservation Association v. Forest Service (Cowpasture) due to its similarities to the MVP proposal. The Cowpasture decision was for a pipeline project proposing to cross NFS lands and the ANST on NFS lands and included a forest plan amendment.

  - The Fourth Circuit found in this case that the Forest Service failed to properly analyze whether the project’s need could be reasonably met on non-NFS lands as required by a George Washington Forest Plan and Forest Service manual.

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the case against the MVP project, the Fourth Circuit did not find the agency violated the Jefferson Forest Plan or agency direction with respect to demonstration of whether the MVP project’s need could be reasonably met on non-NFS lands. However, an analysis of non-NFS lands alternatives is included in Section 2.3.1 of this FSEIS to ensure consistency with the JNF Forest Plan and agency policy.

- The FERC-approved route for crossing the ANST proposes to bore an approximately 600-foot-long route below the surface of the NFS lands where the ANST traverses. A legal challenge to FS’s authority to authorize a pipeline crossing the ANST when the ANST traverses NFS lands was brought under the MLA in relation to a different project. The Supreme Court of the United States ultimately held that “the lands that the [ANST] crosses remain under the Forest Service’s jurisdiction and, thus, continue to be ‘Federal lands’ under the Leasing Act.” Therefore, the Forest Service’s authority to consent to the BLM to issue a ROW is consistent with the Supreme Court ruling.

- Changes to the application for the MVP project:
  - Changes in road access, operation, and maintenance needs since 2017.
  - Addition of an optional underground boring construction method for proposed JNF stream crossings.

- Potential change in soil productivity as a result of topsoil segregation and storage for a period of two years.

- Changes to the Regional Forester Sensitive Species (RFSS) list.

- Additional surveys for federally listed species and forest sensitive species in the project area.

- New information regarding the candy darter (*Etheostoma osburni*). In December 2018, the candy darter was listed as endangered under the Endangered Species Act by the U.S. Fish and Wildlife Service (FWS).

- Change in potential effects to 12 species and to the mitigation measures and/or requirements that are part of the FWS BO.

- Update of the 2017 cumulative effects analysis to reflect a change in status or the addition of new projects that are reasonably foreseeable within the watersheds affected by the proposed pipeline.

- FWS issued a new BO for the project on September 4, 2020.

This FSEIS is narrow in scope to address only those aspects of the proposed pipeline within the JNF. Actions outside of NFS lands are beyond the jurisdiction of the Forest Service and the BLM, and thus, are covered within the FERC FEIS. However, effects related to the Court-identified deficiencies, changed circumstances or new information, and which result from actions occurring on NFS lands, including those effects off NFS lands resulting from actions on NFS lands, are addressed in this FSEIS.
1.9 Issues

Section 1.1 of the FERC FEIS identified the issues that were addressed. The actions and issues analyzed in the FERC FEIS are the same as the proposed action analyzed in this FSEIS, except for those issues identified below. This is consistent with the CEQ requirements for adopting a prior environmental review (§1506.3). This FSEIS focuses only on key issues that are relevant to the decisions to be made by the Forest Service and the BLM that have not already been analyzed in the FERC FEIS.

Key issues that are the focus of this FSEIS analysis, including those identified by the Court, are:
(1) The purpose and effect of the Forest Plan amendment on the utility corridor management area and resources including soil; riparian; water; threatened and endangered species; old growth; the ANST; and scenic integrity; (2) The feasibility and practicality of utilizing ROWs in common on federal land; (3) The potential for erosion, sedimentation, and adverse water quality effects in relation to the anticipated effectiveness of mitigation measures. Indicators for each Issue are presented below discussing how the Agencies will determine whether each Issue has been adequately addressed in this FSEIS.

1.9.1 Issue 1: Forest Plan Amendment – Purpose and Effect and Consistency with the Planning Rule and the NFMA

A Forest Plan amendment has been proposed to ensure the project can be approved and implemented consistent with the Forest Plan. There are concerns that the Plan amendment may result in adverse environmental effects within the proposed pipeline corridor and to several resources including soil; riparian; water; threatened and endangered species; old growth; the ANST; and scenic integrity. The Court found a need to identify the purpose and the effects of the amendment to be consistent with the Planning Rule and the NFMA. There is a concern that if the substantive requirements are not accurately identified and the purpose as well as effects (beneficial or adverse) are not adequately analyzed, the amendment may not be consistent with the Planning Rule and may violate the NFMA.

Indicators: (1) A qualitative description of the purpose of the amendment within a scope and scale context, (2) A qualitative and quantitative effect (acre, mile, percent) of plan amendment components; and (3) A qualitative evaluation of consistency with the Planning Rule (NFMA).

1.9.2 Issue 2: Feasibility and Practicality of Routes that are not on NFS lands

The FERC identified several route variations including highway collocation, two hybrid alternatives, and Atlantic Coast Pipeline collocation alternative. The FERC evaluated how effects (including those to NFS lands) would vary when compared with the proposed MVP route. However, no alternative that would have avoided the use of NFS lands was analyzed in detail (FERC FEIS, Sec. 3.4.1).

The Court ruled that prior to issuing its 2017 ROD, the BLM did not analyze and determine whether the proposed route utilized ROWs in common to the extent practical, as required by the MLA, 30 U.S.C. § 185(p). In parallel pipeline litigation (Cowpasture), where the Forest Service issued the Special Use Permit and amended two National Forest Plans, the Court ruled that the Forest Service adopted the FERC alternatives without documenting that it had conducted an independent review of routes that would minimize or avoid the use of NFS lands. The Court determined that no evidence was provided as to why the project cannot be reasonably
accommodated on non-NFS lands. For the Forest Service, the Court ruled this was a violation of NEPA and NFMA.  

**Indicators:** (1) A qualitative and quantitative analysis of the MVP project’s needs and whether they can be reasonably met on non-NFS lands; and (2) A practicality analysis and assessment of routes using ROWs in common.

### 1.9.3 Issue 3: Erosion and Sediment Effects

The Court ruled that the Forest Service violated NEPA by failing to take a hard and independent look at the effects related to erosion and sedimentation and ensure that the agency’s concerns regarding the sedimentation analysis were satisfied as required under 40 CFR § 1506.3(c) (1978, as amended in 1986 and 2005). The Court stated that the previous analysis lacked the evidence and rationale needed to support the predicted effects including the effectiveness of the ECDs. The Court concluded that this resulted in the adoption of analysis that appeared to be unsupported.

**Indicators:** A quantitative and qualitative re-evaluation of: (1) Evidence that validates erosion and sedimentation effects and erosion control device effectiveness; and, (2) Potential sediment effects (tons per acre, turbidity) to soil, water, and threatened and endangered species.

### 1.10 Other Related Efforts

NEPA directs “to the fullest extent possible, agencies shall prepare draft environmental impact statements concurrently with and integrated with…other environmental review laws and executive orders” 40 CFR § 1502.25(a) (1978, as amended in 1986 and 2005).

The FERC remains the lead agency for re-initiating consultation with the FWS on the entire pipeline. Mountain Valley would have to comply with applicable provisions of the reasonable and prudent measures and terms and conditions in the 2020 FWS BO for the project (FWS 2020b). This FSEIS incorporates FWS findings and includes FWS reasonable and prudent measures, terms and conditions, and monitoring and reporting requirements that are in the 2020 BO (see FSEIS Section 2.2.2 and Section 2.2.2.2). Per 50 CFR § 402.16, re-initiation of consultation is required where discretionary federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of taking specified in the Incidental Take Statement (ITS) is exceeded; (2) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not considered in this Opinion; (3) the action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this Opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. As described in the 2020 BO, FERC could initiate emergency consultation with FWS for “situations involving acts of God, disasters, casualties, national defense or security emergencies, etc.” Emergency consultation was completed under the 2017 BO for 2.47 acres of slip repair in Wetzel County, West Virginia (off NFS lands).

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10 Slips are a type of slope failure that result in a downward falling or sliding of a mass of soil, rock, trees, and other debris from a steep slope onto an area below (FWS 2020b).
The FERC remains the lead agency for compliance with Section 106 of the National Historic Preservation Act (NHPA). FERC and the other cooperating Federal agencies, including the Forest Service and the BLM, together with tribal governments, executed a single Programmatic Agreement (PA) with the West Virginia and Virginia State Historical Preservation Offices (SHPOs), which reflects the obligations for compliance with the NHPA. Under the PA, FERC has responsibility to ensure that the stipulations in the PA are followed and that any required cultural resource treatment plans for sites on NFS lands have been completed.

See the FERC FEIS, Section 1.5, for a complete list of requirements for the MVP that is managed by the FERC.

1.11 Adoption, Tiering, and Incorporation by Reference

A cooperating agency may adopt an EIS of a lead agency when, after an independent review of the statement, the cooperating agency concludes that its comments and suggestions have been satisfied (40 CFR § 1506.3) (1978, as amended in 1986 and 2005). The Forest Service and BLM were cooperating agencies for the FERC FEIS and previously relied on and adopted that FEIS as reflected in each of their respective RODs. The Fourth Circuit subsequently found that the Forest Service improperly adopted the sedimentation analysis in the FEIS because no documentation existed to corroborate that the FERC FEIS satisfied the Forest Service’s comments and suggestions on specific issues. The Fourth Circuit, however, did not find any error in the BLM’s adoption and reliance on the FERC FEIS.

In light of the Fourth Circuit’s decision, the Forest Service seeks to correct the issues raised by supplementing the FERC FEIS. The Forest Service is adopting the FERC FEIS, and augmenting it based on additional analysis. The Forest Service and the BLM intend to rely on the FERC FEIS and this FSEIS to inform the responsible officials in making the agencies’ final decisions consistent with the requirements of NEPA. In addition, this FSEIS incorporates by reference the FERC FEIS project record.

Tiering is appropriate for EISs on a specific action to a supplement or a subsequent site-specific statement or analysis (40 CFR § 1508.28) (1978, as amended in 1986 and 2005). This FSEIS tiers to the FERC FEIS and incorporates by reference the Forest Plan.
2 Alternatives, Including the Proposed Action

2.1 Introduction
This chapter describes and compares the alternatives considered for the MVP. It responds to the Court ruling to demonstrate that an independent review of reasonable off-forest routes including the use of other ROWs has been considered as practicable and were given a hard look under NEPA and the MLA.

The alternatives analyzed in the FERC FEIS are not presented again since this FSEIS supplements or augments the 2017 FERC FEIS and to reduce bulk of this FSEIS (40 CFR 1500.4, 40 CFR 1502.20, and 40 CFR 1502.21) (1978, as amended in 1986 and 2005). However, a summary table of the alternatives in the 2017 FERC FEIS is found in Table 3. In addition, the alternatives presented in this FSEIS reflect the narrow scope and decision space the Forest Service and BLM have in context of the broader FERC decision.

2.2 Alternatives Considered in Detail
The Forest Service includes the No Action alternative as required by the NEPA regulations and the Proposed Action alternative developed to respond to the purpose and need for the project.

2.2.1 Alternative 1 – No Action
Under the No Action alternative, the Forest Plan would not be amended, and no concurrence would be provided to the BLM for granting of a ROW across NFS lands for the construction and operation of the MVP. Concurrence for issuing the TUP for the construction phase of the project would not be provided. BLM would not issue a ROW or a TUP. The current Forest Plan would continue to guide management of NFS lands in the project area. Mountain Valley would have to utilize other lands for the pipeline in order to satisfy the stated demand for natural gas and energy in the project area, or end users would have to seek alternate energy from other sources such as other natural gas transporters, fossil fuels, or renewable energy (FERC FEIS, Section 3.1).

The Forest Service would require Mountain Valley to restore the JNF project area to its pre-project condition. Materials including sections of pipe would be removed from the ROW (pipe has been laid on the ROW surface, but no trenching has occurred and no pipe has been installed on the JNF), stockpiled topsoil would be amended as needed and spread over the disturbed portion of the ROW, and the ROW would be revegetated. Upon successful restoration, erosion control devices (ECDs) would be removed.

The project was partially implemented prior to the Court ruling and, as a result, some resource effects as described in the FERC FEIS (Section 4.0 to 5.0) have already occurred.

Therefore, the effects associated with the No Action alternative are effects associated with the removal of materials and restoring the project area to its pre-project condition.

2.2.2 Alternative 2 – The Proposed Action
The Forest Service’s proposed action is to amend the Forest Plan as necessary to allow for the MVP to cross the JNF. The Forest Service would provide construction, operation, and maintenance terms and conditions as needed for the actions listed below. The Forest Service would submit the terms and conditions to the BLM for inclusion in the ROW grant. The Forest
Service would provide concurrence to the BLM to proceed with the ROW grant and with issuing a TUP for the construction phase. Consistent with the Forest Service’s plan amendment, the BLM would grant a ROW and a TUP under the MLA, 30 U.S.C. § 185, for the project to cross the JNF. The MLA ROW would include terms to protect the environment and the public. The construction and operation and maintenance actions that need terms (and Forest Service concurrence) include:

- Construction of a 42-inch pipeline across 3.5 miles of the JNF.
- The use of a 125-foot-wide temporary construction ROW for pipeline installation and trench spoil. Once construction is complete, the MVP would retain a 50-foot permanent ROW to operate the pipeline.
- The use of above-ground facilities, limited to pipeline markers (e.g., at road and trail crossings) to advise the public of pipeline presence, and cathodic pipeline protection test stations that are required by DOT.

The FWS issued a BO to the FERC for the MVP on September 4, 2020 (FWS 2020b). The BO analyzes five species, three of which have the potential to be affected by activities conducted under the proposed action on NFS lands: candy darter, Indiana bat, and northern long-eared bat. The ROW grant and TUP would incorporate the BO’s applicable reasonable and prudent measures, terms and conditions, and monitoring and reporting requirements for these three species. Because the 2020 BO addresses the entire project, applicable measures and terms and conditions would apply to the FSEIS proposed action (i.e., activities on NFS lands). The list of reasonable and prudent measures, terms and conditions, and monitoring and reporting requirements is provided in the 2020 BO and discussed in Sections 2.2.2.2 and 3.4.3.

Since publication of the FERC FEIS, it has been determined that the ROW can be accessed using only off-NFS roads; use of Pocahontas and Mystery Ridge roads is not part of the Proposed Action in this FSEIS.

Since publication of the FERC FEIS, the FERC has approved a variance request from Mountain Valley to change the crossing method of the four streams on NFS lands from a dry-ditch open cut method as indicated in the FERC FEIS to conventional bores in order to reduce effects to Waters of the United States and potential sedimentation effects in the JNF (FERC 2020c). This FSEIS analyzes both the originally proposed dry-ditch open cut crossing method and the conventional bore method in the variance. Dry-ditch open cut crossings would require Clean Water Act Section 404 permits and 401 certifications.
Table 1 displays the acres and miles of NFS lands that would be required for the construction, operation, and maintenance of the MVP.

<table>
<thead>
<tr>
<th>Area</th>
<th>Units impacted*</th>
</tr>
</thead>
<tbody>
<tr>
<td>NFS lands crossed</td>
<td>3.5 miles</td>
</tr>
<tr>
<td>125-foot temporary ROW</td>
<td>50.9 acres</td>
</tr>
<tr>
<td>50-foot permanent ROW</td>
<td>24.5 acres</td>
</tr>
</tbody>
</table>

* Rounded to the nearest tenth (source: MVP 2020a)
1 Included within the temporary ROW acreage

2.2.2.1 Forest Plan Amendment

**Purpose of the Proposed Amendment**

The NFMA requires proposed projects, including proposals from non-federal entities subject to permits or ROW grants, be consistent with the applicable Forest Plan (16 U.S.C. § 1604(i)). The Jefferson National Forest Plan states that, “[p]rojects are evaluated to determine if they are consistent with the management direction in the Revised Plan,” and that, “[d]eviation from a standard requires a Forest Plan amendment” (JNF LRMP, p. 2-1). The MVP Project cannot achieve several Forest Plan standards that are intended to protect soil, water, riparian, visual, old growth, and recreational resources. Therefore, the purpose of the proposed amendment is to modify current plan components to allow the project to be consistent with the amended Forest Plan.

In the Fourth Circuit decision, the Court stated:

“Thus, the clear purpose of the amendment is to lessen requirements protecting soil and riparian resources so that the pipeline project could meet those requirements.”

The Court is correct in that the Forest Service will achieve the purpose of the amendment (i.e., making the project consistent with the LRMP) by lessening the protections for soil and riparian resources within the 50 acres of the temporary MVP ROW, and ultimately the 25 acres of the permanent MVP MLA ROW. As described in Section 3.4.4 of this FSEIS, we have used this definition of the purpose of the amendment in arriving at a determination of which of the substantive requirements of the 2012 Planning Rule are directly related to the proposed amendment.

The purpose of the amendment is not the same as the applicant’s purpose of the project. The applicant’s purpose of the project, in general, is to transport natural gas produced in the Appalachian Basin to markets in the Northeast, Mid-Atlantic, and Southeastern United States. Specific description of the purpose of the MVP project is found in the FERC FEIS, page 1-8. Despite the remand of the Forest Service’s 2017 MVP ROD, the project purpose articulated in the FERC FEIS has not changed.

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11 Sierra Club, Inc. v United States Forest Serv., 897 F.3d 582 (4th Cir. 2018).
**Proposed Amendment**

The proposed Forest Plan amendment would modify 11 JNF Forest Plan standards so that the project is consistent with the amended Plan, but only for the limited purpose of the construction, operation, and maintenance of the MVP project within the project’s ROW. Specifically, the 11 standards proposed to be modified for the MVP project are listed in Table 2; modifications to the standards are shown in *italics*. 
Table 2. JNF Forest Plan Standards and Proposed Modifications Specific to the MVP Project

<table>
<thead>
<tr>
<th>Jefferson NF Forest Plan Standards</th>
<th>Proposed Modification for the MVP Project</th>
<th>Required Protective Measures in the POD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Part 1 – Utility Corridors</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard FW-248: Following evaluation of the above criteria, decisions for new authorizations outside of existing corridors and designated communication sites will include an amendment to the Forest Plan designating them as Prescription Area 5B or 5C (JNF LRMP, p. 2-60).</td>
<td>Standard FW 248: Following evaluation of the above criteria, decisions for new authorizations outside of existing corridors and designated communication sites will include an amendment to the Forest Plan designating them as Prescription Area 5B or 5C. <em>However, this requirement does not apply to the operational right-of-way for the MVP Project.</em></td>
<td>--</td>
</tr>
<tr>
<td><strong>Part 2 – Soil and Riparian</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Standard FW-5: On all soils dedicated to growing vegetation, the organic layers, topsoil and root mat will be left in place over at least 85% of the activity area and revegetation is accomplished within 5 years (JNF LRMP, p. 2-7). | On all soils dedicated to growing vegetation, the organic layers, topsoil and root mat will be left in place over at least 85% of the activity area and revegetation is accomplished within 5 years, *with the exception of the operational right-of-way and the construction zone for the Mountain Valley Pipeline, for which the applicable mitigation measures identified in the approved POD and MVP Project design requirements must be implemented.* | • Appendix C-1 to C-3, Erosion and Sediment Control Plan  
• Appendix F, Landslide Mitigation Plan  
• Appendix G, Site-Specific Design of Stabilization Measures in High Hazard Portions of the Route  
• Appendix H, The Restoration Plan  
• Appendix I, Timber Removal Plan  
• Appendix K, Water Crossing Plan  
• Appendix L, Karst Mitigation Plan  
• Appendix M, The Winter Construction Plan  
• Appendix R, Framework for Operations, Maintenance, and Emergency Response Plan  
• Appendix S, Exotic Invasive Species Plan  
• Appendix U, Spreads G-H-I Stormwater Pollution Prevention Plan (SWPPP) |

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### Table 2 (continued). JNF Forest Plan Standards and Proposed Modifications Specific to the MVP Project

<table>
<thead>
<tr>
<th>Jefferson NF Forest Plan Standards</th>
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<tbody>
<tr>
<td>Standard FW-8: To limit soil compaction, no heavy equipment is used on plastic soils when the water table is within 12 inches of the surface, or when soil moisture exceeds the plastic limit. Soil moisture exceeds the plastic limit when soil can be rolled to pencil size without breaking or crumbling (JNF LRMP, p. 2-7).</td>
<td>Standard FW-8: To limit soil compaction, no heavy equipment is used on plastic soils when the water table is within 12 inches of the surface, or when soil moisture exceeds the plastic limit, with the exception of the operational right-of-way and the construction zone for the Mountain Valley Pipeline, for which applicable mitigation measures identified in the approved POD and MVP Project design requirements must be implemented. Soil moisture exceeds the plastic limit when soil can be rolled to pencil size without breaking or crumbling.</td>
<td>Same as FW-5.</td>
</tr>
<tr>
<td>Standard FW-9: Heavy equipment is operated so that soil indentations, ruts, or furrows are aligned on the contour and the slope of such indentations is 5 percent or less (JNF LRMP, p. 2-7).</td>
<td>Standard FW-9: Heavy equipment is operated so that soil indentations, ruts, or furrows are aligned on the contour and the slope of such indentations is 5 percent or less, with the exception of the operational rights-of-way and the construction zone for the Mountain Valley Pipeline, for which applicable mitigation measures identified in the approved POD and MVP Project design requirements must be implemented.</td>
<td>Same as FW-5.</td>
</tr>
<tr>
<td>Jefferson NF Forest Plan Standards</td>
<td>Proposed Modification for the MVP Project</td>
<td>Required Protective Measures in the POD</td>
</tr>
<tr>
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<td>----------------------------------------</td>
</tr>
</tbody>
</table>
| Standard FW-13: Management activities expose no more than 10% mineral soil in the channeled ephemeral zone (JNF LRMP, p. 2-8). | Standard FW-13: Management activities expose no more than 10% mineral soil in the channeled ephemeral zone, with the exception of the operational right-of-way and the construction zone for the Mountain Valley Pipeline, for which applicable mitigation measures identified in the approved POD and MVP Project design requirements must be implemented. | • Appendix C-1 to C-3, Erosion and Sediment Control Plan  
• Appendix F, Landslide Mitigation Plan  
• Appendix L, Karst Mitigation Plan  
• Appendix H, The Restoration Plan  
• Appendix M, The Winter Construction Plan  
• Appendix R, Framework for Operations, Maintenance, and Emergency Response Plan  
• Appendix S, Exotic Invasive Species Plan  
• Appendix U, Spreads G-H-I SWPPP  
• Appendix V, Plant Wildlife Conservation |
| Standard FW-14: In channeled ephemeral zones, up to 50% of the basal area may be removed down to a minimum basal area of 50 square feet per acre. Removal of additional basal area is allowed on a case-by-case basis when needed to benefit riparian dependent resources (JNF LRMP, p. 2-8). | Standard FW-14: In channeled ephemeral zones, up to 50% of the basal area may be removed down to a minimum basal area of 50 square feet per acre. Removal of additional basal area is allowed on a case-by-case basis when needed to benefit riparian-dependent resources, with the exception of the operational right-of-way and the construction zone for the Mountain Valley Pipeline, for which applicable mitigation measures identified in the approved POD and MVP Project design requirements must be implemented. | Same as FW-13. |
Table 2 (continued). JNF Forest Plan Standards and Proposed Modifications Specific to the MVP Project

<table>
<thead>
<tr>
<th>Jefferson NF Forest Plan Standards</th>
<th>Proposed Modification for the MVP Project</th>
<th>Required Protective Measures in the POD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard 11-003: Management activities expose no more than 10 percent mineral soil within the project area riparian corridor (JNF LRMP, p. 3-182).</td>
<td>Standard 11-003: Management activities expose no more than 10 percent mineral soil within the project area riparian corridor, with the exception of the operational right-of-way and the construction zone for the Mountain Valley Pipeline for which applicable mitigation measures identified in the approved POD and MVP Project design requirements must be implemented.</td>
<td>Same as FW-13.</td>
</tr>
</tbody>
</table>

Part 3 – Old Growth Management Area

<table>
<thead>
<tr>
<th>Jefferson NF Forest Plan Standards</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Standard 6C-007: Allow vegetation management activities to: maintain and restore dry-mesic oak forest, dry and xeric oak forest, dry and dry-mesic oak-pine old growth forest communities; restore, enhance, or mimic historic fire regimes; reduce fuel buildups; maintain rare communities and species dependent on disturbance; provide for public health and safety; improve threatened, endangered, sensitive, and locally rare species habitat; control non-native invasive vegetation (JNF LRMP, pp. 3-82 to 3-83).</td>
<td>Standard 6C-007: Allow vegetation management activities to: maintain and restore dry-mesic oak forest, dry and xeric oak forest, dry and dry-mesic oak-pine old growth forest communities; restore, enhance, or mimic historic fire regimes; reduce fuel buildups; maintain rare communities and species dependent on disturbance; provide for public health and safety; improve threatened, endangered, sensitive, and locally rare species habitat; control non-native invasive vegetation, clear the trees within the construction zone associated with the Mountain Valley Pipeline; and maintain the operational right-of-way of the Mountain Valley Pipeline in accordance with the approved POD.</td>
<td>• Appendix I, Timber Removal Plan --</td>
</tr>
<tr>
<td>Standard 6C-026: These areas are unsuitable for designation of new utility corridors, utility rights-of-way, or communication sites. Existing uses are allowed to continue (JNF LRMP, p. 3-84)</td>
<td>Standard 6C-026: These areas are unsuitable for designation of new utility corridors, utility rights-of-way, or communication sites, with the exception of the Mountain Valley Pipeline right-of-way. Existing uses are allowed to continue.</td>
<td>--</td>
</tr>
</tbody>
</table>
Table 2 (continued). JNF Forest Plan Standards and Proposed Modifications Specific to the MVP Project

<table>
<thead>
<tr>
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<tr>
<td><strong>Part 4 – Appalachian National Scenic Trail</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard 4A-028: Locate new public utilities and rights-of-way in areas of this management prescription area where major impacts already exist. Limit linear utilities and rights-of-way to a single crossing of the prescription area, per project (JNF LRMP, p. 3-23).</td>
<td>Standard 4A-028: Locate new public utilities and rights-of-way in areas of this management prescription area where major impacts already exist, with the exception of the Mountain Valley Pipeline right-of-way. Limit linear utilities and rights-of-way to a single crossing of the prescription area, per project.</td>
<td>• Appendix E, ANST Contingency Plan</td>
</tr>
<tr>
<td><strong>Part 5 – Scenery Integrity Objectives</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard FW-184: The Forest Scenic Integrity Objectives (SIOs) Maps govern all new projects (including special uses). Assigned SIOs are consistent with Recreation Opportunity Spectrum management direction. Existing conditions may not currently meet the assigned SIO (JNF LRMP, p. 2-48).</td>
<td>Standard FW-184: The Forest Scenic Integrity Objectives (SIOs) Maps govern all new projects (including special uses), with the exception of the Mountain Valley Pipeline right-of-way. MVP shall attain the existing SIOs within five years after completion of the construction phase of the project, to allow for vegetation growth. Assigned SIOs are consistent with Recreation Opportunity Spectrum management direction. Existing conditions may not currently meet the assigned SIO.</td>
<td>• Appendix H, Restoration Plan</td>
</tr>
</tbody>
</table>
2.2.2.2 Mitigation and Compliance Monitoring

An integral part of the proposed action is the POD which outlines the steps that MVP must follow during the construction, operation, and maintenance of the project on federal lands, including mitigation measures and project design features. The POD includes resource mitigation for reducing or eliminating effects to resources. Specific resource mitigation plans are included in the POD as appendices, which must be approved by the Forest Service and BLM. MVP must submit a final POD prior to BLM issuing its ROD. If approved, the BLM would incorporate the final POD into the ROD and would attach it to the ROW grant and TUP as a comprehensive compliance document for the approved use of the authorization. No relocation, additional construction, or use that is not in accordance with the approved POD can be initiated without the BLM’s prior written approval (see Section 1.4.2).

Mitigation measures incorporated into the proposed amendment are designed to minimize the potential for soil movement and ensure adequate restoration and revegetation. The mitigation measures are outlined in the Erosion and Sediment Control Plan (POD Appendix C-1, C-2, and C-3 [MVP 2020c, x, and y]), Landslide Mitigation Plan (POD Appendix F [MVP 2020f]), the Site-Specific Design of Stabilization Measures in High Hazard Portions of the Route (POD Appendix G [MVP 2020g]), the Restoration Plan (POD Appendix H [MVP 2020h]), and the Winter Construction Plan (POD Appendix M [MVP 2020l]). In addition, the project would be compliant with the FERC Plan (FERC 2013a), except where Mountain Valley received approval from FERC to deviate from them; and it would follow Best Management Practices (BMPs) for the states of West Virginia and Virginia. During initial construction activities, monitoring identified instances where ECDs needed repair or replacement due to excessive precipitation or other factors. Enhanced ECDs were added to these areas to reinforce protection of resources and to minimize the risk of future damage or ECD failure.

The Forest Service would continue to monitor implementation and effectiveness of the mitigation measures on NFS lands to assure that the terms and conditions of the ROW grant issued by BLM are carried out (40 CFR § 1505.3) (1978, as amended in 1986 and 2005) and that negative impacts from construction and operation of the pipeline on federal lands are minimized to the extent possible. As during initial construction activities, compliance monitors would be present on a full-time basis to inspect construction procedures and mitigation measures and provide regular feedback on compliance issues to FERC, the Forest Service, and the BLM. Objectives of the compliance monitoring program are to facilitate the timely resolution of compliance issues in the field; provide continuous information to FERC regarding noncompliance issues and their resolution; and review, process, and track construction-related variance requests. The Agencies would issue a stop work order if the project does not comply with terms and plans in the POD.

Changes to approved mitigation measures, construction procedures, and construction work areas due to unforeseen or unavoidable site conditions would require regulatory approval from FERC, BLM, and Forest Service as applicable according to variance procedures. Authorized representatives of FERC, BLM, or the FWS would have the authority to stop any activity that violates an environmental condition of the FERC authorization or ROW grant issued to Mountain Valley.

Conventional Bore Stream Crossings
The FERC approved a variance for the crossing of the four streams on NFS lands using a conventional bore method (FERC 2020c). If a conventional bore method is used, the procedures
in the Water Crossing Plans (POD Appendix K [MVP 2020v]) and measures in the stream crossing method variance request (MVP 2020u) would be implemented, as summarized below:

- All earth disturbance necessary to complete the crossings and spoil stockpile will remain within the previously permitted LOD.
- Reinforced filtration devices will be used, which may include priority 1 silt fence, triple stacked compost filter sock, or super silt fence.
- Bore pits and construction activities will be located outside of the ordinary high water mark of streams.
- Bore pits will be monitored and dewatered when necessary by utilizing a standard water pump. The pumps will discharge into dewatering structures that will be built in compliance with both FERC and Virginia Department of Environmental Quality (VDEQ) requirements.
- No drilling fluids will be employed.

**Dry-Ditch Open Cut Stream Crossings**

If the four streams on NFS lands are crossed using a dry-ditch open cut method, Mountain Valley is required to obtain a Clean Water Act Section 401 Water Quality Certification to ensure it does not violate state water quality standards and will coordinate with Virginia Department of Wildlife Resources on any issues (e.g., variances, time-of-year restrictions) related to stream crossings. The following procedures would be utilized to minimize adverse impacts:

- Any open-cut stream crossings will not be started unless the weather forecast reflects limited or no upcoming rain events.
- Any open-cut stream crossings will be attempted during low flow.
- Environmental monitors will be on-site during stream crossing activities to evaluate any changing conditions.
- Stream crossing crews will be required to have additional sandbags and erosion and sedimentation control devices, back-up pumps, and spill kits on-site prior to starting the stream crossing.
- Additional erosion and sedimentation control devices, including turbidity curtains, will be deployed downstream if necessary.
- All fuel supplies and pumps will be required to be in secondary containment.
- The stream crossings will be completed as quickly as possible to eliminate the duration in the stream.
- Any temporary impacts to the stream banks and any adjacent areas from the crossing activity will be restored directly following the stream crossing.
Requirements in the 2020 Biological Opinion

The ROW grant and TUP would incorporate reasonably prudent measures, terms and conditions, and monitoring and compliance reporting requirements in the 2020 BO that apply to actions on NFS lands\textsuperscript{12}. These requirements are summarized below.

Candy Darter

- Provide information to individuals involved in project construction on how to avoid and minimize potential effects to the candy darter.

- Minimize and monitor incidental take caused by elevated suspended sediment concentration (SSC)/turbidity and sedimentation due to construction activities.

Indiana Bat

- Provide information to individuals involved in project construction on how to avoid and minimize potential effects to the Indiana bat.

- Finalize the Memorandum of Understanding regarding federally listed bat mitigation prior to the completion of project construction.

- Prior to initiation of on-site work, notify all prospective employees, operators, and contractors about the presence and biology of the Indiana bat, special provisions necessary to protect the Indiana bat, activities that may affect the Indiana bat, and ways to avoid and minimize these effects. This information can be obtained by reading Indiana bat-related information in the 2020 BO or a fact sheet containing this information can be created and provided by FERC or the applicant.

- FERC or the applicant shall notify the FWS regarding the projected and actual re-start dates, progress, and completion of the project and verify that all conservation measures were followed. Provide a report containing this information by December 31 of each year until construction is complete.

Northern Long-Eared Bat

- Finalize the Memorandum of Understanding regarding federally listed bat mitigation prior to the completion of project construction.

- FERC or the applicant shall notify the FWS regarding the projected and actual re-start dates, progress, and completion of the project and verify that all applicable conservation measures were followed. Provide a report containing this information by December 31 of each year until construction is complete.

2.2.2.3 Permits, Approvals, and Regulatory Requirements

Section 1.5 of the FERC FEIS contains a description of the permits, approvals, and regulatory requirements that must be met or obtained by Mountain Valley. The Certificate (FERC 2017d) also contains detailed language about required permits, licenses, and agency approvals associated with construction, operation, and maintenance of the project.

\textsuperscript{12} The 2020 FWS BO covers the entire 303-mile-long proposed pipeline, including the 3.5 miles on NFS lands.
2.3 Alternatives Considered but Eliminated from Detailed Study

The Forest Service is adopting the FERC FEIS and augmenting it based on additional analysis. In addition to adopting the alternatives considered but eliminated from detailed study in Section 3.2 of the FERC FEIS (pp. 3-4 to 3-119), this section discloses how the Forest Service is meeting its obligation to analyze off-NFS alternatives.

Section 3 of the FERC FEIS documents how public comments, which provided suggestions for alternative methods for achieving the purpose and need, were addressed. Section 3, which is incorporated by reference into this FSEIS, describes alternative development and the alternatives that were carried forward into detailed analysis. The FERC used key criteria to evaluate the identified alternatives, which included whether the alternative would:

- be technically and economically feasible and practical;
- offer a significant environmental advantage over the proposed action; and
- meet the project’s environmental purpose, as described in the FEIS, Section 1.1.

The identification of alternative routes for the MVP as a whole, and for specific segments for crossings the JNF, began with a detailed routing analysis performed during the pre-filing stage. The MVP adopted at least 11 route revisions and incorporated at least 571 minor route variations (FERC FEIS, Sec. 3.4 pp. 3-17 to 3-32).

Since 2017, the identification and evaluation of alternative routes (including off-forest routes) has been raised as an issue. Table 3 displays all alternatives considered with evaluation information and rationale. Major alternatives (alternatives analyzed in detail in the FERC FEIS) include Alternative 1 and the Northern Alternative-Atlantic Coast Pipeline (ACP) Co-location Alternative. Both included alternative crossing locations on the JNF. Another major alternative that would avoid crossing NFS lands entirely is described as the “Forest Service Avoidance Alternative.” The Burnsville Weston Gauley Alternative (which was included in the 2020 updated MVP application and the BLM Practicality Analysis (as amended)) has been included in Table 3 of this FSEIS as an alternative route considered. This route does not avoid NFS lands or change the miles of pipeline that cross the JNF. In addition to those routes that are included in Table 3 of the DSEIS, three route options that were received in comments submitted on the DSEIS have been evaluated and included in Table 3 of this FSEIS in response to those comments.

2.3.1 Evaluation of Off-NFS Lands Alternatives

The Forest Service evaluated whether the MVP could be reasonably accommodated off-NFS lands for consistency with Forest Service Manual and the Forest Plan as a consideration in whether to concur with issuance of a ROW grant for the MVP project. The following are factors that weigh on this consideration:

Forest Service Manual 2703.2(2) states:

In applying the second-level screening criterion regarding the public interest (36 CFR § 251.54(e)(5)(ii)), consider the following: … Authorize use of NFS lands other than noncommercial group uses only if … the proposed use cannot reasonably be accommodated off of NFS lands.
The JNF Forest Plan standard FW-244 states:

Evaluate new special use authorizations using the criteria outlined in 36 CFR § 251.54 and according to Forest Service policy. Limit to needs that cannot be reasonably met on non-NFS lands or that enhance programs and activities.

In response to Issue 2, the Agencies organized a team of resource specialists to review the alternatives that would avoid NFS lands and to determine if other non-NFS options existed (see Section 1.9.2). The evaluation considered whether there were new options for using existing ROWs. The evaluation responds to Issue 2.

For this analysis, three criteria were selected to guide the evaluation: (1) Whether all reasonable alternatives that would avoid NFS lands had been reviewed; (2) How special use screening requirements found at 36 CFR § 251.54(d)(e) supported a review of alternatives; and (3) Whether the JNF Forest Plan standard FW-244 had been adequately addressed.

2.3.1.1 Evaluation Criteria 1

Table 3 addresses evaluation criteria 1 and displays a re-evaluation of the 2017 FERC alternatives and the BLM Practicality Analysis (see Appendix A). The table also includes the 2020 MVP “Forest Service Avoidance” alternative.
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### Table 3. Evaluation of MVP Alternative Routes and Variations

<table>
<thead>
<tr>
<th>Information Source</th>
<th>Source</th>
<th>Description Summary</th>
<th>Review Comments</th>
<th>Summary of Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summary of Alternative Routes reviewed</td>
<td>Updated 2020 MVP Standard Form (SF 299)</td>
<td>“The identification of alternative routes for the Project as a whole, and for specific Project segments for crossings of the Weston and Gauley Bridge Turnpike Trail and JNF, began with a detailed routing analysis performed in May 2014 that analyzed 94 corridor segments including 2,362 miles of potential pipeline routes that would move gas from Northern West Virginia to Transco Station 165 in Pittsylvania County, Virginia.”</td>
<td>The identification of 94 corridor segments and 2,362 miles of potential routes are in the FERC FEIS and/or docket.</td>
<td>--</td>
</tr>
<tr>
<td>Summary of Alternatives Considered in addition to the Proposed Action</td>
<td>Updated 2020 MVP SF 299</td>
<td>Mountain Valley continued to identify and evaluate alternatives as issues were raised by stakeholders or located in the field. Two alternatives evaluated (Alternative 1 and Northern Alternative-ACP Collocation Alternative) would avoid crossing the Weston and Gauley Bridge Turnpike Trail and would include alternative crossing locations of the JNF.</td>
<td>Notes alternative crossing locations on the JNF not entire avoidance of NFS lands.</td>
<td>--</td>
</tr>
<tr>
<td>Alternative 1</td>
<td>Updated 2020 MVP SF 299</td>
<td>Alternative 1 would maximize collocation; would be collocated primarily with existing electric transmission lines for approximately 101 miles, or about 31% of its total length.</td>
<td>Reduces crossing NFS from 3.5 to 1.6 miles; Reduces acres of old growth crossed from 1,710 feet to 0; Reduces designated old growth affected from 4.9 acre to zero.</td>
<td>Does not eliminate routes on NFS lands, so does not meet intent of the Court issue for the Forest Service.</td>
</tr>
<tr>
<td>Information Source</td>
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<tr>
<td>FS Avoidance Route</td>
<td>Updated 2020 MVP SF 299</td>
<td>This route would entirely avoid NFS lands and locate the pipeline on private lands.</td>
<td>See evaluation and review of this alternative (see Section 2.3.1.1).</td>
<td>Eliminates routes on NFS; therefore does meet intent of Court issue. See evaluation.</td>
</tr>
<tr>
<td>Northern Pipeline-ACP Collocation</td>
<td>FERC FEIS; Updated 2020 MVP SF 299, BLM Practicality Analysis</td>
<td>Collocated entirely on federal lands with two parallel 42&quot; pipelines with two 125' ROWs.</td>
<td>Crosses NFS, but in conjunction with ACP. 22 miles more of side slope routes; issue with collocating two pipelines along ridges. Milepost (MP) 37 to MP 303.5.</td>
<td>Does not eliminate routes on NFS; therefore does not meet intent of Court issue. See BLM practicality analysis for additional analysis. As the ACP was cancelled, this is no longer a viable alternative.</td>
</tr>
<tr>
<td>Highway Collocation</td>
<td>FERC FEIS, BLM Practicality Analysis</td>
<td>Alongside of Interstate 77.</td>
<td>Crosses NFS but in conjunction with the Interstate 77 ROW. Two versions analyzed: one within highway ROW and one adjacent to highway ROW.</td>
<td>See BLM practicality analysis for additional analysis.</td>
</tr>
<tr>
<td>Alt 1-Hybrid 1A</td>
<td>FERC FEIS, BLM Practicality Analysis</td>
<td>Alt 1 maximizes collocation with an existing electric transmission line with Hybrid 1A follows approved route to MP 135, then follow Alt 1, re-converging at MP 303.5.</td>
<td>Collocates with electric transmission lines.</td>
<td>Does not eliminate routes on NFS lands; therefore it does not meet intent of Court issue. However, it does reduce the pipeline length on NFS lands to 1.6 miles.</td>
</tr>
<tr>
<td>Variations 110, 110R, and 110J</td>
<td>FERC FEIS, BLM Practicality Analysis</td>
<td>Developed to avoid sensitive resources in the general vicinity of the JNF crossing between MPs 175-235.</td>
<td>Crosses more miles of federal lands than the approved route</td>
<td>Does not eliminate routes on NFS lands; therefore it does not meet intent of Court issue.</td>
</tr>
<tr>
<td>Information Source</td>
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<tr>
<td>SR-635-ANST Variation</td>
<td>FERC FEIS, BLM Practicality Analysis</td>
<td>Developed to reduce effects to AT hikers by crossing the AT at an existing state road. MPs 191.7 to 207.8.</td>
<td>Crosses 2.9 miles more of federal land.</td>
<td>Does not eliminate routes on NFS lands; therefore it does not meet intent of Court issue.</td>
</tr>
<tr>
<td>Columbia Gas of Virginia (CGV) Variation</td>
<td>FERC FEIS, BLM Practicality Analysis</td>
<td>Collocates MVP with CGV for about 1.6 miles. MPs 195 to 200.</td>
<td>Reduces un-collocated crossing on federal lands but increase total pipeline by about 9 miles with 4.1 miles on steep slope and 4.6 miles of side slope. Increases total disturbance by 136.3 acres with 60.8 more acres on forested land.</td>
<td>Does not eliminate routes on NFS lands; therefore it does not meet intent of Court issue.</td>
</tr>
<tr>
<td>American Electric Power (AEP) - ANST Variation</td>
<td>FERC FEIS, BLM Practicality Analysis</td>
<td>Developed to reduce effects to AT hikers by crossing the AT at an existing electric transmission line. MPs 195.4 to 200.</td>
<td>Increases crossing of federal lands by about 0.9 miles.</td>
<td>Does not eliminate routes on NFS lands; therefore it does not meet intent of Court issue.</td>
</tr>
<tr>
<td>Brush Mountain Alternatives 1 and 2</td>
<td>BLM Practicality Analysis</td>
<td>Developed to reduce effects to the Craig Creek watershed. MP 219.5 to 220.7.</td>
<td>Crosses same amount of JNF land.</td>
<td>Does not eliminate routes on NFS lands; therefore it does not meet intent of Court issue.</td>
</tr>
<tr>
<td>Slussers Chapel Variations</td>
<td>BLM Practicality Analysis</td>
<td>Two route alternatives between MPs 220.7 and 223.7 to reduce effects on the Slussers Chapel Conservation Site.</td>
<td>Modified Variation 250 entirely on non-federal lands but has about 2.3 miles on federal land. Other alternative crosses more federal lands.</td>
<td>Does not eliminate routes on NFS lands; therefore it does not meet intent of Court issue.</td>
</tr>
</tbody>
</table>
### Table 3 (continued). Evaluation of MVP Alternative Routes and Variations

<table>
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<tr>
<th>MVP Alternatives</th>
<th>Source</th>
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</thead>
<tbody>
<tr>
<td>Burnsville Lake Wildlife Management Area (WMA)</td>
<td>Updated 2020 MVP SF 299</td>
<td>Alternative crossing location of the Weston and Gauley Bridge Turnpike Trail. Variation between MP 65.3 and 69.6.</td>
<td>Does not change the route on NFS as it rejoins the primary route.</td>
<td>Does not eliminate routes on NFS lands; therefore it does not meet intent of Court issue.</td>
</tr>
<tr>
<td>Burnsville Weston Gauley</td>
<td>2020 BLM Practicality Analysis as amended</td>
<td>Additional route that deviates from proposed route from MP 60 to 75.</td>
<td>Does not change the route on NFS as it rejoins the primary route.</td>
<td>Does not reduce or eliminate miles of route on NFS lands.</td>
</tr>
<tr>
<td>Recommended Gap Alternative</td>
<td>Public comments on the DSEIS</td>
<td>The recommendation was to review the gaps in land ownership to route the pipeline off NFS lands.</td>
<td>To avoid designated wilderness the route would need to go some distance north or south. In order to avoid excessive distance, NFS lands would have to be crossed.</td>
<td>After a review of looking for alternative routes both north and south of NFS lands, the Forest Service found FERC’s Variation 110R is very similar.</td>
</tr>
<tr>
<td>Recommended WB Xpress Alternative</td>
<td>Public comments on the DSEIS</td>
<td>The recommendation was to tie in with the existing WB Xpress pipeline as a means of avoiding NFS lands.</td>
<td>The WB Xpress is part of the larger Columbia Gas pipeline. Re-routing the MVP to use this route results in the gas not getting to its intended location in the most direct manner possible.</td>
<td>The Forest Service concluded it is not reasonable to take a more indirect route via the Columbia gas line to the Transco Interconnect. The Forest Service reviewed the FERC FEIS and found that a Columbia System Pipeline alternative had been considered but dismissed for reasons including (but not limited to) capacity which is already contracted (spoken for) (FERC FEIS, pp. 3-10 to 3-11). The WB Xpress pipeline alternative had been considered but eliminated because of current pipeline capacity limitations (FERC FEIS, p. 3-16).</td>
</tr>
</tbody>
</table>

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Jefferson National Forest

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Table 3 (continued). Evaluation of MVP Alternative Routes and Variations

<table>
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<tr>
<th>MVP Alternatives Source</th>
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<tbody>
<tr>
<td>Recommended Transco Alternative</td>
<td>This route would use the Transco pipeline by using the Columbia Gas pipeline.</td>
<td>The Columbia Gas pipeline would be used to transport gas east to the Transco Interconnect. The Transco Interconnect would be used to transport gas south.</td>
<td>The Forest Service reviewed the use of the Columbia gas line in the previous alternative and found that it was not reasonable to take a more indirect route via the Columbia gas line to the Transco Interconnect. For this reason, the Transco route is not reasonable. A review of the FERC FEIS indicates this alternative was considered but eliminated because it currently does not extend to the natural gas production areas of West Virginia (FERC FEIS, p. 3-13).</td>
</tr>
<tr>
<td>Alternative Modes of Natural Gas Transportation</td>
<td>Natural gas would be transported by transporting by liquified natural gas (LNG) vessels.</td>
<td>The alternative was determined to be not technically feasible and practicable by the FERC.</td>
<td>Would avoid NFS lands, but the Forest Service reviewed this alternative and determined this proposal to not be feasible. FERC also found this alternative to not be feasible.</td>
</tr>
<tr>
<td>Alternative Modes of Natural Gas Transportation</td>
<td>Natural gas would be trucked on existing roadways.</td>
<td>The alternative was determined to not have significant advantages by the FERC.</td>
<td>Would avoid NFS lands, but the Forest Service reviewed this alternative and determined this proposal to not be feasible. FERC also found this alternative to not be feasible.</td>
</tr>
</tbody>
</table>
### Table 3 (continued). Evaluation of MVP Alternative Routes and Variations

<table>
<thead>
<tr>
<th>MVP Alternatives Source</th>
<th>Description Summary</th>
<th>Review Comments</th>
<th>Summary of Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alternative Modes of Natural Gas Transportation</td>
<td>Natural gas would be transported via railroad.</td>
<td>The alternative was determined by FERC to need years to design, permit, and build and would come with its own set of environmental effects. See additional information in narrative form, below.</td>
<td>Would avoid NFS lands, but the Forest Service reviewed this alternative and determined this proposal to not be feasible. FERC also found this alternative to not be feasible.</td>
</tr>
<tr>
<td>System Alternatives</td>
<td>The FERC identified multiple alternatives for using other natural gas pipelines.</td>
<td>FERC considered the Texas Eastern, Columbia, East Tennessee, and Transco pipeline systems. Proposed natural gas transmission systems considered include the Supply Header, Atlantic Coast, and WB Xpress pipeline systems. See additional information in narrative form, below.</td>
<td>Would avoid NFS lands, but the proposal is outside the scope and jurisdiction of the JNF. FERC found this alternative to not be feasible.</td>
</tr>
</tbody>
</table>
Alternatives that Avoid NFS Lands

The May 2020 SF-299 and 2017 FERC FEIS include multiple alternatives that avoid NFS lands (Department of Interior [DOI] 2020a).

Forest Service Avoidance Alternative

One alternative that would fully avoid NFS lands was developed by the MVP in their 2020 SF-299 application but was not included in the 2017 FERC FEIS. Mountain Valley submitted this alternative to the Forest Service on April 8, 2016 (See Figure 2). This route would entirely avoid NFS lands by being placed on private lands in both West Virginia and Virginia but north of the JNF (MVP 2020s). This alternative encompasses a broad array of route deviations and, therefore, impacts. Although the Court stated that the Forest Service must consider alternatives that avoid NFS lands, a majority of the MVP has already been constructed, including crossings of the Blue Ridge Parkway and U.S. Army Corps of Engineers lands. In addition, the Forest Service does not have jurisdiction over an alternative that avoids NFS lands, and the No Action Alternative effectively addresses avoidance of NFS lands.

In effect, all actions and impacts that would have occurred on NFS would be transferred to other lands. This alternative would increase the length of the pipeline from approximately 303 miles to 351 miles and the acres of land that are disturbed from the ROW during construction increases by 745 acres. The number of populated areas that are within ½ mile of the pipeline increase from 8 to 31, and the number of private lands crossed would increase by about 248 parcels. Relatedly, the number of residences that are in close proximity (within 50 feet) to the ROW would increase from 63 to 168. The ANST and the Blue Ridge Parkway, important features on this landscape, would still be crossed but not on NFS lands.
Figure 2. MVP NFS Lands Avoidance Route
In terms of sensitive resources, the route would include approximately 11 additional large waterbody crossings, and perennial waters affected by the route would increase by over 50%. There would be an increase of about 15,000 feet of wetland crossings, including approximately 6,000 feet of forested wetlands. The area affected by the route would increase over 50% for perennial waters. Table 4 compares the proposed action alternative to this alternative.

### Table 4. Comparison of Proposed Action and NFS Lands Avoidance Route

<table>
<thead>
<tr>
<th>Feature</th>
<th>Forest Service Avoidance Route</th>
<th>Proposed Action Alternative</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total length (miles)</td>
<td>351</td>
<td>303.5</td>
</tr>
<tr>
<td>Length adjacent to existing ROW (miles)</td>
<td>332</td>
<td>22</td>
</tr>
<tr>
<td>Land disturbed within construction ROW (acres)</td>
<td>5,301</td>
<td>4,556</td>
</tr>
<tr>
<td><strong>Land Use</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Populated areas within ½ mile (number)</td>
<td>31</td>
<td>8</td>
</tr>
<tr>
<td>National Forest System lands crossed (miles)</td>
<td>0</td>
<td>3.4</td>
</tr>
<tr>
<td>National Forest Wilderness crossed (miles)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>ANST crossings (number)</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Blue Ridge Parkway crossings (number)</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>NRHP designated or eligible historic districts crossed (miles)</td>
<td>0.1</td>
<td>10.1</td>
</tr>
<tr>
<td>Landowner parcels crossed (number)</td>
<td>1,743</td>
<td>1,495</td>
</tr>
<tr>
<td>Residences within 50 feet of construction workspace (number)</td>
<td>168</td>
<td>63</td>
</tr>
<tr>
<td><strong>Resources</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forested land crossed (miles)</td>
<td>206.0</td>
<td>245.2</td>
</tr>
<tr>
<td>Forested land affected during construction (acres)</td>
<td>3,121.2</td>
<td>3,720.0</td>
</tr>
<tr>
<td>Forested land affected during operation (acres)</td>
<td>1,248.5</td>
<td>1,486.0</td>
</tr>
<tr>
<td>Interior forest crossed (miles)</td>
<td>41.1</td>
<td>129.8</td>
</tr>
<tr>
<td>Wetlands (National Wetlands Inventory) crossed (feet)</td>
<td>18,918</td>
<td>3,299</td>
</tr>
<tr>
<td>Forested wetlands crossed (feet)</td>
<td>7,761</td>
<td>1,721</td>
</tr>
<tr>
<td>Forested wetlands affected by construction (acres)</td>
<td>13.4</td>
<td>3.0</td>
</tr>
<tr>
<td>Forested wetlands affected by operation (acres)</td>
<td>8.9</td>
<td>2.0</td>
</tr>
<tr>
<td>Perennial waterbody crossings (number)</td>
<td>206</td>
<td>97</td>
</tr>
</tbody>
</table>

**Alternative Modes of Transporting Natural Gas**

LNG delivery via ships, trucks, and railroads was considered in the 2017 FERC FEIS but dismissed from detailed analysis because it was found to not provide significant environmental advantage and/or not technically feasible and practical.

**Ship Delivery**

Delivery via ships would have to utilize existing import/export shipping terminals because construction of a new shipping terminal would be impractical. Therefore, the utilization of Dominion Cove Point terminal in Maryland and the Elba Island Terminal in Georgia were considered for a shipping alternative. Utilization of either of these terminals would still require construction of a pipeline of about 310 miles for Dominion Cove Point and more than 350 miles

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13 The Forest Service Avoidance route is the only pipeline route that is entirely off of NFS lands (see 2020 SF-299 application).
for Elba Island Terminal. Therefore, the shipping alternative was not developed for detailed analysis because it does not provide a significant environmental advantage and is impractical.

**Truck Delivery**

Delivery via trucks would require the construction of liquefaction facilities at the natural gas production area in West Virginia and Pennsylvania, and new regasification facilities would need to be constructed at the delivery points. The environmental effects associated with the construction and operation of new liquefaction and regasification facilities would be substantial. An estimated 2,201 trucks would be required to transport the volume of LNG per day to replace the proposed MVP. For these reasons, the trucking alternative was not developed for detailed analysis because it does not provide a significant environmental advantage and is impractical.

**Railroad Delivery**

Delivery via railroad would require the construction of liquefaction facilities at the natural gas production area in West Virginia and Pennsylvania, and new regasification facilities would need to be constructed at the delivery points. The environmental effects associated with the construction and operation of new liquefaction and regasification facilities would be substantial. An estimated 779 rail cars would be required to transport the volume of LNG per day to replace the proposed MVP. In addition, railway extensions would be needed to proposed delivery points. For these reasons, the railroad alternative was not developed for detailed analysis because it does not provide a significant environmental advantage and is impractical.

**System Alternatives**

Alternatives utilizing existing or other proposed natural gas transmission system/facilities were considered in the updated 2020 SF-299 and 2017 FERC FEIS. Existing natural gas transmission systems considered include the Texas Eastern, Columbia, East Tennessee, and Transco pipeline systems. Proposed natural gas transmission systems considered include the Supply Header, Atlantic Coast, and WB Xpress pipeline systems. Many of these existing and proposed pipelines cross NFS lands. However, all the system alternatives considered were not developed for detailed analysis because construction of additional facilities and pipelines to connect and utilize these systems would be similar or greater environmental effect than the proposed MVP project, and/or the existing system does not have the capacity to transport MVP’s natural gas.

**Route Alternatives**

The FERC FEIS analyzed four major route alternatives to the proposed action in detail: Alternative 1, Hybrid 1A, Hybrid 1B, and the Northern Pipeline-Atlantic Coast Pipeline Collocation. All four of these alternatives analyzed in detail cross NFS lands for some portion of the overall project. In addition, the FERC FEIS considered 15 route variations to address site-specific issues, some of which reduced the overall project length crossing NFS lands but did not eliminate crossing NFS lands. Therefore, these route alternatives are not pertinent in determining whether the proposal can reasonably be accommodated off of NFS lands.

**Re-Evaluation Conclusion**

The evaluation of effects is only specific to NFS lands; the Avoidance Alternative as well as the other alternative modes of transporting natural gas would reduce or eliminate additional effects to NFS lands. However, the conclusion from the Agencies, when considering all aspects of the MVP proposal, was that it could not be reasonably accommodated off NFS lands in its entirety. To determine and compare the environmental effects associated with the avoidance alternatives as well as the alternative modes is not within the jurisdiction of the Forest Service. For these
reasons, the Forest Service Avoidance Alternative was considered but eliminated from detailed study and the analysis on other route alternatives displayed in the FERC FEIS remains valid.

2.3.1.2 Evaluation Criteria 2
How the 2016 and 2020 Forest Service special uses initial and second-level screening checklist for the MVP proposal initially addressed alternatives was reviewed. In both cases, the Forest Service complied with special use screening requirements per 36 CFR § 251.54 and Forest Service policy (Forest Service Handbook (FSH) 2709.11, Sec. 12.2; 12.4).

As noted above in the “Background” section, the 2016 screening included initial evaluations of, among other things, the location of the proposed use; collocation opportunities; route alternatives and variations; if the proposed use could be reasonably accommodated on non-NFS lands; and if the proposed use would be consistent with the mission of the Forest Service to manage NFS lands and resources in a manner that will best meet the present and future needs of the American people. The screening served to help inform whether a Plan Amendment was needed for the project (36 CFR § 251.54(e)(1)(ii)) and whether the project would be in the public interest (36 CFR § 251.54(e)(5)(ii)) (i.e., can be accommodated off of NFS lands). The application process stopped at the application processing and response stage (36 CFR § 251.54 (2)(g)) because only the BLM had the authority to approve Mountain Valley’s ROW application and the authority to issue a decision on whether to approve, approve with modifications, or deny the application (30 U.S.C. § 185 et seq and 43 CFR Part 2880).

2.3.1.3 Evaluation Criteria 3
The JNF FW-244 standard states, “Evaluate new special use authorizations using the criteria outlined in 36 CFR § 251.54 and according to Forest Service policy. Limit to needs that cannot be reasonably met on non-NFS lands or that enhance programs and activities.”

In 2016, the JNF applied this standard by evaluating the MVP application for a special use permit (for the purposes of conducting location surveys) by following the requirements as outlined in 36 CFR § 251.54 and FSH 2709.11, Sec. 12.2 and 12.4. In 2020, the screening criteria were again applied as a consideration in whether the Forest Service should concur on the BLM’s issuance of a ROW. A re-evaluation of the alternative routes concludes the proposed use cannot be reasonably accommodated on non-NFS lands (see Evaluation Criteria 1).

FW-244 also includes language that addresses needs that enhance programs and activities. There are a number of complementary laws, EOs, and policy documents that recognize the importance of domestic energy production and transmission to the American people and have established federal policy to support projects that will increase the production, transmission, or conservation of energy. Also, the USDA was one of ten Federal departments or agencies that is a signatory to a May 2002 Interagency Agreement for processing interstate natural gas pipeline proposals. The Interagency Agreement establishes a framework for cooperation and participation among the signatories to statutory responsibilities are met in connection with the authorizations that are required to construct and operate interstate natural gas pipeline projects certificated by FERC. FERC is responsible for authorizing the construction and operation of interstate natural gas pipelines. FERC decides whether a proposed project is in the public interest and whether to issue an order issuing certificates and granting abandonment authority for such pipeline under Section 7 of the Natural Gas Act.

After considering all of the varied interests, issues, and effects for the entirety of the 303.5-mile pipeline route, FERC determined that construction and operation of the MVP was in the public
interest and issued a Certificate on October 13, 2017. In deference to FERC’s decision and the agency’s commitment to the Interagency Agreement, the Forest Service determined the portion of the MVP route on the JNF enhances programs and activities of the federal government and therefore is consistent with Forest Plan standard FW-244.

2.4 Comparison of Alternatives

This section provides a summary of the effects of implementing each alternative. Information in Table 5 is focused on activities and effects where different levels of effects or outputs can be distinguished quantitatively or qualitatively among alternatives. Effects from implementing the amended Forest Plan standards (see Section 3.4.4) would be the same as the effects from implementing the Proposed Action.
Table 5. Comparison of Alternatives

<table>
<thead>
<tr>
<th></th>
<th><strong>Alternative 1 – No Action</strong></th>
<th><strong>Alternative 2 – Proposed Action</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Soils</strong></td>
<td>With continued implementation and monitoring of ECDs, adverse effects on soil resources would be minor and would occur during the restoration period. Given consideration of these factors, effects under the No Action Alternative would be consistent with those analyzed in the FERC FEIS. To facilitate restoration activities, soil amendments would be used to increase soil quality of stockpiles and help restore soil productivity to pre-project conditions over the long term.</td>
<td>Effects associated with the anticipated two-year-long construction period would be minor to moderate, which is consistent with the conclusions in the FERC FEIS. Long-term impacts would be associated with post-construction restoration and operation and would be minor in intensity, which is consistent with the conclusions in the FERC FEIS. Mitigation measures in the POD and Project Design requirements would minimize construction-related effects to soils, such as clearing, grading, trench excavation, backfilling, contouring, and the movement of construction equipment. To facilitate restoration activities, soil amendments would be used to increase the soil quality of stockpiles and help restore soil productivity to pre-project conditions over the long term.</td>
</tr>
<tr>
<td><strong>Water Resources</strong></td>
<td>With continued implementation and monitoring of ECDs, adverse effects on water resources would be minor and would occur over the short term. Given consideration of these factors, effects would be consistent with those analyzed in the FERC FEIS and associated studies including the updated <em>Hydrologic Analysis</em>. Long-term water resource effects would be minor and are associated with restoring the project area to as close to the pre-project condition as practicable or possible.</td>
<td>Effects associated with the anticipated two-year-long construction period would be minor, which is consistent with the conclusions in the FERC FEIS. Construction activities are not likely to significantly affect groundwater resources because the majority of construction would involve shallow excavations. The project would prevent or adequately minimize accidental spills and leaks of hazardous materials into groundwater resources during construction and operation by adhering to its spill prevention, control, and countermeasure plan in the POD. To reduce effects on waterbodies, the POD identifies measures to minimize effects, such as BMPs and ECDs. Long-term impacts would be associated with post-construction restoration and operation and would be minor in intensity, which is consistent with the conclusions in the FERC FEIS.</td>
</tr>
</tbody>
</table>
### Table 5 (continued). Comparison of Alternatives

<table>
<thead>
<tr>
<th></th>
<th>Alternative 1 – No Action</th>
<th>Alternative 2 – Proposed Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Threatened, Endangered, and Sensitive Species</td>
<td>No detrimental effects to threatened and endangered species would occur as a result of the No Action Alternative beyond those which already occurred during the partial pipeline implementation. Long-term effects would be minor and beneficial as restoration activities would return the project area to as close to the pre-project condition as practicable or possible.</td>
<td>A total of 16 ESA-listed, 1 proposed for ESA-listing, and 21 RFSS species could be affected by the MVP in the JNF. The Forest Service determined that the MVP may affect is likely to adversely affect three species: candy darter, Indiana bat, and northern long-eared bat. Formal consultation with the FWS determined appropriate mitigation measures for potential effects to federally listed species. The Forest Service determined that the project would be unlikely to cause a Trend Toward Federal Listing or Loss of Viability for Region Forester Sensitive Species. Implementation of required conservation measures in the POD will help reduce project effects to threatened, endangered, and sensitive species.</td>
</tr>
</tbody>
</table>
Table 5 (continued). Comparison of Alternatives

<table>
<thead>
<tr>
<th>Alternative 1 – No Action</th>
<th>Alternative 2 – Proposed Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Forest Management Act</td>
<td>Utility Corridors. Short- and long-term beneficial effect to the local and regional economy from increased employment and demand for services during construction and an increased tax base.</td>
</tr>
<tr>
<td>No Effects.</td>
<td></td>
</tr>
</tbody>
</table>

**Soil and Riparian.** Modifications to six soils and riparian standards would result in greater adverse effects to erosion and sedimentation, soil compaction, soil porosity, runoff potential, soil fertility, revegetation potential, and soil carbon budget. Mitigation measures, erosion control devices, and best management plans included in the POD would ensure that a substantial lessening of protections to soils, riparian, and water resources do not occur (36 CFR Part 219). There are about 73,600 acres of the JNF allocated to management prescription 11, but these areas are not mapped. However, the MVP project would only cross 4 streams on the JNF and if conventional boring under the streams were to occur, this would substantially minimize impacts to riparian areas.

**Old Growth Management Area.** Amendments to Standard 6C-007 and 6C-026 would allow effects to old growth forest as well as create more forest edge habitat. The limited area (2 acres out of approximately 30,200 acres of JNF old growth or about 0.00007% of the total old growth on JNF) of effect on old growth forests has resulted in a minor effect on Brush Mountain that was adequately analyzed in the FERC FEIS.

**Appalachian National Scenic Trail.** Temporary, minor adverse effects to trail users would occur from noise, dust, and visual intrusions from crossing 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.

**Scenery Integrity Objectives (SIO).** Degradation of scenic quality inconsistent with the JNF Forest Plan 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 would be met within 5 years, the project’s proposed mitigation measures that would apply to temporary workspace, and the temporary and permanent ROW that are found in the updated POD (Section 7.9).
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3  Affected Environment and Environmental Consequences

3.1  Introduction

This chapter combines the affected environment and environmental consequences discussions required by the NEPA implementing regulations (40 CFR §§ 1500-1508) (1978, as amended in 1986 and 2005). The discussions are combined so that the environmental consequences (effects) of the alternatives on forest resources and the background information needed to understand these consequences are discussed together for each resource.

Each resource is first described by its current condition, uses, supply and demand, or expected use, along with an explanation of how each resource is measured and evaluated. The descriptions are limited to providing the background information necessary for understanding how the FSEIS alternatives may affect the resource from that which is displayed in the FERC FEIS. Methodology and scientific accuracy are discussed for most resources.

Existing conditions reflect the extensive changes brought about by long-term human occupancy and use of the forest and represent the present-day condition resulting from past and present actions. Effects include the short- and long-term effects that would result from each of the alternatives considered in this FSEIS. Cumulative effects may result when the direct and indirect effects associated with the alternatives are added to the effects associated with other past, present, or reasonably foreseeable actions. Analysis of long-term cumulative effects extends 30 years into the future (i.e., the term of the ROW grant/temporary use permit) in many cases.

This FSEIS supplements the information provided in the FERC FEIS to better reflect current conditions and focuses on the potential effects that could occur from implementation of this proposed action and the alternatives.

3.1.1  Hydrologic Analyses

Three hydrologic analyses are referenced in this FSEIS and are summarized as follows:

1. The 2017 FERC FEIS incorporated a hydrologic analysis of sedimentation. The Court found the Forest Service failed to properly conduct an independent review of the FERC FEIS and ensure that the agency’s concerns regarding the sedimentation analysis were satisfied as required under 40 CFR § 1506.3(c) (1978, as amended in 1986 and 2005). This older hydrologic analysis is not relied on in this SEIS.

2. The Hydrologic Analysis of Sedimentation for Streams near Suitable Habitat for Threatened and Endangered Aquatic Species, Virginia and West Virginia (“Hydrologic Analysis for Aquatic Species”; Geosyntec Consultants 2020a) was prepared in support of the FWS Endangered Species Act consultation process for the MVP project. Developed by an independent contractor, the Hydrologic Analysis for Aquatic Species was submitted to federal agencies – including the Forest Service – with jurisdiction for review (Forest Service, FERC, FWS, Natural Resource Conservation Service [NRCS], and BLM). Specifically, a USDA NRCS liaison to the USDA Agriculture Research Service Revised Universal Soil Loss Equation, Version 2 (RUSLE2) team and regional agronomist at the USDA-NRCS West National Technology Support Center with 18 years of working knowledge with RUSLE2 also provided a review on the appropriate use of...
the model and associated data used within. The agencies’ expert reviewers conducted a concurrent review and a series of discussions, phone calls, and teleconferences (questions and answers, comment, feedback) took place. The revised analysis was reviewed for the inclusion of edits and comments provided by the federal agencies and it was determined that the Forest Service’s questions and comments on the updated analysis were addressed. After completion of the review process, the revised *Hydrologic Analysis for Aquatic Species* was incorporated into the Supplement to the Biological Assessment (SBA) and submitted to FWS for use in the 2020 FWS BO. The *Hydrologic Analysis for Aquatic Species* analyzes impacts across the entire 303-mile-long proposed pipeline route, including the 3.5 miles on NFS lands.

3. The *Hydrologic Analysis of Sedimentation for the Jefferson National Forest, Virginia and West Virginia* (“Hydrologic Analysis for the JNF”; Geosyntec Consultants 2020b) was developed using the same methodology as the *Hydrologic Analysis for Aquatic Species*, but its scope is specific to the 3.5 miles of the proposed ROW on NFS lands. The *Hydrologic Analysis for the JNF* was also reviewed and revised during the same federal agency review process described above for the *Hydrologic Analysis for Aquatic Species*.

### 3.1.2 Existing Conditions

A described in Section 1.2, construction on NFS lands has been partially completed. The ROW on NFS lands was cleared of trees between March and April 2018. On Sinking Creek and Brush Mountain NFS lands, the trees were felled and removed, and the ROW has been graded. On Peters Mountain, the trees were felled but not removed from the ROW (approximately 26.2 acres). Natural regeneration (regrowth) of vegetation is occurring on the Peters Mountain portion of the ROW. Grading activities on Sinking Creek and Brush Mountain include the stockpiling of topsoil. No trenching has occurred on NFS lands. ECDs have been installed along the entire ROW on NFS lands.

Via the Forest Service 2019 stabilization efforts on the ROW, stockpiled topsoil and disturbed areas of the ROW were stabilized with organic materials and temporary vegetation to decrease erosion and sedimentation. In 2018, annual grasses and native perennial forbs/grasses were planted. In 2019, the areas were reseeded with a mix that included annual grasses, two or more native, perennial grasses, and partridge pea (a perennial forb). Sections of pipe have been delivered to the ROW and are being stored and anchored aboveground.

ROW conditions, including ECDs, have been monitored daily. Review of monitoring reports continue to show that most areas along the ROW on NFS lands are stable and ECDs are functioning (Transcon 2018–2020). Enhanced ECDs were incorporated where appropriate as part of the monitoring program. Since construction commenced in 2018, enhanced measures implemented beyond the 2017 approved erosion and sedimentation control plans include the following: hydraulically applied or pelletized mulch/tackifier upgraded from a less protective stabilization measure, water bar end treatments upgraded from single compost filter sock (CFS) to triple stack CFS, increased size of CFS, upgrade of standard silt fence to Priority 1 belted silt retention fence, erosion control blanket installed in flow path and at the outfall end treatments of waterbars (in areas with erosive soils), temporary slope drain pipes installed to convey waterbar discharge across fill slopes where the ROW is benched, among other enhancements (FWS 2020b). Not all enhanced BMPs are expected to perform the same and should not be considered identical in terms of their reduction in expected sediment loads. Since construction commenced

*Jefferson National Forest*
in 2018, approximately 65 formal enhancements have been undertaken along the 303.5-mile pipeline corridor in response to changing site conditions (FWS 2020b).

3.2 Analyzing Effects

Following each resource description is a discussion of the potential effects (environmental consequences) on the resource associated with implementation of each alternative. All significant or potentially significant effects, including direct, indirect, and cumulative effects, are disclosed. Effects are quantified, where possible, although qualitative discussions are also included. Mitigation measures are also described, if relevant.

Environmental consequences are the effects of implementing an alternative on the human environment, including the natural and physical environment and the relationship of people with that environment. Direct environmental effects are defined as those occurring at the same time and place as the initial cause or action. Indirect effects are those that occur later in time or are spatially removed from the activity but could be significant in the foreseeable future.

Potential adverse environmental effects that cannot be avoided are disclosed. Unavoidable adverse effects are those resulting from managing the land for one resource, while recognizing effects on the use or condition of other resources. Some adverse effects can be reduced or mitigated by limiting the extent or duration of effects.

Short-term uses, and their effects, are those that occur during the anticipated two-year-long construction period (Proposed Action) or restoration period (No Action Alternative). Long-term uses, and their effects, are those that occur during the 30-year term of the ROW grant/TUP.

Unless stated otherwise for a particular resource or use, the effects analysis utilizes the following effect intensity definitions:

- **Negligible** – Effect that is at or near the lowest level of detection.
- **Minor** – Effect that is detectable, but localized, small, and of little consequence to a resource.
- **Moderate** – Effect that is readily detectable, localized, and has consequences to a resource.
- **Significant** – Effect that is obvious and causes substantial consequences to a resource.
3.3 Resources Not Brought Forward for Detailed Analysis

As part of this FSEIS analysis, the FERC FEIS and supporting documentation, new data, changed conditions, and the amended Forest Plan standards were evaluated for potential effects and environmental consequences. The Forest Service and the BLM reviewed the FERC FEIS to identify if there are significant changed circumstances or new information related to the BLM and Forest Service decisions and relevant to environmental concerns and bearing on the proposed action or its effects that should be analyzed in this FSEIS (40 CFR § 1502.9) (1978, as amended in 1986 and 2005). For the resources listed below, the analyses in the FERC FEIS are still applicable and relevant, and the terms and conditions incorporated into the FERC FEIS analyses remain adequate. As a result, they are mentioned briefly here and not brought forward in this FSEIS for detailed analysis.

Specifically, the following resource areas do not need further analysis:

- Air Quality, Climate, and Noise
- Public Health and Safety
- Heritage Resources
- Mineral Resources
- Socioeconomics
- Scenery
- Vegetation
- Silviculture
- Terrestrial Wildlife
- Aquatic Species
- Geology
- Land Use
- Recreation and Special Uses
- Transportation

3.3.1 Air Quality, Climate, and Noise

Since a portion of the construction has been completed, some of the short-term construction effects disclosed in the FEIS have already occurred, so only a portion of the mass emissions expected from construction in the project area would be anticipated to be released if construction recommences. Under the No Action Alternative, vehicle and equipment emissions would occur during restoration activities. These would be minor because there would be no equipment (and associated emissions) for activities such as trenching, stream crossings, welding the pipe, hydrostatic testing, or backfilling.

Section 4.13.2.7 of the FERC FEIS analyzes the impacts of climate change. Neither the emissions from the project nor the general information related to projected climate change impacts differ substantially from the analysis in the 2017 FERC FEIS. Therefore, a detailed discussion in the FSEIS is not warranted. In addition, the FERC in its October 13, 2017 Certificate said that a supplemental analysis of climate change was not needed. The United States Court of Appeals for the District of Columbia Circuit on February 19, 2019 found in response to challenges on the FERC FEIS's analysis of climate change that there is "no basis for saying that FERC’s treatment of the issue in the Certificate was inadequate, unreasonable, or otherwise contrary to NEPA or the Natural Gas Act." The FERC provided an estimate of the upper bound of emissions resulting from end-use combustion, and it gave several reasons why it believed the Social Cost of Carbon tool is not an appropriate measure of project-level climate change impacts and their significance under NEPA or the Natural Gas Act.

Under the Proposed Action, operation and end-use combustion emissions resulting from the project would be the same as described in the FERC FEIS (p. 4-514). Upon recommencement of the construction under the Proposed Action, the anticipated construction sequence would continue in the manner specified in the POD, which would result in emissions of the same
character and similar—though potentially somewhat reduced—quantity as originally proposed in the FEIS (MVP 2020a).

The effects of construction on air quality in the project area were analyzed in the FERC FEIS, as summarized in Table 4.11.1-5 of the FEIS. The magnitude of emissions in the project area between the originally proposed project analyzed in the FERC FEIS and the Proposed Action in this SEIS would be similar in quantity and character. This analysis remains accurate and the effects of implementing the No Action Alternative and Proposed Action in this FSEIS are consistent with those described in the FERC FEIS. As a result, no supplemental analysis of air effects is needed.

The FERC FEIS addressed noise conditions and effects to humans on the JNF (pp. 4-532, 4-539, and 4-551). In summary, no compressor stations or other aboveground facilities would be located within the JNF. Noise effects would be limited to use of mechanized construction equipment and vegetation removal on Peters Mountain. Installation of the pipeline via conventional bore beneath the ANST would result in noise that may be audible to hikers, but these effects would vary based on the presence of hikers at the time of construction. In addition, the undisturbed forest on either side of the trail and location of the bore pits 70 to 90 feet below the trail would minimize noise effects. Most pipeline construction noise would be localized and short-term (lasting for a few days to several weeks at any given location), and no noise sensitive area would be expected to be exposed to significant noise levels for an extended period of time. Noise effects during operation and maintenance of the MVP would not be expected within the JNF.

Noise effects on NFS lands under either alternative in this FSEIS would be similar, or less than, those described in the FERC FEIS. The extent and intensity of adverse effects would be lower because it has been determined that the ROW can be accessed using only off-NFS roads. The FERC FEIS analysis remains accurate and the effects of implementing the No Action Alternative and Proposed Action in this FSEIS are consistent with those described in the FERC FEIS. As a result, no supplemental analysis of noise effects is needed.

### 3.3.2 Public Health and Safety

Effects on public health and safety within the project area would be similar to those analyzed in the FERC FEIS (Section 4.12, pp. 4-567, 4-568, and 4-571 to 4-574). As stated in the FERC FEIS, the pipeline and aboveground facilities associated with the project must be designed, constructed, operated, and maintained in accordance with the U.S. DOT’s Minimum Federal Safety Standards (49 CFR Part 192). The regulations are intended to ensure adequate protection for the public and to prevent natural gas facility accidents and failures. The U.S. DOT regulations specify material requirements and qualification; minimum design requirements; and protection from internal, external, and atmospheric corrosion (FERC 2017a). Similarly, MVP would construct and maintain the Proposed Action in accordance with U.S. DOT regulations following the construction procedures and mitigation measures applicable to the project area contained in the November 2017 version of the POD and in the updated 2020 POD.

As described in the FERC FEIS, public health and safety risks would be minimized through the use of compliance monitors who would be present in the project area on a full-time basis during construction to inspect construction procedures and mitigation measures and provide regular feedback on compliance issues, including on matters of public safety to FERC, the Forest Service, and the BLM. There would generally be fewer risks to public health and safety under the No Action Alternative because restoration would involve fewer activities and less use of heavy equipment than the construction activities in the Proposed Action.
The safety and integrity of construction and operation of natural gas pipes and pipelines in general is regulated by the U.S. DOT, Pipeline and Hazardous Materials Safety Administration (PHMSA). The Forest Service has no legal or regulatory authority to mandate pipe and pipeline safety. That responsibility rests with the PHMSA.

Because the MVP has been partially constructed on NFS lands, the potential effects on public health and safety under either alternative would be similar to those described in the FERC FEIS but would occur over a shorter period of time and in fewer locations. The FERC FEIS analysis remains accurate and the effects of implementing the No Action Alternative and Proposed Action in this FSEIS are consistent with those described in the FERC FEIS. As a result, no supplemental analysis of public health and safety effects is needed.

### 3.3.3 Heritage Resources

Phase II archaeological evaluations of all archaeological sites at least partially within the Area of Potential Effect (APE) have been completed, determining that site 44GS0241, which occurs on NFS lands, is eligible for the National Register of Historic Places (NRHP) (Clement and Freedman 2017; Clement et al. 2017) and cannot be avoided. FERC, as the lead agency for NHPA, in consultation with the cooperating agencies, West Virginia and Virginia SHPOs, the Advisory Council on Historic Preservation, and other consulting parties, executed a PA (FERC 2017b), under 36 CFR § 800.14(b)(3), which sets forth the steps for compliance with the requirements of NHPA Section 106. The PA contains stipulations to satisfy all responsibilities under NHPA Section 106 for the involved regulatory agencies, including consideration of effects of the undertaking on historic properties, and resolution of adverse effects of the undertaking on NRHP eligible historic properties, including a Treatment Plan for the mitigation of adverse effects to site 44GS0241. The Treatment Plan for site 44GS0241 stipulated by the PA has been developed by third-party contractor, SEARCH, Inc., and received Virginia SHPO concurrence (Clement and Freedman 2017; Clement et al. 2017).

As stipulated in the PA and the Forest Service concurrence letter to the BLM, implementation of the proposed action cannot occur until the archaeological excavations for site 44GS0241, as outlined in the Treatment Plan and including a separate agreement on the use of Tribal monitors, have been completed. No pipeline construction, other than tree clearing, has been conducted in the APE associated with site 44GS0241. All PA stipulations regarding historic properties in the JNF have been completed except for implementation of the Treatment Plan and data recovery excavations at site 44GS0241.

The FERC FEIS analysis (pp 4-468 to 4-469) remains accurate and is consistent with the effects of implementing the No Action and Proposed Action in this FSEIS. As a result, no supplemental analysis of heritage resources effects is needed.

### 3.3.4 Mineral Resources

The partial implementation of the project on NFS lands has not resulted in changes to minerals resources. In addition, there have been no changes to minerals data in the project area. As a result, effects to minerals under the No Action Alternative and Proposed Action would be captured in the FERC FEIS effects analysis (pp. 4-65 to 4-66), the effect determination would remain the same, and no additional mines would be affected in the project area. As stated in the FERC FEIS, the MVP project would come within 0.25 miles of oil and gas wells; no additional oil and gas wells in the project area would be encountered or affected under the Proposed Action. The MVP was sited to avoid known existing oil and gas wells to the extent possible, and the
FERC FEIS concluded that the MVP would not affect future oil and gas exploration production, as the use of unconventional (directional) drilling techniques would allow for oil and gas wells to be drilled outside the pipeline ROW. A review of the Forest Service Schedule of Proposed Actions for the George Washington and Jefferson National Forest revealed no reasonably foreseeable future oil and gas wells within the MVP ROW (Forest Service 2020). The FERC FEIS analysis remains accurate and the effects of implementing the No Action Alternative and Proposed Action in this FSEIS are consistent with those described in the FERC FEIS. As a result, no supplemental analysis of mineral resources effects is needed.

### 3.3.5 Socioeconomics

The FERC FEIS (p. 4-380) described socioeconomic conditions on the JNF, including local county unemployment rates, primary industries, per capita income, Payment in Lieu of Taxes for local counties, and income-generating activities on NFS lands. The FERC FEIS (pp. 4-400 to 4-402) also disclosed the effects of constructing the pipeline across NFS lands. The effects of implementing the No Action Alternative and Proposed Action in the FSEIS are consistent with those described in the FERC FEIS. There would be fewer benefits under the No Action Alternative because restoration would not require as many employees.

The FERC FEIS disclosed socioeconomic impacts in Section 4.9.1.8 through 4.9.2.8. The Forest Service reviewed this information and found that the analysis considered socioeconomic concerns for the broader project area and that there is no new information which would affect the socioeconomic impacts on the JNF.

### 3.3.6 Scenery

Because of the partial implementation of the project on NFS lands, the visual character has changed since publication of the FERC FEIS in 2017. However, the clearing of the ROW and other project-related disturbances (including those implemented to date and proposed to be implemented to complete construction) were analyzed in the FEIS. Under the Proposed Action, no changes in circumstances have occurred that would suggest conformance with SIOs within a 5-year timeframe following construction could not be achieved. Further, since the FEIS and ROD were issued, there have been no new recreation sites or trails developed on the JNF nor any new public parks, trails, or other outdoor recreation areas identified off the national forest (Forest Service 1995) that would require additional scenery analysis. Because no additional scenery effects have occurred outside those contemplated in the FEIS, SIOs are still anticipated to be met within five years. Under the No Action Alternative, the ROW would be restored, and scenery impacts would continue to decrease until tree growth in the ROW makes those impacts negligible (POD Appendix H [MVP 2020h]). The FERC FEIS analysis remains accurate and the effects of implementing the No Action Alternative and Proposed Action in this FSEIS are consistent with those described in the FERC FEIS. As a result, no supplemental analysis of scenery effects is needed.

### 3.3.7 Vegetation

Since publication of the FERC FEIS, several changes to vegetation conditions have occurred. The primary changed condition is that trees were felled on the ROW between March and April 2018. On Sinking Creek and Brush Mountain NFS lands, the trees were felled and removed and the ROW was graded. On Peters Mountain, the trees were felled but not removed from the ROW (approximately 26.2 acres) due to the stop work order issued by the FERC. Stockpiled soil has been seeded on Brush Mountain and Sinking Creek Mountain to prevent erosion. Vegetation maintenance within the 50-foot operation/maintenance ROW would be conducted in accordance
with FERC's Upland Erosion Control, Revegetation, and Maintenance Plan (FERC 2013a). In accordance with the Plan (FERC 2013a), vegetation maintenance/removal would not be done more frequently than every 3 years. Any ground disturbance would be restored to pre-existing topographic contours, and restoration would use native vegetation (where possible), as specified in the POD (POD Appendix H [MVP 2020h]).

Four exotic invasive species have been observed scattered throughout the ROW on NFS lands: multiflora rose (Rosa multiflora), Japanese honeysuckle (Lonicera japonica), garlic mustard (Alliaria petiolata), and mile-a-minute vine (Persicaria perfoliata) (MVP 2020n). These species have been treated, and would be treated, in accordance with the Exotic and Invasive Species Control Plan (POD Appendix S [MVP 2020]). Stockpiled topsoil in the ROW has been seeded and soil amendments would be added as needed as part of either alternative to ensure successful revegetation. Under the No Action Alternative, vegetation would be reclaimed across the permanent and temporary ROWs in accordance with Appendix H of the POD (MVP 2020h).

Prior to clearing of the ROW, this area was previously forested. Under the Proposed Action, it would be replaced with a grass/shrub condition, which is a changed vegetative community, but the FERC FEIS analyzed conversion of the permanent ROW from forest to herbaceous cover, the natural regeneration of temporary workspace from mature forest to an early successional condition, and the potential for treating exotic invasive species in accordance with the POD. The FERC FEIS analysis (pp. 4-186 to 4-189) remains accurate and the effects of implementing the No Action Alternative and Proposed Action in this FSEIS are consistent with those described in the FERC FEIS. As a result, no supplemental analysis of vegetation effects is needed.

Discussion of effects on plant RFSS is provided in Section 3.4.3.

### 3.3.8 Silviculture

All tree felling on NFS lands has occurred and timber were removed from the ROW except in the Peters Mountain area. The silvicultural effects related to timber removal were addressed in the FERC FEIS (pp. 4-186 to 4-189). After publication of the FERC FEIS, Mountain Valley applied for and was granted a variance to use ground-based harvesting methods as opposed to advanced logging techniques as described in the FERC FEIS. The effects of ground-based harvesting methods are consistent with the FERC FEIS because ground disturbance was confined to the Limit of Disturbance (LOD) where other construction activities have disturbed the ground and the temporary ROW would be allowed to regenerate to a forested condition. This effect would be minor because it is localized and because regeneration of the temporary workspaces would be guided by BMPs and the POD. Disturbance and regeneration of the temporary ROW were previously analyzed in the FERC FEIS.

The felled trees left on Peters Mountain may not be merchantable (a condition that permits sale of fallen logs) at this time. This represents a reduced benefit to silviculture and the local economy, though the reduction is minor due to the relatively small area (26.2 acres) where merchantable timber has not been removed. Because the value of the timber has been paid to the Forest Service and the felled trees would be either removed from the ROW or windrowed within the ROW, the area of disturbance would not change and no supplemental analysis is needed. Under the No Action Alternative, regeneration and restoration would occur on both the temporary and permanent ROWs, resulting in a minor long-term benefit to silviculture. The FERC FEIS evaluated effects to forest habitat and the POD included restoration measures for vegetation and forest habitat.

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The FERC FEIS analysis remains accurate and the effects of implementing the No Action Alternative and Proposed Action in this FSEIS are consistent with those described in the FERC FEIS. As a result, no supplemental analysis of silviculture effects is needed.

### 3.3.9 Terrestrial Wildlife

Since publication of the FERC FEIS, forested habitat that comprised the MVP ROW has been cleared of standing trees. Stabilization activities were initiated on Brush Mountain and Mystery Ridge, but the stop work order resulted in stabilization activities being delayed in the Peters Mountain area. Effects under the No Action Alternative include benefits associated with restoration of the temporary ROW to its pre-project condition, which is consistent with the FERC FEIS analysis. Effects under the Proposed Action include completion of construction and the long-term conversion of the permanent ROW from forest to herbaceous cover and the natural regeneration of temporary workspace from mature forest to an early successional condition. The FERC FEIS analysis (pp. 4-210 to 4-211) remains accurate and the effects of implementing the No Action Alternative and Proposed Action in this FSEIS are consistent with those described in the FERC FEIS. As a result, no supplemental analysis of terrestrial wildlife effects is needed.

Discussion of effects on terrestrial wildlife RFSS is provided in Section 3.4.3.

### 3.3.10 Aquatic Species

Under the No Action Alternative, the greatest potential for effects on aquatic species is through erosion and sedimentation from the partially implemented MVP. Note that TES species are separately addressed in Section 3.4.3 below. Review of Transcon Environmental, Inc. (Transcon) weekly monitoring reports since the advent of construction activities show that most areas along the ROW are stable and ECDs are functioning. Additional ECDs have been incorporated where appropriate as part of the monitoring program. Since the FERC FEIS was published, updated hydrologic modeling (Revised Universal Soil Loss Equation [RUSLE] at the watershed scale an RUSLE2 at the site-specific scale) was completed which incorporates access road utilization, time elapsed since construction, and new construction timeline (Geosyntec Consultants 2020a). The Forest Service, and other federal agencies, has conducted an independent agency review of this analysis, determined that the analysis is sound, and incorporated it into this FSEIS (See FSEIS Section 3.1.1). Using this modeling, the *Hydrologic Analysis for Aquatic Species* concluded that construction of the MVP would result in a slight increase in delivered sediment loads above the Baseline (pre-project) scenario to each of the streams analyzed (Geosyntec Consultants 2020a). The supplemental analysis, which included modeling new avoidance and minimization measures in Craig Creek, found a lower temporary percent in delivered sediment load compared to the Baseline scenario using the RUSLE in the FERC FEIS (Geosyntec Consultants 2020a). Since publication of the FERC FEIS, it has been determined that the ROW can be accessed using only off-NFS roads and that stream crossing construction methods could be performed either with a dry-ditch open cut or conventional boring for all four unnamed tributary stream crossings on NFS lands. Avoiding use of NFS roads would lead to a lower predicted sedimentation load for streams than identified in the FERC FEIS under the Proposed Action because there would be less disturbance in and adjacent to water features. A similar reduction in impacts would be expected if the streams are crossed using a conventional bore because there would be no work performed in the streams. Horizontal boring would be performed starting near the elevation of the ordinary high water mark on both banks of the bored stream. The ordinary high water mark is the boundary of aquatic features, so limited impacts within the riparian zone are expected. The use of conventional boring and approved permitted ECDs and BMPs would limit potential release of sediment from the ROW to the riparian zone.
and/or stream channel (FWS 2020b). The FERC FEIS analysis (pp. 4-139 and 4-220 to 4-223) discussed the dry-ditch open cut method for stream crossings within the JNF. It also discussed potential impacts from conventional boring stream crossings for non-JNF streams and it is anticipated that the impacts from conventional boring under the JNF streams would be similar. The FERC FEIS analysis remains accurate and the effects of implementing the No Action Alternative and Proposed Action in this FSEIS are consistent with those described in the FERC FEIS. As a result, no supplemental analysis of aquatic species effects is needed.

Discussion of effects on aquatic RFSS is provided in Section 3.4.3.

### 3.3.11 Geology

The FERC FEIS (Section 4.1.1.7, pp. 4-45 to 4-46) described geologic conditions on the JNF, including geologic setting, bedrock geology, surface geology, mineral resources, geological hazards, and paleontological resources. The description of these conditions remains accurate, as there has been relatively little change since 2017. The partial implementation of the project on NFS lands has resulted in vegetation and soil/overburden removal. (No blasting or trenching has occurred on NFS lands.) Although these activities have altered surface flow patterns, ECDs have been installed and are monitored daily. Restoration under the No Action Alternative would result in negligible adverse effects on geology because there would be no trenching, stream crossings, or other in-ground activities. The ROW would be restored to its pre-project condition and ECDs would be removed after restoration is completed.

While geological units known to be associated with karst formation exist within the JNF, they do not underlie the pipeline ROW on JNF lands. No karst features were identified within the ROW during Mountain Valley’s Karst Hazard Assessment (POD Appendix L [MVP 2020k]).

The pipeline would cross streams on NFS lands using either a dry-ditch open cut or conventional bore method. Use of horizontal directional drilling as a boring method was analyzed for some waterways in the FERC FEIS. To further minimize the risk of landslides from boring, the FERC FEIS recommended adoption of additional industry BMPs. The revised POD incorporates both of these requests. As a result, effects on geology under the Proposed Action were captured in the FERC FEIS effects analysis, the effect determination would remain the same, and no additional resources would be affected in the project area.

Various potential landslide or slip\(^\text{14}\) risks along the proposed pipeline ROW on the JNF were recognized and analyzed in the FERC FEIS and 2020 BO and addressed in plans for pipeline construction. Landslides and slips can be caused by a variety of factors, such as long duration or high intensity rain events, rapid snowmelt, freeze/thaw conditions, slope height and steepness, vegetation, and underlying geology. The 2020 BO analyzes impacts along the entire MVP, including 296.45 acres associated with expected disturbance for future variances including slip repairs. These future variances could occur anywhere along the pipeline route, but in general, landslide susceptibility is higher in the northern and mountainous portions of the MVP due to regional geology and topography. In June 2018, the JNF provided a guidance document on identification and mitigation of landslide risks (Turner and Collins 2018) to its contractor (Transcon) tasked with monitoring pipeline construction on the Forest. While the information provided in the guidance document was within the FERC FEIS, the document provided Forest site examples to use in identification and mitigation of landslide risks during monitoring.

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\(^{14}\) A landslide is the downslope movement of soil, rock, and organic materials under the effects of gravity (USGS 2008). Slips are a type of slope failure that result in a downward falling or sliding of a mass of soil, rock, trees, and other debris from a steep slope onto an area below (FWS 2020b).
processes on JNF lands. At the request of the Forest Service, field investigations were also conducted at six high hazard priority areas on NFS lands (four on Peters Mountain, one on Brush Mountain, and one on Sinking Creek Mountain; see Figure 3 and Figure 4) and developed site-specific stabilization measures to mitigate for potential geohazards from pipeline construction.

Two outside documents related to landslide risk and the pipeline were released following release of the FERC FEIS. One document is a draft topographic quadrangle map released by the Virginia Division of Geology and Mineral Resources (Prince 2019). While this map is focused on showing bedrock geology of that quadrangle it also includes mapping of certain types of deposits associated with landslides along and near the pipeline route where it crosses the JNF on the southeast side of Sinking Creek Mountain. However, the information provided in this map is a less detailed version of the same type of information provided in earlier reference sources cited in the FERC FEIS. Therefore, while the document is new, it does not provide any new information requiring further analysis in this FSEIS.

The second document is an advisory bulletin concerning landslide risks to pipelines issued by the U.S. DOT Pipeline and Hazardous Materials Safety Administration on May 1, 2019, in the FR (FR Doc. 2019–08984). This advisory bulletin was released to remind pipeline operators of their obligations to address landslide risks to pipelines under existing Federal regulations and to suggest a set of activities that operators should consider performing for identifying, monitoring, and mitigating these types of risks. As noted in the FERC FEIS, these are the types of ongoing regulatory agency actions that Mountain Valley would be required to comply with as part of pipeline construction, operation, and maintenance. Therefore, while the document is new, it does not provide any new information requiring further analysis in this FSEIS.

There are no known paleontological collection sites along the proposed route within the JNF and therefore no need to analyze paleontological resources in this FSEIS.

In conclusion, the FERC FEIS analysis remains accurate and the effects of implementing the No Action Alternative and Proposed Action in this FSEIS are consistent with those described in the FERC FEIS. As a result, no supplemental analysis of geology effects is needed.
Figure 3. High Priority Sites on Peters Mountain
Figure 4. High Priority Sites on Brush Mountain
3.3.12 Land Uses

Existing land use conditions described in the FERC FEIS include the presence of NFS administrative roads and forested landscape. Since publication of the FERC FEIS, the pipeline has been partially constructed. Adjacent to the project area, there has been a change in ownership of a 25.75-acre parcel at the intersection of Clendennin Road and Pocahontas Road, which is crossed by the ANST through a road easement. This parcel was purchased by Mountain Valley in 2019; however, there have been no changes to land use or resource conditions within this parcel.

Construction in the ROW was analyzed in the FERC FEIS and the current conditions are consistent with that analysis. There are no changes to project-related land uses beyond those described in the FERC FEIS.

The project area would be restored under the No Action Alternative. The effects of restoration on land use in the project area were included in the FERC FEIS. The partial construction of the MVP on NFS lands has not resulted in changes to land use beyond those described in the FERC FEIS, and effects on land use from restoration would be the same, although to a lesser degree, as those described in the FERC FEIS. Implementation of the No Action Alternative would allow the ROW to be available for other future uses consistent with the Forest Plan. In conclusion, the FERC FEIS analysis (p. 4-325) remains accurate and the effects of implementing the No Action Alternative and Proposed Action in this FSEIS are consistent with those described in the FERC FEIS. As a result, no supplemental analysis of land uses is needed.

3.3.13 Recreation and Special Interest Areas

The partial implementation of the project on NFS lands has not resulted in changes to recreation or special interest areas. In addition, there have been no changes to recreation or special interest area data in the project area. As a result, effects on recreation and special interest areas under the Proposed Action is captured in the FERC FEIS effects analysis (pp. 4-311 to 4-315), the effect determination would remain the same, and no additional resources would be affected in the project area.

One of the many partnerships that the Forest Service participates in for the management of certain NFS lands is the unique cooperative management system partnership for the ANST. The ANST, first envisioned in 1921 and first completed as a footpath through 14 states in 1937, became the first National Scenic Trail in the United States with the passage of the National Trails System Act in 1968. This federal law designates the entire 2,190-mile-long ANST as a National Scenic Trail; designates the Secretary of the Interior as the lead federal agency, in consultation with the Secretary of Agriculture, for the administration of the entire ANST (which the Secretary of Interior subsequently delegated to the National Park Service); recognizes the jurisdiction of the other federal and state public land managers whose lands are crossed by the ANST; and requires the consistent cooperative management of the unique ANST resource by the National Park Service, working formally with the non-profit Appalachian Trail Conservancy, local Appalachian Trail Conservancy–affiliated trail clubs and all the land managing agencies that the ANST traverses—notably and specifically, the Forest Service. More of the ANST is on NFS lands than any of more than 75 other public land ownerships trail-wide.

The MVP would cross underneath the ANST via a 600-foot-long bore so there would be an approximate 300-foot forested buffer on either side of the trail and there would be no need for vegetation removal within 300 feet of the trail. As stated in the FERC FEIS, use of the bore would minimize effects on recreational users on the trail (FERC FEIS, 3-52). The ANST would
remain open during construction and would not require rerouting of trail traffic. Visual effects would be minor due to the forested buffer and vegetative screening of the bore holes. While ANST users on NFS lands would be affected by the noise and dust of the construction activities, impacts would be minor because they would be occurring 300 feet from the users and effects would be limited only to the time when boring is occurring. Installation of the pipeline via a bore beneath the ANST would result in noise that may be audible to hikers, but these effects would vary based on the presence of hikers at the time of construction. In addition, the undisturbed forest on either side of the trail and location of the bore pits 70 to 90 feet in elevation below the trail would minimize noise effects.

The MVP would cross streams within the JNF either by open cut or boring methods. Both crossing methods are described for waterways in the FERC FEIS. Effects on recreational fishing would be minimized by adhering to time-of-year restrictions as applicable (if open cut methods are used) or eliminated (if boring is used). As a result, adverse effects on recreational fishing would be as described in the FERC FEIS or avoided all together. As disclosed and analyzed in the FERC FEIS, the MVP would continue to cross a portion of the Brush Mountain Inventoried Roadless Area. In conclusion, the FERC FEIS analysis remains accurate and the effects of implementing the No Action Alternative and Proposed Action in this SEIS are consistent with those described in the FERC FEIS. As a result, no supplemental analysis of recreation and special interest areas effects is needed.

### 3.3.14 Transportation

Appendix E of the FERC FEIS identified the proposed crossing of Mystery Ridge and Brush Mountain roads within the boundaries of the JNF as well as non-forest access to the proposed pipeline ROW. The proposed location and effects associated with these crossings have not substantively changed since publication of the document. The FERC FEIS also identified and analyzed the use of Pocahontas and Mystery Ridge roads. Pocahontas Road is open to the public up to milepost 1.3 and designated for administrative use only beyond that point. Pocahontas Road has been used since 2017 for access to the proposed ROW. More recently, it is in use for accessing a nearby timber sale (TS) not related to the MVP. It is scheduled for maintenance and reconditioning in 2021.

Mystery Ridge Road is located at the terminus of Pocahontas Road; Pocahontas Road is the only access point to Mystery Ridge Road. Mystery Ridge Road is designated for administrative use only. A section of the proposed LOD in the Peters Mountain area is parallel to and sometimes partially collocated with Mystery Ridge Road. The proposed ROW also crosses Mystery Ridge Road at one location (approximately milepost 198). While the road would not be used to access the ROW, construction activities would affect Mystery Ridge Road, and forecasted sedimentation impacts were considered in the *Hydrologic Analysis for the JNF* (Geosyntec Consultants 2020b). Any portions of Mystery Ridge Road disturbed by construction would be restored (POD Appendix H (MVP 2020h)).

Since publication of the FERC FEIS, it has been determined that the ROW can be accessed using only off-NFS roads that intersect with the ROW off of NFS lands. This changed condition would significantly reduce any conflict that potentially would have existed with other use along those NFS roads. The amended proposal would have fewer adverse effects than that which were previously analyzed and disclosed in the FERC FEIS. Effects on transportation would be the same under the No Action Alternative because NFS roads would not be utilized. Since no additional effects to NFS roads beyond what was analyzed in the FERC FEIS are proposed, the FERC FEIS analysis remains accurate and the effects of implementing the No Action Alternative
and Proposed Action in this FSEIS are consistent with those described in the FERC FEIS. As a result, no supplemental analysis of transportation effects is needed.

3.4 Resources Analyzed in Detail

3.4.1 Soils
This section responds to Issue 1 (Forest Plan Amendment – Purpose and Effect and Consistency with the Planning Rule and the NFMA) and Issue 3 (Erosion and Sediment Effects).

3.4.1.1 Affected Environment
The project area for soils is the 3.5-mile section of the MVP on NFS lands, including the pipeline ROW (temporary and permanent), access roads that have been used for construction (i.e., Pocahontas and Mystery Ridge roads), and any temporary workspace on the JNF utilized during construction.

Existing conditions in the project area are described in the FERC FEIS, which is incorporated into this FSEIS by reference. The existing conditions in the FERC FEIS, however, did not include the topsoil segregation and stockpiling that has already occurred in the project area. In summary, the project crosses 15 different soil map units in the JNF, all of which are sandy loams, well drained and many with high percentages of coarse fragments, and located on steep slopes. Soil mapping by the NRCS for the JNF was completed by review of aerial imagery and was validated via on-site surveys.

Soil limitations along the pipeline ROW within the JNF may include Prime Farmland, Rock/Stony Soils, Water Erosion Potential, and Revegetation Potential (FERC FEIS Section 4.2.1.5, Table 4.2.1-3). Hydric soil limitations in the JNF were not identified in the FERC FEIS. Mountain Valley conducted a soil survey in the JNF to characterize soils along the pipeline corridor to determine if available USDA-NRCS data were similar to field soil characterizations. Soil series found in the JNF were identified using available USDA-NRCS data by soil scientists in April of 2016. Those soil series were evaluated in person by two soil scientists that described the soil profiles for each soil series in the JNF in a manner that closely matches an Order 2 Soil Survey. The soil scientists who evaluated these soil series were able to correlate their findings with the USDA-NRCS mapping designations. Their report, Mountain Valley Pipeline Soil Profile Descriptions Report for Jefferson National Forest, stated that the use of USDA-NRCS data was appropriate for analysis on the Project based on reported soil descriptions from the JNF.

Since publication of the FERC FEIS, pipeline construction activities were initiated, but project construction was halted prior to completion on the JNF. Segregated and salvaged topsoil on JNF lands was stabilized with vegetation to prevent erosion and sedimentation where trees have been felled and grubbed. On Peters Mountain, stabilization efforts have been implemented, but felled trees have been left in place. Since construction of the project was stopped, the working surface has been stabilized with felled trees, regrowth of grass, forb and shrub growth, and temporary vegetation to decrease erosion and sedimentation, and continuous monitoring of conditions and ECDs has occurred (Transcon 2018-2020). There has been documented erosion and sedimentation on both Pocahontas and Mystery Ridge roads which served as access and maintenance roads to the project area (Transcon 2018-2020). Other non-project related causes contributed to this erosion and sedimentation along these roads, such as the use of these roads for an unrelated TS. Monitoring reports show that ECDs are effective at controlling erosion, runoff, and sedimentation under normal conditions when properly installed and maintained.

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The stoppage of the project has led to an extension of the project timeline. This has resulted in the project ROW being left both exposed and in a partially constructed state for an extended period of time. Because of this delay in construction, temporary vegetation has been used to stabilize the windrowed topsoil stockpiles, the working surface of the project ROW, and areas with erosion potential. The temporary vegetative cover provides a longer-term BMP, which has served to decrease erosion and sedimentation, stabilize steep slopes with loose soil resources, and help maintain the ecological function of soil resources. These BMPs maintain and stabilize soil resources and their ecological function while the decision is made to proceed with either the No Action Alternative or Proposed Action. However, the ability of this mix of perennial and annual grasses/forbs to control erosion is limited because the soil has lost some productivity after being stockpiled for more than two years. Under either alternative, soil amendments would be applied before the topsoil is reseeded for final restoration.

The initial grading, stripping, and stockpiling of topsoil on Brush Mountain have already contributed to temporary losses of soil quality. Disrupting, moving, and stockpiling soil for any amount of time degrades soil quality through loss of nutrient cycling and microbial activity, homogenization of soil layers, and loss of overall organic matter and organic carbon (Fink and Drohan 2015; Bradshaw et al. 2017). Stockpiling of soil resources was originally planned to occur for short periods of time during construction. The stoppage of project construction has resulted in stockpiling of soils for extended periods of time (approximately two years).

In an attempt to stabilize the topsoil stockpiles and exposed soil surfaces, temporary seed mixes were used to expedite vegetation growth on sensitive soil resources. The species in the temporary mixes are generally shallow rooted, with minimal benefit to soil-building processes and soil quality. Proliferation of these annual species increases competition with more desirable native species that are beneficial in reforming soil structure, reducing compaction, minimizing erosion, and increasing soil porosity. Whenever possible, loss of soil quality in these stockpiled soils would be tested and analyzed for agronomical and biological properties. If deficiencies are determined from these tests, soil amendments may be incorporated to increase the soil quality and to promote healthier final restoration efforts (i.e., by increasing soil microbial activity, nutrient cycling, and soil aggregate stability). Appendix H of the POD (MVP 2020h) contains guidelines for fertilizer and liming rates.

Mystery Ridge and Pocahontas roads were part of the FERC FEIS analysis and have been used to access and maintain the pipeline ROW on Peters Mountain until 2019 when access was eliminated except by special authorization. Recent (i.e., 2020) Transcon monitoring reports have indicated that Pocahontas Road has erosion and sedimentation issues. This road has also been used for Forest Service administrative uses and as access for a nearby TS not associated with the MVP. Independent of the MVP, the Forest Service is planning to conduct maintenance and reconditioning of Pocahontas Road in 2021 to address erosion and sedimentation issues that were occurring prior to and during the MVP project. As a result, current erosion and sedimentation issues would be mitigated. In addition, traffic related to construction of the MVP has ceased, limiting the potential for future erosion events. Other Forest Service administrative and permitted uses would continue to utilize this road.

Much of the direct and indirect effects to soil resources associated with construction activities occurred during the initial clearing and grading phases of pipeline construction, as analyzed and outlined in the FERC FEIS (pp. 4-87 to 4-88). Direct and indirect effects to soil resources are due to the disruption of soil structure by means of removing vegetation and root mass, as well as the physical crushing of aggregates through topsoil salvage, grading, and compaction by heavy
equipment activities. Given the amount and extent of construction activities that have taken place in the project area, effects on the soil have likely occurred. Studies indicate that 70% to 80% of soil compaction occurs during the first pass of disturbed ground (McNabb et al. 2001; Wolkowski and Lowery 2008; Ampoorter et al. 2010). Multiple passes by equipment used in the initial phases (i.e., tree clearing, vegetation removal, topsoil stripping, and pipe stringing) contributed a substantial portion of the overall effects on soil resources.

3.4.1.2 Environmental Consequences

Methodology
The project soil specialists have formed professional judgments on probable effects on the soil resources related to soil quality, erosion and sediment potential, and landslide risks under the No Action Alternative and the Proposed Action to determine whether these potential effects would be the same as those described in the FERC FEIS. Professional judgements were based on a review of existing information to identify changed circumstances in the affected environment for soil resources. Sources of existing information include field visits and site-specific knowledge of the sites; the FERC FEIS; the specialist reports for soils supporting the FERC FEIS; independent agency review of the RUSLE and RUSLE2 erosion modeling conducted by an independent third-party contractor (Geosyntec Consultants 2020b); Transcon monitoring reports; NRCS soil survey information (Soil Survey Staff 2020); the MVP May 15, 2020 POD (MVP 2020a) including the Timber Removal Plan (POD Appendix I [MVP 2020i]); and opposing views, data, and information described in public comments on the DSEIS.

In response to the Fourth Circuit’s July 27, 2018 decision that the Forest Service failed to conduct an independent review of and take a hard look at the sedimentation analysis in FERC’s FEIS, Forest Service and BLM conducted their own independent review of the revised sediment modeling and associated analysis for the MVP project on NFS lands. Specifically, a USDA NRCS liaison to the USDA Agriculture Research Service RUSLE2 team and regional agronomist at the USDA-NRCS West National Technology Support Center with 18 years of working knowledge with RUSLE2 also provided a review on the appropriate use of the model and associated data used within. The review consisted of a review and comment of several documents, including the June 21, 2019, Draft MVP Sediment Analysis of Sedimentation for Streams near Suitable Habitat for Threatened and Endangered Aquatic Species, Virginia and West Virginia: Report of Findings prepared by Geosyntec. The applicant was provided a consolidated comment report on the finding of the reviewers on January 14, 2020. This June 2019 document was then superseded by the May 4, 2020 FWS report submitted as part of the SBA which was reviewed for the inclusion of edits and comments provided by the Federal Agencies. Agency reviews also included the Sediment analysis of Sedimentation of the Jefferson National Forest, Virginia and West Virginia, Geosyntec Consultants, May 8, 2020 report. The Forest Service’s questions and comments on the updated analysis were addressed. This updated Hydrologic Analysis for the JNF (Geosyntec Consultants 2020b) is incorporated into this FSEIS.

Spatial and Temporal Boundaries
The spatial boundary for this analysis is the project area and associated access roads. (Downstream effects are described in Section 3.4.2, Water Resources.) The temporal boundary for this analysis is the 30-year term of the ROW grant/temporary use permit.
Alternative 1 – No Action

Under the No Action Alternative, construction of the MVP project would not continue, and ongoing operation and maintenance of the pipeline within the project area would not occur. Restoration activities would commence on all working surfaces. Once restoration activities in the project area are complete, areas disturbed by construction activities would be returned as close as possible to pre-project conditions. Native vegetation would be planted. Changes in soil resource conditions that have occurred since the FERC FEIS evaluation include stockpiled soil resources, erosion and sedimentation issues on Pocahontas and Mystery Ridge roads, waterbar construction, and the disruption to soil quality and functions through initial construction processes.

The soil disturbance from trenching and pipe installation activities would not occur. By not trenching and installing pipe, the subsoil structure would not be exposed and subjected to fragmentation. There would be short-term effects from the use of equipment to spread stockpiled soils back into their original locations within the ROW. Amending topsoil as part of the restoration process would result in a long-term benefit as it would restore soil productivity to pre-project conditions (POD Appendix H [MVP 2020h]).

The No Action Alternative also negates the need for long-term pipeline maintenance activities, which can affect soils by means of disturbance through compaction or rutting by maintenance vehicles. Vegetation maintenance during restoration would require vehicle traffic and road use, though, which would result in continued adverse effects along the ROW until restoration is completed. Since a maintained pipeline corridor would not be needed, revegetation and natural succession of forest species across the ROW would take place, reducing overall surface erosion and compaction potential over the long term. Compared to the Proposed Action, native, permanent vegetation would be established sooner, and the process of establishing pre-construction natural conditions would begin at an earlier time. The permanent stabilization of the pipeline ROW, provided by established native vegetation, would increase the integrity of the area and surrounding environmental resources by limiting the effects on water resources, vegetation, wildlife, recreational areas, and special interest areas.

Subsequent passes of heavy equipment activities on soil resources that have already been subject to increased traffic contribute additional effects on soil structure. The FERC FEIS outlines methods and practices to address these effects throughout the construction process. Compacted soils have reduced pore space and may become prone to runoff and difficult to revegetate. To address these concerns, the POD identifies use of topsoil replenishment and adding ground cover protection and plantings.

Stockpiling of soil resources was originally planned to occur for short periods of time during construction. The stoppage of project construction has resulted in stockpiling of soils for extended periods of time (approximately 2 years). Stockpiling soil resources for extended periods of time could affect soil nutrient cycling and microbial activity (Fink and Drohan 2015; Bradshaw et al. 2017). Without application of soil amendments, these potential effects on soil resources change the outcome of final restoration activities and result in decreased restoration success, thereby increasing the potential for soil erosion throughout the project area. While a poorer quality soil may hinder restoration success and lead to more exposed surfaces susceptible to erosion and sedimentation, the lack of surface vegetation from restoration efforts may lead to the inability to wick soil moisture from the soil profile through evapotranspiration. Higher moisture content in the soil profile has the potential for increasing pore pressure, shear force, and
saturated soils, among others, that can lead to slope failure and mass movement. Regardless of Action Alternative selected, soil amendments would be used to minimize these effects.

Under the No Action Alternative, Mountain Valley would remove stored pipe and construction debris and implement the restoration techniques outlined in the FERC FEIS and POD. Restoration practices, such as grading subsoil as close as possible to original contour, returning the salvaged topsoil, incorporating soil amendments, and bringing in additional soil material where needed, could expose soil resources to erosion and sedimentation and could introduce excessive rock to the soil surface, thereby hindering restoration efforts. Successful restoration is required as described in Appendix H of the POD (MVP 2020h). If the felled trees in the Peters Mountain area are, in fact, windrowed and placed on the side of the ROW or removed from the ROW entirely, successful final restoration activities on Peters Mountain would occur as described in the FERC FEIS. However, there is still an associated potential of erosion and sedimentation, along with landslide risks, within the windrowed tree line where insufficient surface vegetation would establish and decrease the potential of those processes. If the felled trees in the Peters Mountain area are left in place, additional treatments may be required to facilitate successful revegetation under these felled trees and minimize landslide risk and reduce the long-term potential for adverse effects associated with erosion and sedimentation. However, felled trees may also reduce erosion by acting as a barrier to soil movement.

Various potential landslide risks along the pipeline route on the JNF were recognized and analyzed in the FEIS and addressed in plans for pipeline construction. In June 2018, the JNF provided a guidance document on identification and mitigation of landslide risks (Turner and Collins 2018) to its contractor (Transcon) tasked with monitoring pipeline construction on the forest. While the information provided in the guidance document was within the FERC FEIS, the document provided Forest site examples to use in identification and mitigation of landslide risks during monitoring processes on JNF lands.

Once restoration is successful, vegetative cover of deep-rooting species on soil resources would minimize the risk of soil mass movement (landslides) by increasing the root mass holding the soil in place and increasing evapotranspiration, which would reduce the overall soil moisture water content. The reduced soil moisture content would decrease the potential for a slip plane (landslide) to develop from excessive water and minimize overall mass movement potential.

Since tree clearing and vegetative removal have already occurred, temporary vegetative seeding and an increased amount of maintenance and monitoring have been occurring to identify and address erosion concerns. Tree clearing and vegetative removal have contributed to soil erosion and sedimentation. Additional effects on soil resources are anticipated when construction crews use heavy equipment to remove pipe from the project ROW in order to initiate final restoration efforts. Activity pertaining to pipe removal and the cessation of construction operations further disturbs the soil by increasing soil compaction and exposing bare soil to erosion and sedimentation. These processes often entail re-disturbance of stabilized, vegetated areas to restore the pipeline ROW back to its pre-construction condition. The disturbance of vegetated areas along the ROW corridor would expose soil resources to potential erosion and sedimentation, which could ultimately be deposited into the ROW corridor’s water resources. Analysis of the sedimentation effects on water resources is provided in Section 3.4.2.

Overall, the effects associated with restoration would be similar to those during construction because the same ECDs used during construction would remain in place and would minimize erosion until revegetation is successful.
In conclusion, with continued implementation and monitoring of ECDs, adverse effects on soil resources under the No Action Alternative would be minor and would occur over the short term. Given consideration of these factors, effects under the No Action Alternative would be consistent with those analyzed in the FERC FEIS.

**Alternative 2 – Proposed Action**

Under the Proposed Action, the remaining construction activities necessary to complete the project would be completed as specified in the POD (MVP 2020a). Effects on soil resources from operation and maintenance of the project would be the same as analyzed in the FERC FEIS. The soil resources on Peters Mountain have not fundamentally changed since the 2017 FERC FEIS evaluation. The changed conditions that have occurred since the FERC FEIS evaluation include stockpiled soil resources, excavation, waterbar construction, Pocahontas and Mystery Ridge road erosion and sedimentation issues, and soil quality and function. As noted in the Affected Environment, monitoring reports show that ECDs are effective at controlling erosion, runoff, and sedimentation under normal conditions when properly installed and maintained.

Restoration after construction would minimize the long-term potential for landslides as described in the No Action Alternative. As discussed in the No Action Alternative, various potential landslide risks along the pipeline route on the JNF were recognized and analyzed in the FERC FEIS and addressed in plans for pipeline construction.

Stockpiling of soil resources was originally planned to occur for short periods during construction. The delay in the project has resulted in stockpiling of soils for extended periods of time (approximately 2 years). Stockpiling soil resources for extended periods of time could affect soil nutrient cycling and microbial activity. Application of soil amendments to the topsoil would assist with successful revegetation and minimize soil erosion during the restoration process. The Restoration Plan (POD Appendix H [MVP 2020h]) contains detailed information on seed mixes and application methods for restoration. Species that can establish roots into the stockpile can increase moisture and gaseous transfer within the stockpile and help keep microbial populations active and healthy. Loss of soil quality in these stockpiled soils would be offset by application of soil amendments that would increase the soil quality and promote healthier final restoration conditions. With application of soil amendments, long-term impacts on soil resources would be minor.

Since publication of the FERC FEIS, it has been determined that the ROW can be accessed using only off-NFS roads, which is a changed condition. As a result, implementation of the Proposed Action would not result in greater erosion or sedimentation along Pocahontas or Mystery Ridge roads than what is described in the Affected Environment.

Overall, the Proposed Action of constructing the MVP on NFS lands has resulted and would result in minor changes to soil resources beyond those described in the FERC FEIS because topsoil has been stockpiled for the past two years. Incorporating soil amendments, based on soil test results or following POD guidance, to increase the soil quality of stockpiles would facilitate restoration as described in the FERC FEIS. Completing final restoration on the ROW surface, after topsoil replacement, would also increase surface stabilization and decrease the potential of slope failure and landslide risks. Erosion and sedimentation issues on Pocahontas Road are scheduled to be repaired in 2021 which would minimize further effects to soil resources along the access road and project area.
In conclusion, effects on soil resources from implementation of the Proposed Action would occur over the short and long term. Short-term impacts would be associated with construction and would be minor to moderate, which is consistent with the conclusions in the FERC FEIS. Long-term impacts would be associated with post-construction restoration and operation and maintenance and would be minor in intensity, which is consistent with the conclusions in the FERC FEIS.

Effects of Forest Plan Amendment

The Proposed Action would amend 11 Forest Plan standards. Of those 11 standards, six pertain to soil and riparian resources. The effects from those amended standards on the MVP ROW relate to the Fourth Circuit’s opinions regarding decision-making authority under the ROW collocation practicality (U.S. Court of Appeals 2018a). Those six standards are listed below with each being assessed for their direct and indirect effects on the soil and riparian resources from the adoption of these amended standards. The use of the RUSLE2 model relies on Soil Survey Geographic Database data that is publicly available and readily accessible. The following analysis relies on detailed information regarding the available soil resources used for the RUSLE2 model.

The amended Standard FW-5 states, “On all soils dedicated to growing vegetation, the organic layers, topsoil and root mat will be left in place over at least 85% of the activity area and revegetation is accomplished within 5 years, with the exception of the operational right-of-way and the construction zone for the Mountain Valley Pipeline, for which the applicable mitigation measures identified in the approved POD and MVP Project design requirements must be implemented.”

Segregating the pipeline ROW’s organic layers, topsoil, and root mass for the restoration phase of the project has occurred. Soil amendments would be applied as needed so that critical components of soil resources in the project area would be successfully used for promoting healthy vegetation. Application of measures to limit erosion and sedimentation have been addressed in the POD (Appendices C-1, C-2, C-3, F, G, H, I, K, L, M, R, S, and U [MVP 2020c, x, y, f, g, h, i, v, k, l, m, n, and z]) and the updated Hydrologic Analysis for the JNF (Geosyntec Consultants 2020b). Determinations of the ROW’s organic layers, topsoil, and root mass have already been made and would be used for the final restoration efforts. To ensure healthy vegetation of introduced grass and forb species in areas that were once forested, soil amendments may be needed to promote successful germination and proliferation of seeded species. Over the short term, there would be minor to moderate effects on soil resources because of some lost productivity in stockpiled topsoil. Over the long term, adverse effects would be minimized by application of soil amendments as needed to ensure successful restoration and long-term preservation of soil stability and productivity.

The amended Standard FW-8 states, “To limit soil compaction, no heavy equipment is used on plastic soils when the water tables is within 12 inches of the surface, or when soil moisture exceeds the plastic limit, with the exception of the operational right-of-way and the construction zone for the Mountain Valley Pipeline, for which applicable measures identified in the approved POD and MVP Project design requirements must be implemented.”

With a mitigation measure that avoids construction activities on soil resources in the project area within at least 24 hours of precipitation events, soil compaction from heavy equipment would be limited when handling potentially plastic soils. A means of preventing soil compaction on the soil surface during pipeline construction is to prevent construction activities for at least 24 hours.
following a precipitation event. The amended standard would allow MVP construction activities on soil surfaces to occur when either the water table is within 12 inches of the surface or when soil moisture exceeds the plastic limit, resulting in site-specific adverse effects associated where compaction occurs from heavy equipment or vehicle use. These effects would be mitigated by the POD’s requirement that compacted soils be ripped to a depth of at least 6 to 8 inches.

The ROW and soil conditions are evaluated daily, including after precipitation events (POD Appendix C-2 [MVP 2020x]). Prior to resuming construction activities after precipitation, an assessment of soil moisture and plasticity must be made to determine if construction activities and equipment traffic would result in soil compaction (POD Appendix C-2 [MVP 2020x]). Overall, adoption of this amended standard would result in adverse effects on soil resources over the short and long term because soil compaction could occur from use of heavy equipment and vehicles on the ROW. The spatial extent of effects would be limited to those areas where heavy equipment or vehicles were used. Long-term effects would be minimized by ripping compacted soil as described above.

The amended Standard FW-9 states, “Heavy equipment is operated so that soil indentations, ruts, or furrows are aligned on the contour and the slope of such indentations is 5% or less, with the exception of the operational right-of-way and the construction zone for the Mountain Valley Pipeline, for which the applicable mitigation measures identified in the approved POD and MVP Project design requirements must be implemented.”

Typical pipeline construction involves operating equipment in a manner that is safe for the operator and the surrounding crews. This often creates soil disturbance by creating soil indentations, ruts, and/or furrows that run parallel and perpendicular to the slope’s contour. The POD (Appendices C-1 through C-3, F, G, H, I, K, L, M, R, S, and U) includes BMPs and ECDs that address the effects of these soil indentations, ruts, and furrows along the contour during pipeline construction in the project area to and would minimize the effects of erosion and sedimentation of soil resources. Adoption of the amended standard would result in effects on soil stability and erosion as described above for the Proposed Action. Adverse effects would occur over the short term and, with successful restoration, would not be expected to occur over the long term.

The amended Standard FW-13 states, “Management activities expose no more than 10% mineral soil in the channeled ephemeral zone, with the exception of the operational right-of-way and the construction zone for the Mountain Valley Pipeline, for which the applicable mitigation measures identified in the approved POD and MVP Project design requirements must be implemented.”

Pipeline construction activities typically involve earth-disturbance practices, which can expose 10% or more mineral soil while using heavy equipment. The POD requires BMPs that minimize the exposure of mineral soil in the channeled ephemeral zone. A means for preventing mineral soil from being deposited into channeled ephemeral zones is to design, implement, and monitor ECDs that appropriately manage and divert water to designated areas that prevent sediment deposition. The proposed amendment would result in minor adverse effects during construction. Soil exposed within the ephemeral channels cause increased sedimentation issues during precipitation events and could reduce water quality downstream.

The amended Standard FW-14 states, “In channeled ephemeral zones, up to 50% of the basal areas may be removed down to a minimum basal area of 50 square feet per acre. Removal of additional basal area is allowed on a case-by-case when needed to benefit riparian-dependent
resources, with the exception of the operational right-of-way and the construction zone for the Mountain Valley Pipeline, for which the applicable mitigation measures identified in the approved POD and MVP Project design requirements must be implemented.”

Basal areas support slope stability by anchoring the soil resources to the surface with the species’ rooting systems. By stabilizing slopes and soil resources, these basal areas have the potential to prevent erosion and sedimentation into channeled ephemeral zones. The POD requires BMPs and ECDs that address the potential erosion and sedimentation from the removal of basal areas in channeled ephemeral zones, which is the purpose of Standard FW-14. A means for appropriately managing basal areas is to study their effect on a site-by-site basis and monitor erosion and sedimentation BMPs to limit their exposure to channeled ephemeral zones.

The amended Standard 11-003 states, “Management activities expose no more than 10 percent mineral soil within the project area riparian corridor, with the exception of the operational right-of-way and the construction zone for the Mountain Valley Pipeline, for which the applicable mitigation measures identified in the approved POD and MVP Project design requirements must be implemented.”

Riparian corridors are critical portions of pipeline ROWs because of their ability to stabilize stream banks, filter surface water, and support wildlife habitat, among others. By managing the exposure of mineral soils in proximity to these riparian corridors, the soil and riparian resources can be protected from earth-disturbing activities and erosion and sedimentation potential. BMPs and ECDs have been implemented in riparian corridors to limit any possible exposure of mineral soils and their deposition into riparian resources, which is the purpose of Standard 11-003. A means for preventing the exposure of more than 10% mineral soils within riparian corridors is to appropriately identify riparian corridors, design and implement the appropriate BMPs and ECDs, and maintain those throughout construction and restoration stages of pipeline construction. This would minimize adverse effects over the short term. Long-term effects would not occur because successful restoration includes revegetation of exposed mineral soil.

3.4.2 Water Resources

This section responds to Issue 1 (Forest Plan Amendment – Purpose and Effect and Consistency with the Planning Rule and the NFMA) and Issue 3 (Erosion and Sediment Effects).

3.4.2.1 Affected Environment

Existing condition for water resources (i.e., hydrology) were discussed and analyzed in the FERC FEIS (pp. 4-102 to 4-103, p. 4-114, pp. 4-135 to 4-136), which is incorporated by reference. In summary, the section of the MVP that would be located on NFS lands crosses the Valley and Ridge Regional Aquifer system which has dominant lithology consisting of sandstone, shale, limestone, and dolomite and well yields of less than 120 gallons per minute. No springs or swallets were identified within 500 feet of the MVP pipeline route crossing the JNF. No mine pools identified within the vicinity of the project, or the sites with potential groundwater contamination, would be located along the pipeline route across the JNF. There are no public groundwater supplies or source water protection areas for groundwater resources crossed by the MVP within the JNF boundaries. No hydrostatic test water would be obtained from groundwater sources within the JNF (MVP 2020a).
Since publication of the FERC FEIS, the following new information or changed circumstances have occurred:

- The Fourth Circuit identified NFMA issues on the MVP project. Specifically, the Court identified NFMA issues regarding Forest Service Planning Rule requirements for soil, water, and the ecological integrity of riparian areas as they applied to the Forest Plan amendment. The Court discussed threatened and endangered species issues in the context of the Forest Service’s adoption of the FEIS under NEPA.

- The Fourth Circuit also identified NEPA deficiencies which include the need for the Forest Service to evaluate erosion, sedimentation, and water quality effects in relation to anticipated mitigation effectiveness.

- Approximately 92% of the entire MVP project has been implemented; disturbance on NFS lands has occurred and stabilization efforts are ongoing. On the Peters Mountain area, trees have been felled but not removed within the ROW. On Sinking Creek and Brush Mountain NFS lands, trees have been felled and removed and the ROW has been graded.

- NFS roads would no longer be used for construction, operation, or maintenance purposes.

- Enhanced ECDs have been installed to further limit and reduce erosion and sedimentation. These enhanced ECDs were in addition to devices identified in the original Erosion and Sediment Control Plan (ESCP) approved in 2017. Enhanced ECDs include increasing the size of sediment traps, bolstering downslope perimeter controls with additional layers (e.g., adding new silt fences or compost socks), and increasing the use of soil stabilization products on exposed soil slopes (FWS 2020b). These measures provide additional protections to aquatic habitats and associated species by minimizing the potential for sediment to leave the project area and impact waterways during precipitation events.

- A revised and more in-depth Hydrologic Analysis for the JNF (Geosyntec Consultants 2020b) was conducted that responded to Forest Service and other federal agency comments regarding the previous analysis.

- In response to violations issued by VDEQ, a Memoranda of Understanding (MOU) between the VDEQ and Mountain Valley was developed which placed further requirements on the proponent to execute additional mitigations, such as enhanced ECDs and increased staffing. While VDEQ issued citations to Mountain Valley for violations, no citations were issued because of non-compliance on NFS lands.

- In 2018 and 2019, after the stop work order was issued, the Forest Service required implementation of stabilization measures on Brush Mountain and Peters Mountain (Forest Service 2018, 2019a, 2019b, and 2019c)

Pending concurrence from the Forest Service and BLM, the FERC has approved a variance for the use of conventional bores as an optional crossing method of the four unnamed tributary streams on NFS lands (see Figure 5 for the location of each proposed stream crossing) (FERC 2020c). If this process is used, it would reduce effects to Waters of the United States and potential sedimentation effects in the JNF (MVP 2020u). All earth disturbance (e.g., bore entry and exit pits) necessary to complete the crossings and spoil stockpile would remain within the

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previously permitted LOD. Reinforced Filtration Devices, which may include Priority 1 Silt Fence, Triple Stacked Compost Filter Sock, or Super Silt Fence would be used at each crossing. A bore pit is approximately 15 - 25 feet wide and the length varies from approximately 20 - 60 feet. In comparison, the pipeline trench is approximately 10 feet wide with bell hole areas, where pipe sections are welded, being approximately 20 feet wide. Bore pits and construction activities would be located outside of the Ordinary High Water Mark of streams. The bore methodology for these crossings would be a conventional unguided track-style auger bore employing a Robbins style rock bit if and when hard rock is encountered. No drilling fluids or additives would be employed for this endeavor.
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Groundwater may be encountered within the conventional bore pits. Any groundwater would be pumped and filtered to maintain a safe working environment during the crossings. Bore pits would be monitored and dewatered when necessary by utilizing a standard water pump. Pumping may need to occur 24 hours a day. The pumps would discharge into dewatering structures that would be built in compliance with both FERC and VDEQ requirements. All disturbance and structures would be located within the ROW. The project’s standard dewatering structure has been enhanced for sensitive crossings like those on NFS lands. After discharging through a sediment filter bag, the water is then filtered through an interior cell that is comprised of double-stacked straw bales and geotextile fabric, reinforced with cattle fencing to help maintain the structural integrity. After filtering through these devices, the water is then filtered through another row of double-stacked straw bales, geotextile fabric, and cattle fencing. The structure would be in a well-vegetated area to increase the retention and filtration of the water. The pumping rates would be monitored and modified to ensure that the structure does not overtop and water is properly filtered. Using this structure greatly reduces the amount of turbid water discharging from the work area and potentially mixing with nearby resources. The dewatering structure would be located within the already approved LOD. However, if at any time a temporary dewatering structure is required off LOD, Mountain Valley would obtain permission from the landowner prior to building the structure.

The FERC FEIS considered the effects of dewatering of the pipeline trench and any dewatering of the bore pits would have similar effects. Water removed from the bore pits would be reintroduced in the immediate vicinity of excavation and therefore, potential dewatering effects would be localized, occur over the short-term, and would not affect surface waters (FERC FEIS Section 4.3.2.2).

The U.S. Army Corps of Engineers confirmed that boring under small non-navigable streams can be performed in a manner that would not constitute a discharge of dredged or fill material (MVP 2020u).

### 3.4.2.2 Environmental Consequences

#### Methodology

The project hydrology specialists have formed professional judgments on probable effects. Professional judgments are based on the FERC FEIS; independent agency review of the Hydrologic Analysis for the JNF (Geosyntec Consultants 2020b); approved erosion and sediment control plans (POD Appendices C-1 through C-3); monitoring reports (Transcon 2018-2020); field visits and personal observation (including observation in similar areas); scientific literature; communication with professional contacts; and opposing views, data, and information described in public comments on the DSEIS.

#### Spatial and Temporal Boundaries

The spatial boundary for this analysis includes the 3.5-mile ROW in the JNF and nine 12-digit Hydrologic Unit Code (HUC) subwatersheds that underlay the ROW on NFS lands (Table 6). This boundary was chosen for consistency with the spatial boundary in the Hydrologic Analysis. The LOD includes a 125-foot-wide temporary ROW and a 50-foot-wide permanent ROW. The short-term temporal boundary for this analysis is the construction period, or two years. The long-term temporal boundary for this analysis is 30 years.
Alternative 1 – No Action

Under the No Action Alternative, no permit would be issued for the construction, operation, and maintenance of the MVP within the JNF. The current Forest Plan would continue to guide management of the project area. The MVP would have to utilize other lands for the pipeline in order to satisfy demand for natural gas and energy, or end users would have to seek alternate energy from other sources such as other natural gas transporters, fossil fuels, or renewable energy (FERC 2017a).

Some resource effects described in the FERC FEIS have already occurred since the project has been partially constructed. Specifically, timber felling has already occurred along the entire 3.5 miles within the JNF. The Hydrologic Analysis shows that timber felling would have a negligible increase (0.0%-0.4%) in sediment load over pre-project conditions at a HUC-12 subwatershed scale. Grading and soil stockpiling activities have also occurred within portions of NFS lands, and stockpiled soil has been revegetated. Effects associated with active restoration would occur over the short term. Restoration activities would include replacing topsoil to its original location within the ROW and revegetating the permanent ROW with herbaceous cover (forest would be allowed to regenerate in the entire ROW). The effects associated with restoration would be reduced sedimentation loads as compared to those during construction.

In conclusion, with continued implementation and monitoring of ECDs, adverse effects on water resources under the No Action Alternative would be minor and would occur over the short term. Given consideration of these factors, effects under the No Action Alternative would be consistent with those analyzed in the FERC FEIS and associated studies including the Hydrologic Analysis.

Alternative 2 – Proposed Action

As described in the FERC FEIS, potential effects on groundwater would be limited to those associated with clearing, grading, trenching, and trench dewatering during construction. These effects would occur over the short-term. Trenching is unlikely to be deep enough (5.5 to 9.0 feet) to significantly affect an aquifer. No springs were identified within 500 feet of the pipeline crossing of JNF. No wetlands were identified within the permanent ROW and therefore, no wetlands in the JNF would be affected by the pipeline.

The Proposed Action includes four proposed amended Forest Plan standards that would affect hydrologic function and water quality (amended text is in italics). Because the amended standards are specific to the MVP, their effects would be the same as the effects of implementing the Proposed Action, and thus they are discussed in this section.

Jefferson National Forest
Amended Standard FW-5: On all soils dedicated to growing vegetation, the organic layers, topsoil and root mat will be left in place over at least 85% of the activity area and revegetation is accomplished within 5 years, with the exception of the operational right-of-way and the construction zone for the Mountain Valley Pipeline, for which the applicable mitigation measures identified in the approved POD and MVP Project design requirements must be implemented.

Amended Standard FW-8: To limit soil compaction, no heavy equipment is used on plastic soils when the water table is within 12 inches of the surface, or when soil moisture exceeds the plastic limit, with the exception of the operational right-of-way and the construction zone for the Mountain Valley Pipeline, for which applicable mitigation measures identified in the approved POD and MVP Project design requirements must be implemented. Soil moisture exceeds the plastic limit when soil can be rolled to pencil size without breaking or crumbling.

Amended Standard FW-9: Heavy equipment is operated so that soil indentations, ruts, or furrows are aligned on the contour and the slope of such indentations is 5 percent or less, with the exception of the operational rights-of-way and the construction zone for the MVP, for which applicable mitigation measures identified in the approved POD and MVP design requirements must be implemented.

Amended Standard FW-13: Management activities expose no more than 10% mineral soil in the channeled ephemeral zone, with the exception of the operational ROW and the construction zone for the MVP, for which the responsible official must ensure applicable mitigation measures identified in the approved POD and MVP design requirements must be implemented.

Amended Standard 11-003: Management activities expose no more than 10 percent mineral soil within the project area riparian corridor, with the exception of the operational ROW and the construction zone for the MVP for which applicable mitigation measures identified in the approved POD and MVP design requirements must be implemented.

The FERC FEIS did not discuss the effect of these four amended standards on hydrologic function and water quality.

The proposed amendment for FW-5 would result in temporary, minor adverse impacts on hydrology. Project-specific activities, including temporary soil stockpiling and revegetation, were modeled into the Hydrologic Analysis for the JNF (Geosyntec Consultants 2020b). This report concludes that the delivered sediment yields during construction is projected to increase over baseline conditions ranging from 0.001 to 0.011 tons per acre per year (0.1% to 2.6% increase) at a HUC-12 subwatershed scale. The report estimates that during the restoration phase (one year post-construction) delivered sediment yield will have an increase of <0.001 to 0.002 tons per acre per year (0.01% to 0.5% increase) over baseline conditions. This projects that delivered sediment yields would decrease post-construction and likely reach an equilibrium close to baseline conditions. Therefore, temporarily stockpiling soils dedicated to growing vegetation, organic layers, and topsoil would result in minor temporary adverse impacts on hydrology.

The proposed amendment for FW-8 would result in negligible adverse effects on hydrology. All soil types listed in the FERC FEIS as being crossed in the JNF have a depth to water table of >80 inches (Table 7) (USDA NRCS 2020a). This is considerably different from a water table within...
12 inches of the soil surface that is typically a characteristic of a wetland (United States Army Corps of Engineers [USACE] 2012), and no wetlands would be impacted by the pipeline on NFS lands. Five soil types within the ROW have a plasticity index over 15%, indicating these soil types have a possibility of soil moisture exceeding the plastic limit and are easily compactable (Table 7) (USDA NRCS 2020b). Soil compaction due to heavy equipment can have a significant adverse effect on hydrology. Hydrological changes can include alterations in soil water holding capacity, reduced infiltration rates, increase peak flows, and increased runoff volume (Skousen et al. 2009; Olson and Doherty 2012). The POD Restoration Plan would minimize adverse effects on hydrology by prohibiting heavy equipment use from in wetland habitats and requiring Mountain Valley to rip compacted soils to a depth of at least 6 to 8 inches if those compacted soils are identified within areas targeted for restoration (POD Appendix H [MVP 2020h]). Because there are no soils in the ROW where the water table is anticipated to be within 12 inches of the surface, and because the POD includes measures to limit effects on plastic soils, there would be negligible adverse effects on hydrology.

The proposed amendment for FW-9 would result in short-term, minor adverse effects on hydrology. The POD requires tracking to occur perpendicular to the slope, which would create soil indentations that are aligned on the contour (POD Appendix C-1, C-2, and C-3 [MVP 2020c, x, and y]). Tracking would include roughening and scarifying of the slopes, which would reduce runoff velocity, increase infiltration, reduce erosion, and assist in establishing vegetative cover (Michigan 2019). The POD requires ECDs when management activities cause bare mineral soil on slopes greater than 5%, which is consistent with Forest Plan Standard FW-10. Project-specific grading activities, such as tracking and ECDs, were modeled into RUSLE2 in the Hydrologic Analysis. This report concludes that the delivered sediment yields during construction is projected to increase over pre-project conditions ranging from 0.001 to 0.011 tons/acre/year (0.1% to 2.6% increase) at a HUC-12 subwatershed scale. The report estimates that during the restoration phase (one year post-construction) delivered sediment yield would have an increase of <0.001 to 0.002 tons/acre/year (0.01% to 0.5% increase) over pre-project conditions. This projects that delivered sediment yields would decrease post-construction and likely reach an equilibrium close to pre-project conditions after restoration is complete. Therefore, operating heavy equipment so that the slope of indentations is 5% or more would result in short-term, minor adverse effects on hydrology.

**Table 7. Soil Types Within the LOD**

<table>
<thead>
<tr>
<th>Soil Type</th>
<th>Depth to Water Table (inches)</th>
<th>Plasticity Index (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bailegap sandy loam, 35 to 60% slopes</td>
<td>&gt;80</td>
<td>5.9</td>
</tr>
<tr>
<td>Berks and Weikert soils, 25 to 65% slopes</td>
<td>&gt;80</td>
<td>9</td>
</tr>
<tr>
<td>Berks and Weikert very stony soils, 15 to 35% slopes</td>
<td>&gt;80</td>
<td>9</td>
</tr>
<tr>
<td>Berks-Rock outcrop complex, 25 to 70% slopes</td>
<td>&gt;80</td>
<td>9</td>
</tr>
<tr>
<td>Berks-Weikert complex, 15 to 25% slopes</td>
<td>&gt;80</td>
<td>9</td>
</tr>
<tr>
<td>Calvin-Rough complex, 35 to 70% slopes, very stony</td>
<td>&gt;80</td>
<td>7.2</td>
</tr>
<tr>
<td>Craigsville soils</td>
<td>&gt;80</td>
<td>5</td>
</tr>
<tr>
<td>Dekalb channery loam, 55 to 70% slopes, very stony</td>
<td>&gt;80</td>
<td>7.1</td>
</tr>
<tr>
<td>Jefferson extremely stony soils, 7 to 25% slopes</td>
<td>&gt;80</td>
<td>15.6</td>
</tr>
<tr>
<td>Jefferson very stony soils, 7 to 15% slopes</td>
<td>&gt;80</td>
<td>15.6</td>
</tr>
<tr>
<td>Lehew and Wallen soils, very stony, 35 to 65% slopes</td>
<td>&gt;80</td>
<td>7.6</td>
</tr>
<tr>
<td>Lily-Bailegap complex, very stony, 15 to 35% slopes</td>
<td>&gt;80</td>
<td>15.5</td>
</tr>
<tr>
<td>Lily-Bailegap complex, very stony, 35 to 65% slopes</td>
<td>&gt;80</td>
<td>15.5</td>
</tr>
<tr>
<td>Nolichucky very stony sandy loam, 15 to 30% slopes</td>
<td>&gt;80</td>
<td>21.7</td>
</tr>
</tbody>
</table>

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The proposed amendments for FW-13 and 11-003 would result in short-term, minor adverse effects on hydrology. Exposure of 10% or more of mineral soil in the channeled ephemeral zone or riparian corridor can adversely affect hydrology because channeled ephemeral zones and riparian corridors are vital buffers for reducing runoff velocity, removing sediment during runoff events, and improving stream water quality (Lowrance et al. 1997; Sheridan et al. 1999). The pipeline on NFS lands would cross four unnamed tributaries of Craig Creek. If a dry-ditch open cut method is used, channeled ephemeral zones and riparian corridors in the ROW would not be fully functional during the construction phase of MVP due to temporary soil and vegetation disturbance. The Hydrologic Analysis analyzed disturbances during the construction phase and concluded that adverse effects would occur over the short-term, since soils would be separated and replaced during construction and the ROW would revegetate.

The FERC approved a variance request from Mountain Valley to bore under the four unnamed tributary streams on NFS lands instead of the dry-ditch open cut method (FERC 2020c). The Forest Service and BLM would also need to approve this crossing method. If the stream crossings are bored instead of open-cut, a 10-foot buffer around the top of bank extending into the riparian buffer would be undisturbed from trenching activities. Therefore, potential effects of exposing 10% or more of mineral soil in the channel ephemeral zone or riparian corridor are anticipated to be less for the boring method than the open cut method. Exposing 10% or more of mineral soil in the channeled ephemeral zone or riparian corridor would have minor short-term adverse effects on hydrology. As described in the Affected Environment, dewatering structures and pumps would be used if groundwater is encountered during the boring process. Adverse effects from any discharged water would be minimized by the use of measures including sediment filter bags and two rows of double-stacked straw bales and geotextile fabric. As a result, effects would be similar to those from enhanced ECDs that are in place to control runoff. Effects would occur over the short-term as the boring procedure occurs and any discharged water completes its passage through the sediment filters. Compared to the dry-ditch open cut method, avoidance of the streams via a boring crossing method would result in fewer sedimentation impacts and lower risk of sedimentation to streams because the streams would not be disturbed during the crossing process. Effects would also be less than those disclosed in the Hydrologic Analysis, which assumed a dry-ditch open cut stream crossing method.

The Hydrologic Analysis incorporates the MVP-approved ESCPs, site conditions, and construction timing into its RUSLE2 modeling. RUSLE2 is a commonly used model in the US and internationally for estimating soil loss and is adaptable to unique site-specific conditions. This is an improvement compared to the original RUSLE model effort used in the FERC FEIS, which evaluated potential sedimentation effects based only on generalized and preliminary assumptions about the erosion and sediment controls that would be utilized for the Project. The RUSLE2 modeling results at a catchment scale were then incorporated into the watershed-based RUSLE modeling. This improved the Hydrological Analysis, since more detailed, site-specific data were modeled. It also allows for evaluation of the effect of BMPs for the pipeline ROW according to approved ESCPs for Virginia and West Virginia and restoration activities within the construction workspace.

The Hydrologic Analysis uses the sediment delivery ratio (SDR) to estimate sediment yield. While RUSLE models watersheds on an annual timeframe and RUSLE2 allows for some further customization of timeframes, neither model predicts turbidity or total suspended solids (TSS), which are instantaneous values representing one specific point in time. The Hydrologic Analysis model is thorough and conservative in its approach (i.e., likely overestimating sediment loads). Other modeling techniques (e.g., hydrodynamic and sediment transport modeling) that might be
employed to attempt to deliver more refined results require vastly more detailed input
parameters, which must be estimated based on numerous assumptions and, in the aggregate,
cannot be relied on to accurately represent real-world conditions during construction activities.
Therefore, conducting additional modeling to obtain turbidity or TSS estimates is considered not
necessary for this assessment.

The rainfall runoff erosivity factor ($R$) of the baseline RUSLE model was calculated based on
average annual precipitation from 1981 to 2010, a 30-year timeframe that includes years with
excessive precipitation or prolonged drought conditions. The period from 1981 to 2010 is the
most current dataset available for this annual precipitation average. Specific fire, flood, or short-
term drought events are not able to be incorporated into RUSLE modeling, due to the short time
frame (e.g., days or weeks) of the events and that RUSLE modeling is on an annual scale. The
Felled scenario accounted for trees that have already been felled within the LOD, including on
Peters Mountain where trees were felled but not removed. Therefore, expanding the baseline
parameters is not considered necessary.

As described above, the Hydrologic Analysis modeled the approved Project-specific BMPs.
These include management and support practice BMPs modeled based on the alignment of the
pipeline and topography for either a Transverse Profile or Perpendicular Profile. This
configuration represents a conservative approach (i.e., estimates higher than expected soil loss)
to modeling the effect of BMPs for most areas of the Project because few areas of the Project
ROW are exactly perpendicular or parallel to the predominant slope. Most areas of the pipeline
would employ both BMP types. To quantify the efficiency of the BMPs modeled by RUSLE2,
sediment loss from the During Construction scenarios with no BMPs were compared to sediment
loss when BMPs were implemented. In the Perpendicular Profile category where BMPs included
sediment traps and bonded fiber matrix, the BMP effectiveness ranged from 45% to 70%. In the
Transverse Profile, the modeled BMP efficiency for porous barriers and bonded fiber matrix was
approximately 83%. The cover BMPs account for about a 30% reduction in soil loss and the
porous barrier accounted for about 50% reduction in soil loss. As discussed in the Hydrologic
Analysis for the JNF, the effectiveness of the BMPs is consistent with documented studies of
BMP effectiveness (Geosyntec Consultants 2020b).

The FERC FEIS identified the proposed use of Pocahontas and Mystery Ridge roads. These
roads are no longer part of the proposed action, which represents a changed condition. (However,
Pocahontas and Mystery Ridge roads were incorporated into the Sedimentation Analysis.) Access
for construction, operation, and/or maintenance of the pipeline within JNF would be conducted
using the MVP ROW. The ROW would be accessed from locations outside of JNF. Removing
project access on Pocahontas and Mystery Ridge roads from the proposed action is a reduction
of 12 stream crossings compared to the FERC FEIS (FERC FEIS Table 4.3.2-9). This changed
condition would reduce hydrological effects compared to those identified and analyzed within
the FERC FEIS because Pocahontas and Mystery Ridge roads would no long be used for project
access. Therefore, further assessment of project access roads is not considered to be necessary.

Transcon was contracted to conduct routine environmental monitoring inspections along the
proposed ROW and document the effectiveness of the ECDs that were stipulated in the POD.
Transcon’s reports show that ECDs are effective at controlling erosion, runoff, and sedimentation
under normal conditions when properly installed and maintained. Repair and reconstruction of
ECDs are an essential part of proper maintenance during the construction phase and ECDs
require maintenance to ensure effectiveness. Redesign and installation of additional ECDs and/or
enhanced ECDs is a common practice within the pipeline industry. As described in Section
3.4.1.1, recent (i.e., 2020) Transcon monitoring reports have indicated that Pocahontas Road has erosion and sedimentation issues. This road has also been used for Forest Service administrative uses and as access for a nearby TS not associated with the MVP. Independent of the MVP, the Forest Service is planning to conduct maintenance and reconditioning of Pocahontas Road in 2021 to address erosion and sedimentation issues that were occurring prior to and during the MVP project.

Enhanced ECDs may include increasing the capacity of sediment traps and installing additional perimeter controls (e.g., compost filter sock, silt fence, super silt fence). These additional measures are often constructed once field conditions have been observed during intense precipitation events and the responsible parties understand that field conditions do not necessarily align with desktop design conditions. The enhanced ECDs that exceed approved ESCPs reduce the potential for extreme precipitation events to contribute sediment loads that exceed the model’s predictions, as well as decrease the expected sediment loads during typical precipitation events. The additional measures are often necessary to ensure compliance with National Pollutant Discharge Elimination System permitting (e.g., sediment laden water not permitted to leave the LOD). The additional ECDs constitute a changed circumstance since they were not analyzed in the FERC FEIS. (Enhanced ECDs are reflected as redline changes to the approved Erosion and Sediment Control Plan which is Appendix C-1 and C-2 to the POD [MVP 2020x]). The Hydrologic Analysis for the JNF states that enhanced ECDs were not accounted for in the sediment modeling. Therefore, installation of enhanced ECDs designed to further minimize erosion, runoff, and sedimentation would likely result in a reduction in adverse effects on hydrology compared to the conclusions in the Hydrologic Analysis for the JNF. Therefore, further assessment of ECDs is not considered necessary.

In conclusion, effects on water resources from implementation of the Proposed Action would occur over the short and long term. Short-term impacts would be associated with construction and would be minor, which is consistent with the conclusions in the FERC FEIS. Long-term impacts would be associated with post-construction restoration and operation and maintenance and would be minor in intensity, which is consistent with the conclusions in the FERC FEIS

**Effects of Forest Plan Amendment**

There are 11 project-specific Forest Plan standards that would be amended in the proposed action. Five amended standards are related to hydrology, which include Standards FW-5, FW-8, FW-9, FW-13, and 11-003. The Proposed Action includes mitigation to reduce erosion, sedimentation, runoff, and runoff velocity to reduce the adverse effects of the amended standards.

The POD Restoration Plan would minimize adverse effects on soil compaction by requiring Mountain Valley to rip compacted soils to a depth of at least 6 to 8 inches if those compacted soils are identified within areas targeted for restoration (POD Appendix H [MVP 2020h]). With application of this measure, adverse effects on soil compaction would be short-term and minor, and the proposed action would comply with FW-8 as amended. Adherence to FW-9, as amended, would result in short-term, minor adverse effects on hydrology. The POD requires tracking to occur perpendicular to the slope, which would create soil indentations that are aligned on the contour. FW-13 and 11-003, as amended, would result in short-term, minor adverse effects on hydrology. Amendments to FW-9, FW-13, and 11-003 were analyzed in the Hydrological Analysis; therefore, the effects associated with adopting these amended standards as the same as the effects associated with implementing the Proposed Action. As discussed in the analysis of the
Proposed Action above, adoption of these amended standards would result in minor, short-term adverse effects on hydrology.

3.4.3 Threatened, Endangered, and Sensitive Species

This section responds to Issue 1 (Forest Plan Amendment – Purpose and Effect and Consistency with the Planning Rule and the NFMA) and Issue 3 (Erosion and Sediment Effects).

Threatened, endangered, or sensitive (TES) species are afforded protection by law, regulation, or policy by federal and/or state agencies. These species include federally listed species that are protected under the Endangered Species Act (ESA), or are under review as candidates for such listing by the FWS, and species on the RFSS list. Potential effects that could affect the conservation needs of a species or decrease the viability of a population include habitat fragmentation, loss, or degradation; decreased breeding or nesting success; increased predation or decreased food sources; and injury or mortality.

Federal agencies are required by the ESA Section 7(a)(2) to ensure that any action authorized, funded, or carried out by the agency would not jeopardize the continued existence of an ESA-listed threatened or endangered species or species proposed for listing, or result in the destruction or adverse modification of designated and proposed critical habitat. Formal consultation with the FWS has been conducted by the FERC, which is the lead federal agency for the entire 303-mile-long MVP project.

To satisfy requirements of the ESA for the MVP, the FERC initiated formal Section 7 consultation with the FWS in 2017. The FERC submitted a Biological Assessment (BA) on July 10, 2017, which resulted in the FWS issuing a BO and ITS on November 21, 2017. The 2017 BO evaluated the effects of the proposed 303-mile-long MVP project to ESA-listed threatened and endangered species.

In response to the ESA listing of a new species (candy darter) and the emergence of new information including field studies about potential effects of the project, the FERC requested reinitiation of Section 7 consultation in August 2019. The FWS confirmed reinitiation of consultation in September 2019. On October 16, 2019, the FWS requested that the FERC provide additional data/information regarding species surveys. Also, in October 2019, the Fourth Circuit stayed the 2017 BO pending the resolution of a legal challenge.

A SBA was submitted to the FWS in April 2020 and revised on May 28, 2020. By letter dated July 9, 2020, the FWS concurred with the FERC’s determination that the 303-mile-long project is not likely to adversely affect certain listed species, which concluded the Section 7 process for those species. In order to address species that were determined likely to be adversely affected, the FWS issued a new BO and ITS for the MVP project on September 4, 2020 that incorporates new data and to ensure that the FWS continues to use best available scientific and commercial information (FWS 2020b). The new 2020 BO superseded the original 2017 BO. For the broader 303-mile-long project, the FERC remained the lead consulting agency which is why the 2020 FWS BO addresses the MVP as a whole. In November 2020, the Fourth Circuit denied a stay of the 2020 BO, but the 2020 BO continues to be under legal review by the Fourth Circuit.

In addition, under the ESA and National Forest Management Act, the Forest Service is also required to determine whether any threatened, endangered, or sensitive (TES) species identified specific to the JNF or any of their designated critical habitats are near the proposed action on NFS lands and to determine potential effects on those species or critical habitats. A Biological

Jefferson National Forest
Evaluation (BE) was prepared in June 2017 that evaluated potential effects on the approximately 3.5 mile section of the MVP project that crosses the JNF. As part of the FSEIS effort, the Forest Service prepared a Supplemental Biological Evaluation (SBE) in December 2020 to review new data and the updated alignment on JNF, re-evaluate the proposed action, and re-evaluate the TES species with potential to be found on the JNF which includes ESA-listed species and the Region 8 Regional Forester Sensitive Species. Federal agencies are required by the ESA Section 7(a)(2) to ensure that any action authorized, funded, or carried out by the agency would not jeopardize the continued existence of an ESA-listed threatened or endangered species or species proposed for listing, or result in the destruction or adverse modification of designated and proposed critical habitat. As the lead federal agency, the Forest Service is responsible for determining whether any ESA-listed species or any of their designated critical habitats are near the proposed action and to determine the proposed action’s potential effects on those species or critical habitats.

Appendix B – Federally Listed Species and Regional Forester Sensitive Species – provides a summary table of the federally listed species and RFSS addressed in this FSEIS.

3.4.3.1 Affected Environment

Aquatic Species

The project area analyzed in the FERC FEIS totaled 82.7 acres of NFS lands including 50.9 acres of ROW corridor, 33.7 acres of NFS access roads, and 0.8 acres of temporary workspace. Since publication of the FERC FEIS, approximately 92% of the project has been implemented including disturbance within the JNF. Construction was halted upon issuance of the FERC’s stop work order, leaving disturbance along a partially constructed pipeline. Subsequent stabilization of disturbed areas within the JNF is ongoing. Since publication of the FERC FEIS, it has been determined that the ROW can be accessed using only off-NFS roads.

Terrestrial Species

Existing conditions in the project area are described in the FERC FEIS (pp. 4-250 to 4-256), which is incorporated by reference (FERC 2017a). In summary, the affected environment in the FERC FEIS includes 82.7 acres within the JNF that consists of six major forest community types, including mixed mesophytic forest; dry-mesic oak forest; dry and dry-mesic oak-pine forest; dry and xeric oak forest, woodland, and savanna; conifer-northern hardwood; xeric pine and pine-oak forest and woodland (FERC 2017a). Forest within the 50-foot-wide operational pipeline easement (about 24.5 ac) would be permanently converted to herbaceous grasslands. The remaining areas would be allowed to naturally regenerate, converting mature forest to an early successional condition.

Preliminary ESA-listed species surveys were conducted across the project area between 2015 and 2016, but none were located. Two RFSS species were located on or adjacent to the ROW. American Barberry (Berberis canadensis) was located adjacent to the ROW and a determination of No Impacts was made for this species. Rock Skullcap (Scutellaria saxatilis) was located on and around the ROW. One population of approximately 10,000 individuals occurs over 3.58 acres with approximately 1.94 acres occurring within the ROW. Efforts to minimize and mitigate effects to this species along with the presence of additional populations and habitat in the vicinity of the ROW led to a determination of May Impact Individuals – Is Not Likely to Cause a Trend Toward Federal Listing or Loss of Viability (MVP 2017).

An SBE (Copperhead 2020) was finalized and has incorporated the results of additional surveys requested by the Forest Service for the following RFSS:

Jefferson National Forest
• Liverwort (*Plagiochila virginica*)
• Liverwort (*Radula tenax*)
• Virginia white haired leatherflower (*Clematis coactilis*)
• Tall larkspur (*Delphinium exaltatum*)
• Quill Fameflower (*Phemeranthus teretifolius*)

Surveys for these five species were conducted in summer 2020 and no individuals were found or there was no habitat (MVP 2020t). Therefore, these species were not evaluated in the SBE.

Four exotic invasive species have been observed scattered throughout the ROW: multiflora rose (*Rosa multiflora*), Japanese honeysuckle (*Lonicera japonica*), garlic mustard (*Alliaria petiolata*), and mile-a-minute vine (*Persicaria perfoliata*) (Transcon 2018-2020).

Since publication of the FERC FEIS, several changes have occurred. Three species have become federally listed, 19 species have been added to the RFSS, and 13 species have been dropped from the RFSS list. Another changed condition is that the ROW was cleared of trees between March and April 2018. On Sinking Creek and Brush Mountain NFS lands, the trees have been felled and removed and the ROW has been graded. On the Peters Mountain area, the trees have been felled but not removed from the ROW due to the stop work order issued by the FERC. Exotic invasive occurrences within the ROW may expand due to the open canopy and exposed soils from the ROW clearing.

Additionally, seed from the impacted population of Rock Skullcap were collected and plants excavated for transplantation. Plants intended for transplantation did not survive. Seed was sown at two locations with seedlings observed at one location the following season (MVP 2020t).

### 3.4.3.2 Environmental Consequences

**Methodology**

The project biologists have formed professional judgments on probable effects. Professional judgments are based on field visits and site-specific information; the FERC FEIS; independent agency review of the *Hydrologic Analysis for the JNF* (Geosyntec Consultants 2020b) and the *Hydrologic Analysis for Aquatic Species* (Geosyntec Consultants 2020a); the 2017 BA (FERC 2017c); the SBA (MVP 2020b); the 2017 BO (FWS 2017); the 2017 BE (MVP 2017); the POD and appendices (MVP 2020a); and opposing views, data, and information described in public comments on the DSEIS. Aquatic, terrestrial, and plant species evaluated include all TES species.

Since publication of the FERC FEIS, the designation of several species as federally listed or RFSS has changed. These changed designations and the anticipated effects on these species are discussed in the analysis below. The SBE was finalized using data from surveys completed in summer 2020 and the Forest Service’s updated RFSS list for Region 8.
Alternative 1 – No Action

Aquatic Species
The greatest potential for the No Action alternative to affect TES aquatic species within and downstream of the JNF is through erosion and sedimentation from the partially implemented MVP. Review of Transcon weekly monitoring reports shows that most areas within the JNF are stable and erosion and sedimentation controls are functioning. Erosion and sedimentation issues are continuing to occur along Pocahontas Road, however, contributing factors likely include the pre-existing condition of the roadway and an independent TS. The JNF is implementing a separate maintenance action to improve sedimentation problems associated with Pocahontas and Mystery Ridge roads. Under the No Action Alternative, the JNF project area would be restored to its pre-project condition and minor, short-term adverse effects to aquatic TES would occur from use of equipment and vehicles during restoration activities. This is consistent with the conclusions in the FERC FEIS.

Terrestrial and Plant Species
The greatest potential for the No Action alternative to affect TES terrestrial wildlife and plant species within the JNF is through habitat loss from the partially implemented MVP. Direct effects have already occurred during partial construction of the pipeline and were analyzed in the FERC FEIS. Indirect effects associated with habitat loss would occur over the long term because restoration of the affected JNF lands to their pre-project condition under the No Action would take many years. Because the pre-project condition was forest, this area would be regenerating trees, whether planted or volunteer species, for decades, existing in successional habitat stages. Under the No Action Alternative, the JNF project area would be restored to its pre-project condition and minor, short-term adverse effects to terrestrial TES would occur from use of equipment and vehicles during restoration activities. This is consistent with the conclusions in the FERC FEIS.

Alternative 2 – Proposed Action

Aquatic Species – Federally Listed
FWS completed the 2020 BO on September 4, 2020. It contains mitigation measures to reduce potential effects to threatened and endangered species. These mitigation measures are mandatory nondiscretionary items that Mountain Valley must implement. The Forest Service will require the mandatory measures from the 2020 BO applicable to species and habitat on NFS land be implemented as a condition of approving the Plan amendment and concurring with the ROW grant. Therefore, the project would be compliant with the ESA.

Aquatic Species Action Area
In addition to assessing impacts in the geographic area covered in the Hydrologic Analysis for Aquatic Species (Geosyntec Consultants 2020a) the 2020 BO also looked at impacts that could occur in a mixing zone in stream segments where sediment from tributaries (i.e., tributaries crossed or receiving sediment from construction activities in the upland area) is delivered to streams/rivers where listed aquatic species and/or proposed critical habitat are potentially present. The upstream extent of the Action Area for aquatic species considered in the 2020 BO is defined as “the most upstream point at which measurable sediment attributed to the project may enter a National Hydrography Dataset stream segment via sediment from direct impacts where the project crosses the stream or sediment from upland workspaces delivered via overland flow to streams” (FWS 2020b). The downstream extent is the point at which “the stream becomes
impounded to an extent that water velocity slows and sediment settles out or the downstream point at which the project’s estimated maximum increase in delivered sediment concentration to the stream is attenuated to the point where an increase in measurable sediment concentration (for example, TSS or suspended sediment concentration) from the project could not be discerned from background sediment concentrations (i.e., the concentration attenuation threshold)” (FWS 2020b).

Table 8 provides a summary of each federally listed aquatic species and their effects determination.

**Table 8. Determination of Effects for Aquatic ESA Listed Species in the 2017 BA, the 2020 SBA, and 2020 FWS Consultation Letter**

<table>
<thead>
<tr>
<th>Species</th>
<th>Scientific Name</th>
<th>2017 BA Determination</th>
<th>April 2020 SBA Determination</th>
<th>July 9, 2020 FWS Consultation Letter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clubshell</td>
<td><em>Pleurobema clava</em></td>
<td>May Affect, Not Likely to Adversely Affect</td>
<td>May Affect, Likely to Adversely Affect</td>
<td>May Affect, Not Likely to Adversely Affect</td>
</tr>
<tr>
<td>James spinymussel</td>
<td><em>Parvaspina collina</em></td>
<td>May Affect, Not Likely to Adversely Affect</td>
<td>May Affect, Not Likely to Adversely Affect</td>
<td>May Affect, Not Likely to Adversely Affect</td>
</tr>
<tr>
<td>Snuffbox</td>
<td><em>Epioblasma triquetra</em></td>
<td>May Affect, Not Likely to Adversely Affect</td>
<td>May Affect, Likely to Adversely Affect</td>
<td>May Affect, Not Likely to Adversely Affect</td>
</tr>
<tr>
<td>Candy darter</td>
<td><em>Etheostoma osburni</em></td>
<td>May Affect, Action not likely to jeopardize the species*</td>
<td>May Affect, Not Likely to Adversely Affect</td>
<td>May Affect, Likely to Adversely Affect; May Affect; Likely to Adversely Affect Proposed Critical Habitat</td>
</tr>
<tr>
<td>Roanoke logperch</td>
<td><em>Percina rex</em></td>
<td>May Affect, Likely to Adversely Affect</td>
<td>May Affect, Likely to Adversely Affect</td>
<td>May Affect, Likely to Adversely Affect</td>
</tr>
</tbody>
</table>

* January 5, 2018 FWS Letter to FERC on Formal Conferencing for the Candy Darter

**Candy Darter (*Etheostoma osburni*)**

The July 9, 2020, coordination letter from FWS to FERC included a May Affect, Likely to Adversely Affect determination for the project (FWS 2020a). The FWS concurred with this determination for the candy darter in the 2020 BO (FWS 2020b). At the time of the 2017 FERC FEIS and BA, the candy darter was not federally listed but was proposed for ESA listing. Formal Conferencing was requested, and it was determined that the action was not likely to jeopardize the species. Since that time, the species has been listed as federally endangered with proposed Critical Habitat. The candy darter has been added to project Formal Consultation between FERC and FWS. The SBA recommended this species for a determination of May Affect, Not Likely to Adversely Affect; however, July 2020 coordination between FERC and FWS led to a revised determination of May Affect, Likely to Adversely Affect (FWS 2020a). No direct effects are
anticipated for the candy darter on the JNF since the impact area defined in the biological opinion does not include any waterbodies in the JNF known to harbor the species (FWS 2020b). Indirect sedimentation effects to Stony Creek are anticipated from the ROW runoff via Kimballton Branch which does not support candy darter populations. The FERC FEIS considered indirect sedimentation effects resulting from the use of Pocahontas Road and Mystery Ridge roads via Kimballton Branch as well. Because these access roads would no longer be utilized for the project, indirect effects to the species are expected to be less than those considered in the FERC FEIS and 2020 SBA. The portion of Mystery Ridge Road that is partially collocated with the pipeline LOD and the crossing of Mystery Ridge Road by the pipeline were considered in the FERC FEIS and the Hydrologic Analysis for Aquatic Species (Geosyntec Consultants 2020a); the anticipated effects remain consistent with those disclosed in these two documents.

As summarized in Section 2.2.2.2, the project would implement nondiscretionary measures in the 2020 BO to avoid, minimize, and mitigate potential effects on the candy darter.

**Candy Darter Critical Habitat**

Critical habitat for the candy darter was proposed at the time of listing of the species in November 2018. Stony Creek in Giles County, Virginia, is designated as critical habitat subunit 2b. The affected area of Stony Creek is just outside and downstream of the JNF. The project will not have any direct effects to proposed critical habitat within the JNF as the pipeline crosses outside the JNF property. Potential indirect sedimentation effects to the proposed critical habitat are possible from the project ROW via Kimballton Branch, a tributary of Stony Creek that does not contain a candy darter population. The SBA determined no incremental increases in sedimentation are anticipated for the proposed critical habitat (MVP 2020b). The 2020 FWS BO analyzed the stream crossing at the Gauley River (outside of the JNF) using a microtunnel and conventional bore crossing for Stony Creek for impacts to candy darter and determined that none of the affected habitat in the Stony Creek system will be rendered permanently unsuitable as a result of the project (FWS 2020b).

**Roanoke Logperch (Percina rex)**

While the overall project May Affect and Is Likely to Adversely Affect the Roanoke logperch, no suitable habitat was found within the JNF. Roanoke logperch are known to occur downstream of the MVP waterbody crossings within the North Fork Roanoke River; however, the occurrences are outside of the project area and are beyond the extent of increased sedimentation modeled for the waterbody crossings within the JNF. Although construction of the MVP as a whole is determined to be May Affect, Likely to Adversely Affect the species, no effects from project activities within the JNF are expected, which is consistent with the 2020 BO.

**James Spinymussel (Pleurobema collina)**

A May Affect, Not Likely to Adversely Affect determination has been made for the James spinymussel (FWS 2020a), and this determination has not changed throughout the consultation process. It was initially proposed in the 2017 FERC BA and the FWS concurred in the 2017 FWS BO. Justification for the determination in the 2017 FERC BA stated, “Based on the location of known and presumed populations of this species relative to the crossings at Craig Creek, the lack of mussels or suitable habitat within the Action Area, and MVP’s commitment to not cross Craig Creek from May 15 to July 31, no individuals are expected to be directly or indirectly harmed or harassed and no James spinymussel designated critical habitat would be
affected by the project” (FERC 2017c). To supplement information about the James spinymussel, Environmental Deoxyribonucleic Acid (eDNA) sampling was undertaken to assist during the reinitiated consultation. eDNA sampling of water from Craig Creek did not identify the presence of James spinymussel genetic material. While not considered conclusive, eDNA sampling was used to help support the determination and that the James spinymussel is not likely to occur near the JNF. Based on the Hydrologic Analysis for Aquatic Species (Geosyntec Consultants 2020a), it is predicted that the dry-ditch open cut stream crossing method would have less effects to the unnamed tributaries of Craig Creek in the JNF than those described in the FERC FEIS. In addition, the optional method using a conventional bore is expected to result in further reduced effects because no work would occur in the streams (FERC FEIS p. 4-139). Therefore, the indirect effects to Craig Creek would also be predicted to be less than what was described in the FERC FEIS. The effects determination for the James spinymussel has not been altered by the revised sedimentation analysis, eDNA analysis, embeddedness analysis, or the option to bore under the four unnamed tributaries of Craig Creek located in the JNF. Because the determination for the James spinymussel is May Affect, Not Likely to Adversely Affect, this species was not addressed in the 2020 BO.

Yellow Lance (Elliptio lanceolata)

A No Effect determination has been made for the yellow lance. Although effects to the federally threatened yellow lance were considered in the 2017 FERC BE and FEIS (when it was an RFSS and also proposed by the FWS for listing under the ESA), the species is not evaluated in this FSEIS because FWS has approved range changes for the species based on erroneous records in the project area. As a result, the MVP is considered to have No Effect to the species by FWS and FERC (FERC 2020b).

Clubshell (Pleurobema clava) and Snuffbox (Epiblasma triqueta)

May Affect, Not Likely to Adversely Affect determinations have been made for the clubshell and snuffbox (FWS 2020). These species were reported to potentially occur in Meathouse Fork, Leading Creek, and Little Kanawha River in West Virginia. These locations are outside the possibility of effect for actions taken within JNF. Thus, while the overall project may affect these species, actions within the JNF do not drain into waters where they potentially occur. No effects are expected to the clubshell and snuffbox from project activities within the JNF. Because the determination for the clubshell and snuffbox is May Affect, Not Likely to Adversely Affect, these species were not addressed in the July 9, 2020, FWS letter to FERC (FWS 2020a).

Supplement to the Biological Assessment

A SBA was submitted to FWS in April 2020 and revised in May 2020. The SBA changes the determination of effects for several federally listed aquatic species and eliminated some species from consideration. None of the identified species have designated Critical Habitat in the MVP area. The SBA included a letter from FWS to Sierra Club dated May 22, 2019, stating that further consultation on the yellow lance is not required because the latest information shows yellow lance does not occur in any waters in the vicinity of the project.

The SBA offered the following determinations for federally listed aquatic species:

- Candy darter - May Affect, Not Likely to Adversely Affect
- Roanoke logperch - May Affect, Is Likely to Adversely Affect
- James spinymussel - May Affect, Not Likely to Adversely Affect
- Yellow lance - No Effect (due to presumed lack of occurrence in project area)

The SBA also made effects determinations for the clubshell and snuffbox mussels; as discussed above, these species were reported to potentially occur in Meathouse Fork, Leading Creek, and Little Kanawha River in West Virginia. These locations are outside the possibility of effect for actions taken within or draining into or from the JNF.

Detailed descriptions, figures, and tables of the previously identified construction methodology are contained in the SBA and 2020 BO. The SBA describes the surveys conducted, and the POD identifies measures that will be implemented to minimize adverse effects to aquatic species from the construction and operation and maintenance of the MVP.

Environmental Deoxyribonucleic Acid Analysis

To supplement information about aquatic species, eDNA sampling was undertaken to assist during the reinitiated consultation. Aquatic organisms shed DNA into their environment that can be collected via water samples. eDNA sampling can provide a screening tool to help identify the presence of a species’ genetic material in the environment. Forty-one locations were sampled for the James spinymussel within Craig Creek just outside the JNF. All Craig Creek samples resulted in negative test results which indicates the absence of James spinymussel Deoxyribonucleic Acid (DNA) in the samples. While not considered conclusive, eDNA sampling was used to help support the determination and that the James spinymussel is not likely to occur near the JNF.

Hydrologic Analysis of Sedimentation

As described in Section 3.1.1, two hydrologic analyses have been developed to support this SEIS and related consultation with the FWS: The Hydrologic Analysis for the JNF (Geosyntec Consultants 2020b), which is the analysis specific to the JNF, and the Hydrologic Analysis for Aquatic Species (Geosyntec Consultants 2020a), which assesses impacts across the entire 303-mile-long pipeline route. Both analyses incorporate project-specific BMPs, changed access road utilization, time elapsed since construction, and a new construction timeline using an updated erosion model (RUSLE2) while applying more conservative predicted values (Geosyntec Consultants 2020b). The FWS determined that the Hydrologic Analysis for Aquatic Species (Geosyntec Consultants 2020a) constituted an appropriate geographic scope of analysis for defining the Action Area and assessing impacts on federally listed aquatic species (FWS 2020b). Comparisons of estimated sediment yield in the hydrologic study area including JNF lands for Baseline (pre-project conditions), Felled (Baseline through trees felled and left in place before clearing), During Construction (during project construction from the time of clearing through seeding to the end of a year), and Restoration (after project completion for a one year duration starting at seeding) scenarios indicate that project construction would contribute to a slight increase in delivered sediment above the Baseline scenario at the watershed level (Geosyntec Consultants 2020a and 2020b).

Because the Hydrologic Analysis for Aquatic Species analyzes streams throughout the 303-mile-long pipeline, the quantitative results provided in the following paragraphs are taken from the JNF-specific Hydrologic Analysis for the JNF. The geographic scope of analysis for the Hydrologic Analysis for the JNF consists of the HUC-12 watersheds overlapping the proposed ROW on NFS lands, as opposed to the HUC-10 boundaries used in the Hydrologic Analysis for
Aquatic Species. As a result, the numbers presented in the following paragraphs do not account for further attenuation of downstream impacts that would occur at the larger HUC-10 scale.

During construction, none of the HUC-12 watersheds in the Hydrologic Analysis for the JNF would experience sediment yields in excess of 2.6% above the Baseline scenario. During restoration, sediment yield increases would be 0.5% or less at a watershed scale (Geosyntec Consultants 2020b). As vegetation within the restored portion of the project LOD matures, sediment yields are expected to continue trending towards Baseline conditions across all watersheds, resulting in negligible to minor long-term adverse impacts.

Sediment yield was also modeled for individual stream segments. The localized temporary effect of construction within stream segments near the ROW corridor was modeled to lead to an increase in sediment delivery ranging from 0.1% to 31.3% (median: 2.8%) over the Baseline scenario. The modeling predicted the maximum 31.3% temporary increase to occur in a 1.16-mile-long stream segment that is located off NFS lands within the Brush Creek-Rich Creek watershed (Geosyntec Consultants 2020b). This stream segment is not identified as containing suitable habitat for TES (Geosyntec Consultants 2020a). Sediment yield on this stream segment would be 13.6% above the Baseline scenario during restoration. Overall, compared to the Baseline scenario, sediment yield for all modeled stream segments would increase 0.01% to 13.6% (median: 0.6%) for the Restoration scenario (Geosyntec Consultants 2020b). These predicted sedimentation values are lower than what was identified in the FEIS.

Since issuance of the FERC FEIS, the use of Pocahontas Road and Mystery Ridge roads for access will no longer occur. The Hydrologic Analysis for the JNF (Geosyntec Consultants 2020b) accounted for Pocahontas Road by modeling it as an existing road in the Baseline, Felled, During Construction, and Restoration scenarios, without an expanded ROW as it would have been modeled if it were to be used as a Project-related access road. The model results reflect the lower predicted sedimentation load in the JNF compared to if Pocahontas Road was used as an access road. The Hydrologic Analysis for the JNF (Geosyntec Consultants 2020b) accounted for Mystery Ridge Road by modeling it with an expanded ROW width in the During Construction and Restoration scenarios. Because Mystery Ridge Road is no longer planned to be used for Project access, this represents a conservative, overestimate of predicted sedimentation load in the JNF due to the Project from Mystery Ridge Road; actual sedimentation load due to the Project from Mystery Ridge Road will be less.

Mixing Zones

Two mixing zones\textsuperscript{15} were identified within or near the JNF and analyzed in the 2020 BO. One mixing zone was predicted to have suspended sediment concentrations below the threshold for adverse impacts while the other mixing zone, at the confluence of Kimballton Branch and Stony Creek, was identified as an anticipated impact area for the candy darter. The Stony Creek/Kimballton Branch mixing zone is on private lands and consists of 1,000 meters of Stony Creek, or approximately 2.92% of all potential candy darter habitat within Stony Creek. Actions on NFS lands would contribute to sedimentation and related effects on candy darter habitat in this mixing zone.

During fish surveys of Stony Creek (McBaine and Hallerman 2020), candy darter catch per unit effort was highest in the midpoint of the watershed, with lower abundance within the impact

\textsuperscript{15} an area extending 200 meters upstream and 800 meters downstream of the point where a tributary enters a stream where listed aquatic species and/or proposed critical habitat are potentially present (FWS 2020b).

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area. This is due to the intermittent nature of Stony Creek below Kimballton Branch and within the mixing zone. During dry summer months this portion of the stream can dry entirely.

The 2020 BO identified the potential for Take of the candy darter in the Stony Creek/Kimballton Branch mixing zone, beginning 800 meters downstream of the confluence and extending 200 meters upstream of Kimballton Branch in Stony Creek. Consistent with the 2020 SBA, FWS determined in the 2020 BO that “the effects from this specific project are not anticipated to reduce appreciably the suitable habitat available for recovery or the recovery potential for the species” (FWS 2020b) which is consistent with the 2020 SBA.

Baseline Embeddedness Analysis

Embeddedness surveys were conducted in the Upper Roanoke River basin to assess potential sedimentation effects to the Roanoke logperch (MVP 2020b). The streams assessed were the reaches of Bradshaw Creek, North Fork Roanoke River, Roanoke River, North Fork Blackwater River, Teels Creek, Little Creek, and Blackwater River. Baseline field embeddedness information was not obtained from the Roanoke River because of restricted land access at the time of the field work. However, baseline embeddedness measurements in the North Fork Roanoke River serve as a surrogate for the Roanoke River due to proximity, relatively similar hydrological and/or basin characteristics, and longitudinal connection. Craig Creek in Virginia was also assessed due to the potential presence of James spinymussel. Baseline conditions in the field were taken immediately above the most upstream point of sediment input from the project within each stream reach evaluated. A preliminary examination of potential alternate reference reaches was conducted on data collected from VDEQ. Most embeddedness data found were based on a qualitative 0 - 20 scale, and data were lacking for streams in the region. This embeddedness analysis does not affect the sedimentation conclusion, therefore does not provide information that constitutes changed conditions.

New Aquatic Species Listing

In the period since the 2017 FERC FEIS, BA, and BO, the candy darter has been listed as endangered under the ESA with proposed Critical Habitat. The candy darter was not considered in the 2017 BA as it was not yet listed under the ESA. Formal Conferencing with FWS was requested for the species which at the time was proposed for ESA listing. Formal Conference initially resulted in the FWS/FERC opinion that the action would not jeopardize the species. Post listing of the candy darter, the 2020 SBA offered an effects determination of May Affect, Not Likely to Adversely Affect the candy darter. The listing of the candy darter as federally endangered combined with a May Affect, Likely to Adversely Affect determination constitutes a substantial change in the regulatory requirements for the MVP. The candy darter, however, does not occur on JNF lands but may occur downstream in watersheds that overlap with the JNF.

Possible Change in Construction in Methods for Unnamed Tributaries of Craig Creek from Dry-ditch Open Cut to Conventional Bore

There are four unnamed tributary stream crossings on NFS lands, all of which are unnamed tributaries of Craig Creek. They may be crossed using a dry-ditch open cut method or a conventional bore method. The FEIS analyzed the impacts of dry-ditch open-cut crossings and indicated that horizontal directional drilling would have fewer impacts than dry-ditch open cut (FERC FEIS pp. 4-120, 4-139). The impacts of a conventional bore method would be similar to those of horizontal directional drilling and, in comparison to dry-ditch open cut, would be expected to decrease expected erosion and sedimentation by keeping the stream bed intact.
The 2020 BO also provides additional information about the reduced impacts from conventional bore as compared to dry-ditch open cut (FWS 2020). As part of the POD, a contingency plan would be developed for the potential boring activities. This method would decrease the potential for increased embeddedness as well as generally decrease adverse effects to the quality of the aquatic environment in the Craig Creek basin.

**Utilization of Mystery Ridge and Pocahontas Roads as Access Roads**

Alternative 2 requires no further utilization of Mystery Ridge and Pocahontas roads as access roads. The FERC FEIS identified the impacts of the use of these roads and post-construction repairs. Alternative 2 would avoid any additional impacts from use of these roads, and the Forest Service intends to independently upgrade the road conditions. Thus, the effects of Alternative 2 are consistent with those analyzed in the FERC FEIS.

**Aquatic Species - RFSS**

The list of aquatic RFSS considered in the 2020 SBE is different from that in the 2017 BE and FERC FEIS because the Region 8 RFSS list has been updated since those two documents were written. For example, the candy darter is now federally listed, the project has been determined to be outside the range of the now federally listed yellow lance, and the Allegheny snaketail (*Ophiogomphus incurvatus alleganiensis*) is no longer on the RFSS list. As of September 6, 2020, a total of six aquatic RFSS are being assessed for their potential to be affected by the project, including 3 fishes, 1 dragonfly, and 2 mussels (see Table 9). Preliminary determinations are provided in this FSEIS. This differs from the 2017 BE (MVP 2017) that addressed nine aquatic species: 5 fishes, 2 mussels, and 2 dragonflies.

**Table 9. RFSS Aquatic Species Analyzed in the 2020 FSEIS**

<table>
<thead>
<tr>
<th>Group</th>
<th>Latin Name</th>
<th>Common Name</th>
<th>2017 BE</th>
<th>2020 FSEIS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fish</td>
<td><em>Notropis</em> semperasper</td>
<td>Roughhead shiner</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Fish</td>
<td><em>Noturus gilberti</em></td>
<td>Orangefin madtom</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Fish</td>
<td><em>Phenacobius</em> teretulus</td>
<td>Kanawha minnow</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Dragonfly</td>
<td><em>Gomphus viridifrons</em></td>
<td>Green-faced clubtail</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Dragonfly</td>
<td><em>Ophiogomphus</em> incurvatus*</td>
<td>Allegheny snaketail</td>
<td>X</td>
<td>-</td>
</tr>
<tr>
<td>Mussel</td>
<td><em>Fusconaia</em> masoni</td>
<td>Atlantic pigtoe*</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Mussel</td>
<td><em>Lasmigona subviridis</em></td>
<td>Green floater</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

*Proposed for listing under the ESA

The four unnamed tributary stream crossings on NFS lands would be performed either with a dry-ditch open cut method or a conventional bore. The dry-ditch open cut method was evaluated in the FERC FEIS. Alternatively, use of a conventional bore method would reduce potential direct and indirect effects to sensitive aquatic environments and species because it would avoid disturbance to the stream bed. As described above for federally listed aquatic species, if a conventional bore method is used it would reduce potential effects to RFSS aquatic species compared to the dry-ditch open cut method.

The FERC FEIS identified mitigation measures to minimize effects to aquatic RFSS from fuel and chemical spills, hydrostatic testing, blasting, and pesticide and/or herbicide use. Because the
effects from implementing these measures were already analyzed in the FERC FEIS, they are not analyzed in detail in this FSEIS.

To minimize or avoid adverse effects on aquatic habitat that support RFSS, the project would adhere to conservation measures established in the POD. Other measures that would contribute to minimizing effects to RFSS are included in the FERC Plan and Procedures, the Erosion and Sediment Control Plan, and the Spill Prevention, Control, and Countermeasure plan.

**Roughhead Shiner (*Notropis semperasper*)**

The roughhead shiner is a medium-sized minnow with an elongated body and pointed dorsal and anal fins with falcate margins (MVP 2020t). This species is endemic to the Ridge and Valley Province of the upper James River watershed (Stauffer et al. 1995). Habitat for the roughhead shiner includes clear rocky pools and backwaters of small to large rivers (Page et al. 2011) as well as cool to warm clear pristines streams with moderate gradient, hard bottom, and little siltation. This species prefers moderate currents of runs but can occasionally be found in swifter water (Jenkins and Burkhead 1994).

The roughhead shiner was considered in the 2017 BE resulting in a May Impact Individuals – Is Not Likely to Cause a Trend Toward Federal Listing or Loss of Viability determination. Craig Creek is known to support populations of the roughhead shiner; however, all known occurrence records are 16.9 miles downstream of the Project crossing. Given the results of the updated sedimentation analysis, all occurrence records fall outside the zone of measurable suspended sediment effects (MVP 2020t, Geosyntec Consultants 2020); thus, no change to the 2017 BE determination is necessary based on new analysis.

**Orangefin Madtom (*Noturus gilberti*)**

The orangefin madtom has a long, slender body and a flattened head ranging in length from 2 to 3 inches (MVP 2020t). It is olive to brown in color on the dorsal side and yellow to white on the ventral side, with yellow to white edges on its fins. The species occurs in rocky riffles in small swift-moving rivers and streams. The species typically spawns in 50 to 68 degree Fahrenheit water from April through May. The orangefin madtom is currently under review for federal listing under the ESA and is considered a state-threatened species in Virginia.

The orangefin madtom was considered in the 2017 BE resulting in a May Impact Individuals – Is Not Likely to Cause a Trend Toward Federal Listing or Loss of Viability determination. While the species is known to occupy the Upper James River and Upper Roanoke River subbasins, no collection records for the species exist in the Trout Creek-Craig Creek or Dry Run-North Fork Roanoke River subwatersheds. Based on the results of the updated sedimentation analysis and the additions of avoidance and mitigation measures, known populations are predicted to have less sedimentation impacts than the 2017 BE determination (Geosyntec Consultants 2020); thus, no change to the 2017 BE determination is necessary.

**Kanawha minnow (*Phenacobius teretulus*)**

The Kanawha minnow is an elongate, slender minnow with a dark dorsal, greenish sides, a pale silvery underside, and orange-tinged fins and tail (MVP 2020t). The species is endemic to the New River system of North Carolina, Virginia, and West Virginia. This species prefers the riffles and runs over bedrock or boulder substrates in medium-sized rivers (Stauffer et al. 1995). The species is known to occupy the Middle New River (HUC 05050002) subbasin; however,
according the Virginia Department of Game and Inland Fisheries (VDGIF) Wildlife Environmental Review Map Service (WERMS) database, the species was captured only in a few localities within the subbasin.

The Kanawha minnow was considered in the 2017 BE resulting in a May Impact Individuals – Is Not Likely to Cause a Trend Toward Federal Listing or Loss of Viability determination. The closest known population occurs within Little River drainage, a tributary to the New River. Based on results of the updated sedimentation analysis, all known species populations fall outside the zone of discernible suspended sediment effects (Geosyntec Consultants 2020); thus, no change to the 2017 BE determination is necessary.

Green-faced clubtail (*Gomphus viridifrons*)

The green-faced clubtail is a small, primarily black dragonfly with a clear gray-green face (MVP 2020). It prefers clean, small to large, highly oxygenated streams with a moderate current. The larval (i.e., nymph) stages of the species prefers substrates that consist of gravel-sand and lightly silted rocks. This species has a broad geographic distribution, 50 counties across approximately 15 states (Dunkle 2000).

The green-faced clubtail was considered in the 2017 BE resulting in a May Impact Individuals – Is Not Likely to Cause a Trend Toward Federal Listing or Loss of Viability determination. The proposed alignment traverses streams within the known range of the green-faced clubtail and some streams may support populations of the species. Populations of the species (nymph stages) may occur at project stream crossing locations where a direct take of individuals could occur, and downstream of construction activities, nymphs (if present) may be subject to sedimentation issues. Adults are highly mobile and are likely able to avoid direct mortality by construction activities within the Project area. Green-faced clubtail exhibits a broad geographic distribution across numerous regions and states, and any potential indirect effects due to temporary sedimentation are not likely to cause a trend toward federal listing or a loss of viability for this species.

Atlantic Pigtoe (*Fusconaia masoni*)

The Atlantic pigtoe is currently proposed as threatened under the ESA with proposed critical habitat (MVP 2020b). This species, a freshwater unionid mussel, is typically found in swift, clean, and well-oxygenated streams, larger in size (e.g., large creek to medium-sized river) with gravel and sand substrates (Terwilliger 1991). This species was designated as state threatened in Virginia in January 1987. Atlantic pigtoe is one of the Atlantic slope unionids that prefers to inhabit the upper parts of rivers, usually above the geological boundary, typically denoted by rapids or a waterfall, between an upland region and a plain (i.e., fall line).

The Atlantic pigtoe was considered in the 2017 BE resulting in a May Impact Individuals – Is Not Likely to Cause a Trend Toward Federal Listing or Loss of Viability determination. Recent consultation with USFWS resulted in a No Effect determination for this species (FERC 2020b). Populations of this species were not identified at any of the Project stream crossings, and the closest known population (according to the VDGIF WERMS database) occurs in Craig Creek downstream of the confluence with Johns Creek approximately 30.2 miles downstream of the project area. However, given the known presence of the species within the Upper Johns Creek Subwatershed (HUC 020802011101), a similarly sized watershed adjacent to the Trout Creek-Craig Creek Subwatershed, the species may exist closer to the project area. The species is known to occupy the Upper James River (HUC 02080201) subbasin; however, it typically inhabits

Jefferson National Forest
relatively large creeks and small rivers. According to the *Hydrologic Analysis for the JNF* (Geosyntec Consultants 2020b), increased sedimentation rates above 1% over baseline scenario are not expected to occur outside of the Trout Creek-Craig Creek Subwatershed. According to the VDGIF WERMS database, more than 20 mussel survey events occurred in the Trout Creek-Craig Creek Subwatershed (including past records upstream and downstream of the Project crossing and mussel surveys associated with the project); however, no Atlantic pigtoe have been collected.

**Green Floater (*Lasmigona subviridis*)**

The green floater is currently under review for federal listing under the ESA (MVP 2020t). This species, state-threatened in Virginia, is a small freshwater mussel, typically less than 2 inches long. It has a trapezoidal to subovate shape and is yellow-green in color. This species primarily occurs in stagnant pools and other calm-water pockets 1 to 4 feet in depth. It is native to many drainage basins in the U.S., including the New River and James River basins. The species is typically found in clear pool habitats of streams of varying sizes with substrates of gravel and sand. The species is known to occupy the Middle New River (HUC 05050002) and Upper James River (HUC 02080201) subbasins.

The green floater was considered in the 2017 BE resulting in a **May Impact Individuals – Is Not Likely to Cause a Trend Toward Federal Listing or Loss of Viability** determination. The closest known occurrence of green floater within the Upper James River occurs outside of the Craig Creek drainage. Relic shells were collected in relative proximity to the project between Little Stony Creek and Stony Creek. Given the results of the updated sedimentation analysis, all known species populations fall outside the zone of discernible suspended sediment effects (Geosyntec Consultants 2020); thus, no change to the 2017 BE determination is warranted.

**Terrestrial Species – Federally Listed**

The effects analyses remain the same for federally listed terrestrial species identified. FWS concurred in their 2020 BO that the determinations for the species analyzed are unchanged from the 2017 BO (FWS 2020b).

**Terrestrial Species Action Area**

The Action Area is defined by a combination of effects related to movement of dust, light levels, noise, and water quality. Specifically, the Action Area for federally listed terrestrial species considered up to 350 feet for dust effects, up to 1,200 feet for light effects, up to two miles for noise effects, and the geographic scope of the *Hydrologic Analysis for the JNF* (Geosyntec Consultants 2020b) for water quality effects (FWS 2020b).

**Indiana bat (*Myotis sodalis*)**

Indiana bats are a nocturnal, medium-sized, brown-colored bats ranging in size from 1.6 to 1.9 inches and weigh about as much as a nickel (<0.3 ounces) (MVP 2017). They eat insects in flight. The geographic range of Indiana bats includes much of the eastern, southeastern, and north central United States, including all of Virginia. Indiana bats migrate seasonally between caves (hibernacula), where they hibernate during winter months, and their summer range where they roost in dead, dying, or live trees with cracks, crevices, or exfoliating bark.

The project **May Affect, Likely to Adversely Affect** the Indiana bat. Indiana bats were not captured during 2015 and 2016 mist-net surveys, but it is assumed the species occupies...
potentially suitable summer habitat, spring staging/fall swarming habitat, and winter hibernacula in the Action Area where presence/probable absence surveys were not conducted. Additional mist net surveys have not been required since trees were removed within LOD. Based on coordination with VDGIF, no new capture or roost records have been reported with the Action Area (MVP 2020b). Some Indiana bat individuals would likely be impacted during construction and operation and maintenance of the project. As summarized in Section 2.2.2.2, the FWS 2020 BO would require implementation of measures to avoid, minimize, and mitigate adverse impacts on the Indiana bat.

Northern long-eared bat (*Myotis septentrionalis*)

Northern long-eared bats are medium-sized bats characterized by their long ears relative to other bats in the genus (FERC 2017a). They weigh about the size of a nickel (0.17 to 0.28 ounces) at maturity with average body lengths of about 3.0 to 3.7 inches. Females average slightly larger than males. The geographic range includes much of the eastern and northeastern United States, including all of Virginia. Northern long-eared bats hibernate in caves and roost underneath bark or in cavities or crevices of both live and dead trees in the summer during their reproductive season.

The project **May Affect, Likely to Adversely Affect** the northern long-eared bat. Results of summer mist-net and harp trap surveys confirmed presence of northern long-eared bats within the LOD. The Action Area for northern long-eared bat is the same as described above for the Indiana bat (FWS 2020b). The project has avoided and would avoid take of adults and non-volant young by suspending tree-clearing activities during June 1 through July 31\(^\text{16}\). However, individuals present during spring staging and autumn swarming may be impacted during project development. As summarized in Section 2.2.2.2, the FWS 2020 BO would require implementation of measures to avoid, minimize, and mitigate adverse impacts on the northern long-eared bat.

Gray bat (*Myotis grisescens*)

Gray bats are one of the largest species in the genus *Myotis* in eastern North America with a wingspan of about 10 to 12 inches (FERC 2017a) and body length of 3.1 to 4.1 inches. Gray bats are also distinguished from other *Myotis* species by their uniformly dark gray dorsal fur, their wing membrane that attaches at the ankle as opposed to the base of the toes in other species, and by a notch in the claws of their hind feet. The primary range of gray bats is concentrated in the cave regions of Alabama, Arkansas, Kentucky, Missouri, and Tennessee, with smaller populations found in adjacent states, including a growing population in a quarry in Clark County, Indiana. Gray bats require caves for winter hibernation and summer roosting.

There are no hibernacula or roosting habitat (i.e., caves), or records of gray bat captures within the Action Area. The project would not affect any caves within the range of the species in the Action Area. Based on the lack of summer captures during field surveys and absence of suitable, occupied roosting or hibernating habitat for the gray bat within the Action Area, no adverse effects are expected on roosting or hibernating habitat. Thus, the determination for gray bat is **May Affect, Not Likely to Adversely Affect** gray bats due to the potential for foraging habitat, which is the same determination in the 2017 BA (FERC 2017c), the 2020 SBA (MVP 2020b),

\(^{16}\) Mountain Valley sought and obtained relief from this time-of-year restriction from FERC and FWS under emergency Section 7 consultation initiated by FERC to conduct limited tree-clearing activities on 0.81 acre during June 2018 required to remediate the imminent risk to safety or the environment.
and by USFWS (FWS 2020a). Because the determination for the gray bat is May Affect, Not Likely to Adversely Affect, this species was not addressed in the 2020 BO.

Virginia big-eared bat (*Corynorhinus townsendii virginianus*)

Virginia big-eared bats are medium-sized bats, averaging 3.9 inches in length. They are distinguished by their long ears, greater than 1 inch in length, and two mitten-shaped glandular masses on each side of its nose (FERC 2017a). Virginia big-eared bats are distributed in isolated populations in the Appalachian Mountains in Kentucky, North Carolina, Virginia, and West Virginia (MVP 2020b). Virginia big-eared bats use caves for winter hibernation and summer roosting.

There are no records of this species within the Action Area, the project would not affect any caves within the range of the species in the Action Area, and there are no hibernacula known in the Action Area. Based on the lack of summer captures during field surveys and absence of occupied roosting or hibernating cave habitat for the species within the Action Area, a **May Affect, Not Likely to Adversely Affect** determination is made for Virginia big-eared bats. This is the same determination as in the 2017 BA (FERC 2017c) and the 2020 SBA (MVP 2020b). FWS concurred with this “May Affect, Not Likely to Adversely Affect” determination on July 9, 2020 (FWS 2020a). Because the determination for the Virginia big-eared bat is May Affect, Not Likely to Adversely Affect, this species was not addressed in the 2020 BO.

Rusty patched bumble bee (*Bombus affinis*)

Rusty patched bumble bees appear similar to other bumble bees, having large, round bodies with black and yellow coloration. All rusty patched bumble bees have entirely black heads and the workers and males have a rusty reddish patch centrally located on the abdomen (FERC 2017a). Since 2000, the rusty patched bumble bee has been documented in just 13 states in the eastern and Midwest U.S., including Virginia, Illinois, Indiana, Iowa, Maine, Maryland, Massachusetts, Minnesota, North Carolina, Ohio, Pennsylvania, Tennessee, and Wisconsin. The rusty patched bumble bee has been documented inhabiting woodlands, marshes, agricultural landscapes, and residential parks and gardens. The species requires areas that support sufficient food (nectar and pollen from diverse and abundant flowers), undisturbed nesting sites in proximity to floral resources, and overwintering sites for hibernating queens. Nests are typically in abandoned rodent nests or other similar cavities and colonies may consist of up to 1,000 individual workers in a season.

FERC made a **No Effect** determination for this species (FERC 2020b). Surveys for the species were conducted in 2018 and 2019 by the West Virginia DNR and Virginia Department of Conservation and Recreation within and without a 10-km buffer of the MVP project boundary. All surveys within the JNF boundaries were negative for individuals (FERC 2017a; WEST 2020; MVP 2020b). The Virginia Department of Conservation and Recreation (VDCR 2020; Orcutt 2019) documented the presence of the rusty patched bumble bee in Bath, Highland, and Rockingham counties in Virginia over 50 miles from MVP, which is well outside of the dispersal distance of the species. The surveys conducted by VDCR included Giles and Montgomery counties, each of which is crossed by a portion of the project within the JNF. No rusty patched bumble bees were found in Giles or Montgomery counties during these surveys, including in the vicinity of the project. According to the FERC BA for MVP (FERC 2017a), historical populations of the rusty patched bumble bee were last observed in Giles County in 1987 and in Montgomery County in 1997. The species requires grasslands and a mixed forest cover. Creating a path through the heavily wooded JNF would not negatively affect this species, but it could
create habitat once the project is completed and pollinator plants are established in the ROW. Based upon the MVP survey results, as well as available scientific and commercial data, the project area is outside of the rusty patched bumble bee’s current range. Therefore, the FWS determined in its July 9, 2020, consultation letter to the FERC that the project should have a No Effect determination (FWS 2020a).

Terrestrial Species – RFSS
The list of terrestrial RFSS considered in the 2020 SBE is different from that in the 2017 BE and FERC FEIS because the Region 8 RFSS list has been updated since those two documents were written. As of September 6, 2020, a total of nine terrestrial RFSS are being assessed for their potential to be affected by the project, including seven butterflies and two mammals (both bats; see Table 10). Preliminary determinations are provided in this FSEIS. This differs from the 2017 BE (MVP 2017) that addressed four terrestrial species: two butterflies (Diana fritillary and regal fritillary), one beetle (the Maureen’s shale stream beetle [Hydraena maureenae] that is no longer on the RFSS list), and one mammal (Eastern small-footed bat).

<table>
<thead>
<tr>
<th>Group</th>
<th>Latin Name</th>
<th>Common Name</th>
<th>2017 BE</th>
<th>2020 FSEIS</th>
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<tr>
<td>Butterfly</td>
<td>Atrytone arogos</td>
<td>Arogos skipper</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Butterfly</td>
<td>Calephelis borealis</td>
<td>Northern metalmark</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Butterfly</td>
<td>Danaus plexippus</td>
<td>Monarch</td>
<td>X</td>
<td></td>
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<tr>
<td>Butterfly</td>
<td>Erora laeta</td>
<td>Early hairstreak</td>
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<td>Mottled duskywing</td>
<td>X</td>
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<tr>
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<td>Speyeria Idalia</td>
<td>Regal fritillary</td>
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</tr>
<tr>
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<td>Diana fritillary</td>
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<tr>
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<tr>
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<td>Myotis leibii</td>
<td>Eastern small-footed bat</td>
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<td>X</td>
</tr>
<tr>
<td>Mammal</td>
<td>Perimyotis subflavus</td>
<td>Tricolored Bat</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Butterflies (6 species addressed in this FSEIS; see Table 10)

Arogos Skipper (Atrytone arogos)

The arogos skipper has yellow orange upperside wings with a black border (MVP 2020t). The female’s wings tend to be wider than the males. Arogos skippers inhabit relatively undisturbed prairies or grasslands throughout the majority of its range. Adults feed on nectar from the flowers of dogbane, stiff coreopsis (Coreopsis palmata), purple coneflower (Echinacea purpurea), and green milkweed (Asclepias viridis). Females lay eggs singly under caterpillar host plant leaves, including big bluestem (Andropogon gerardii) and other native grasses (NatureServe 2020).

Northern Metalmark (Calephelis borealis)

The northern metalmark is a small butterfly with a wingspan of 1.13 to 1.25 inches found in Virginia, West Virginia, and other parts of the eastern U.S. (MVP 2020t). In male butterflies, the forewing is more rounded than the female; the upperside of both wings is brown with wide
orange borders and a dark median band. Habitat for the northern metalmark are forested openings, such as natural outcrops, shale or limestone barrens, and glades or powerline rights of way. Larvae feed solely on roundleaf ragwort (*Senecio obovatus*). Important nectar flowers for adults include orange milkweed (*Asclepias tuberosa*), black-eyed Susan (*Rudbeckia hirta*), daisy (*Bellis perennis*), and fleabane (*Erigeron annuus*) flowers (NatureServe 2020).

**Monarch (Danaus plexippus)**

The monarch butterfly is identified by distinct orange, black, and white wing patterns (MVP 2020t). Female adults tend to have brown-orange coloration and blurred black veins, while the male is bright orange and wide black borders with scent scales on the hindwing. Monarch habitat is complex, but generally includes virtually all patches of milkweed in North America. Overwintering habitats including high altitude Mexican conifer forests or coastal California conifer and Eucalyptus groves are critical for the species (NatureServe 2020). Adults feed on nectar from a wide variety of flowers including dogbane (*Apocynum cannabinum*), lilac (*Syringa* sp.), thistles (*Cirsium* sp.), and milkweeds (*Asclepias* sp.). Monarch reproduction is entirely dependent on milkweeds including common milkweed (*Asclepias syriaca*), swamp milkweed (*A. incarnata*), and showy milkweed (*A. speciosa*). Females lay eggs singly on host plants; caterpillars eat the leaves and flowers. Monarch’s migrate to Mexico from August to October. Throughout its range, the monarch is found in open habitats, including fields, meadows, weedy areas, marshes, and roadsides. This species is under review by FWS for listing. FWS received a petition to list in 2014.

**Early Hairstreak (Erora laeta)**

The early hairstreak butterfly can be identified by its lack of tail, blue and black wing uppersides, and light turquoise wing undersides with two irregular bands of small orange spots (MVP 2020t). The butterfly is found primarily in deciduous and mixed woods, particularly along open ridgetops and along dirt roads. Although like most hairstreaks a few adults sometimes are found on flowers away from the woods, at least southward. Beech-maple forests seem most typical, but more mixed types can also house populations. Most habitats contain a lot of beech, but collections have been reported where beech was not present in the immediate area (Sullivan 1971, Allen 1997), often single individuals on flowers. Nearly all records are from hilly or mountainous regions.

**Mottled Duskywing (Erynnis martialis)**

Mottled duskywing butterflies are identified by their upperside bands and the mottled appearance of both front and back wings. Mottled duskywing are found in habitat that includes open woodland, barrens, prairie hills, open brushy fields, and chaparral, especially where the eastern species of *Ceanothus* (lilacs) are common, or at least well distributed over dozens of hectares or more, usually in hilly country. At least from Texas and Wisconsin eastward, this species is strongly associated with various sorts of oak (black, post, etc.) or pine (jack, pitch, longleaf) savannas or open woodlands, non-coastal pine barrens, or grassy openings within these communities (Schweitzer et al. 2011), also probably embankments along rivers. Adults prefer the nectar of the flowers of bush houstonia (*Houstonia* sp.), gromwell (*Lithospermum* sp.), hoary vervain (*Verbena stricta*), and other species. Females lay eggs singly on the host plants of wild lilacs, particularly New Jersey tea (*Ceanothus americanus*) and red root (*Caeonothus herbaceus* var. *pubescens*).
Regal Fritillary (*Speyeria idalia*)

A petition to list the regal fritillary was submitted to the USFWS in April 2013 (WildEarth Guardians 2013); listing status is currently under review. The regal fritillary is a relatively large butterfly that uses a variety of habitats such as herbaceous wetlands, riparian areas, grasslands, old fields, and savannas; however, it prefers high-quality remnant tallgrass prairies. Nectar sources for the entire flight season are very important, and the regal fritillary prefers areas with wet patches or streams (Wagner et al. 1997; Wells and Smith 2013). The species primarily deposits eggs in close proximity to violets (especially birdfoot violet [*Viola pedata*] and prairie violet [*V. pedatifida*]), which are the sole sources of food for larvae (Allen 1997).

**A May Impact Individuals – Is Not Likely to Cause a Trend Toward Federal Listing or Loss of Viability** determination is made for all butterfly species above. Potentially suitable habitat was identified during field habitat assessments. The biggest threat from construction, operation, and maintenance would be removal of potentially suitable habitat from the project area; however, most butterflies are known to benefit from the presence of woodland clearings, including ROWs, as they increase the amount of nectar forage available. Construction of the ROW would increase the amount of potentially suitable habitat for these species. Revegetation of the ROW would follow a two-step process as recommended by the Forest Service. This includes stabilization of soils immediately following tree removal and construction activities with appropriate seed mixes and techniques, as well as revegetation of the ROW corridor as needed with native seed mixes recommended in consultation with the Forest Service.

**Eastern small-footed bat (*Myotis leibii*)**

The eastern small-footed bat roosts in vertical cracks of cliff faces and horizontal cracks on talus slopes near deciduous or coniferous forest. It may also use man-made structures such as rip-rap and bridges. This bat hibernates in caves during the winter. The eastern small-footed bat forages widely in forested and open habitat types of mountainous habitat. It is known to occur in Montgomery County, Virginia (MVP 2017).

**A May Impact Individuals – Is Not Likely to Cause a Trend Toward Federal Listing or Loss of Viability** determination is made for the eastern small-footed bat. Potential summer habitat, typically rocky outcrops, for the eastern small-footed bat was limited along the proposed alignment and Pocahontas Road on JNF during field surveys (mist netting and portal searches). The closest captured individual was approximately ½ mi from the western boundary of the construction ROW. No suitable cave openings or portals were observed along the proposed alignment or Pocahontas Road on JNF. There are no known winter hibernacula along the proposed alignment; however, it is likely that suitable winter habitat for the species is present on or within the vicinity of JNF as summer and winter habitats are often close together. The Karst Mitigation Plan (MVP 2020b) covers roosting habitat used by this species. Therefore, additional analysis is not needed.

**Tricolored bat (*Perimyotis subflavus*)**

Tricolored bat is a small bat weighing between 0.2 and 0.3 ounces found in the eastern U.S. with a wingspan of 8 to 10 inches. The coat of the tricolored bat is dark brown at the root and tip and yellow in the middle of each strand. Identifying characteristics of the species include pink-hued skin on the radius bone and relatively large feet. The bat is found in early successional open woods over water and adjacent water edges. Tricolored bats most commonly roost in the dead or
live tree foliage during summer. In winter, tricolored bat hibernate in caves. They may also utilize man-made structures such as buildings, bridges, and culverts.

A May Impact Individuals – Is Not Likely to Cause a Trend Toward Federal Listing or Loss of Viability determination is made for the tricolored bat. Bat surveys were conducted in 2015 and 2016, but no tricolored bats were captured within the JNF ROW. Potential summer habitat for tricolored bats is present within the JNF in the form of trees. However, roosts are not limiting for this species and the removal of trees has already occurred. No suitable cave openings or portals were observed along the proposed alignment on the JNF. There are no known winter hibernacula within 0.25 mile along the proposed alignment. The closest known hibernaculum is approximately 3 miles from the ROW crossing JNF lands (VDGIF 2020). Therefore, no additional effects would occur for this species that have not been covered by other mitigation measures (i.e., noise, hydrology, and karst features). This species is under review by FWS for listing. FWS received a petition to list in 2016.

Conclusion

To minimize or avoid adverse effects on terrestrial habitat that support RFSS, the POD includes conservation measures and the BE includes mitigation measures. Other measures that would contribute to minimizing effects to RFSS are included in the FERC Plan and Procedures, the Erosion and Sediment Control Plan, and the Spill Prevention, Control, and Countermeasure Plan. The BE determined that MVP would not cause a trend toward federal listing or loss of viability for any of these terrestrial species.

Plant Species – Federally Listed

Smooth coneflower (Echinacea laevigata)

The smooth coneflower grows up to 59 inches tall from a vertical root stock; stems are smooth, with few leaves. The largest leaves are the basal leaves, which reach 7.8 inches in length and 2.9 inches in width. Flower heads are usually solitary. The ray flowers (petal-like structures on the composite flower heads) are light pink to purplish, usually drooping, and 1.9 to 3.1 inches long. It has disk flowers that are about 0.2-inch-long with tubular purple corollas and mostly erect short triangular teeth. Smooth coneflower historically occurred from Pennsylvania to Georgia. In Virginia, it is known or believed to occur in Montgomery County (FERC 2017c). In Virginia, smooth coneflower occurs in woodlands or glades that are generally open and dry. It has also been found in open woods, cedar barrens, roadsides, clear-cuts, utility line rights-of-way, and dry limestone bluffs.

Prior to the 2017 BA, no individual smooth coneflower was observed during survey, but potential habitat was determined to be present within the Action Area in Montgomery County (MVP 2017). No additional smooth coneflower suitable habitat has been documented in the project area since the issuance of the 2017 BA, so there are no updates to occurrence of this species. The MVP would not directly or indirectly impact known-occupied habitats of smooth coneflower. The species and the nearest known populations occur outside of the Action Area in Montgomery County, Virginia, and individuals were not found in the project area during FWS-approved plant surveys. Therefore, the smooth coneflower has a May Affect, Not Likely to Adversely Affect determination and it is not addressed in the 2020 BO (FWS 2020a and 2020b).
Small whorled pogonia (*Isotria medeoloides*)

The small whorled pogonia is a member of the orchid family and is characterized by a single gray-green stem up to 11.8 inches tall and the whorl of five to six leaves at the top of the stem (FERC 2017c). The leaves are gray-green, oblong, and reach 1.6 to 3.1 inches in length. A single or pair of green-yellow flowers appears in May or June. The small whorled pogonia occurs on upland sites in mixed-deciduous or mixed deciduous/coniferous forests that are generally in second- or third-growth successional stages. Characteristics common to most small whorled pogonia sites include sparse to moderate ground cover in the species’ microhabitat, a relatively open understory below the canopy, and proximity to features that create long persisting breaks in the forest canopy. It prefers acidic soils with a thick layer of dead leaves, often on slopes near small streams. Small whorled pogonia is known or believed to occur in Virginia and West Virginia.

There is suitable habitat within the Action Area, but no individuals were found in field surveys. Therefore, the determination is **May Affect, Not Likely to Adversely Affect**. Because Section 7 has been concluded informally for this species, it is not addressed in the 2020 BO (FWS 2020a; FWS 2020b).

Virginia spiraea (*Spiraea virginiana*)

Virginia spiraea is a perennial shrub with many branches (FERC 2017c). It grows 3 to 10 feet tall. Its alternate leaves are single-tooth serrated and grow to 1 to 6 inches long and 1 to 2 inches wide. The leaves are darker green above than below, occasionally curved, and have a narrow, moderately tapered base. The plant produces flowers that are yellowish green to pale white, with stamens twice the length of the sepal. It blooms from late May to late July, but flower production is sparse and does not begin until after the first year of establishment. The Virginia spiraea is a Southern Appalachian species found in the Appalachian Plateaus or the southern Blue Ridge Mountains in Alabama, Ohio, West Virginia, Virginia, Tennessee, North Carolina, Kentucky, and Georgia. Virginia spiraea occurs along scoured banks of second and third order streams, or on meander scrolls, point bars, natural levees, and other braided features of lower reaches of streams. In Virginia, these plants are often located along flood scour zones in crevices of sandstone cobbles, boulders, and massive rock outcrop, and quartzite/feldspar boulders. It occurs in soils that are sandy, silty, or clay at elevations ranging between 1,000 and 2,400 feet.

Known populations of this species occur in West Virginia and surveys conducted before and after the 2017 BA and BO did not locate individuals in the Action Area. Although the 2020 SBA made a **May Affect, Not Likely to Adversely Affect** determination, FWS concurred with FERC’s determination of May Affect, Likely to Adversely Affect in the July 9, 2020, consultation letter that addressed the entire 303.5-mile-long project (FWS 2020a). The 2020 BO concurred that the Virginia spiraea does not occur on NFS lands and would not be affected by the proposed action in this FSEIS (FWS 2020b).

Running buffalo clover (*Trifolium stoloniferum*)

Running buffalo clover is a stoloniferous, perennial herb. It is characterized by and differentiated from white clover (*Trifolium repens*) by having erect peduncles (flowering stalks) that have two large trifoliate leaves at their summit. White clover lacks these leaves. Running buffalo clover’s erect flowering stems are typically 3.0 to 6.0 inches tall. The round flowering heads occur in mid-April to June with wilted flowering heads persisting for a short time thereafter. Running buffalo clover grows in relatively moist, fertile soils in regions with limestone or other
calcereous bedrock. It is often found in semi-shaded, moist openings, and edge habitats maintained by some form of long-term disturbance. Running buffalo clover currently grows in limited portions of Arkansas, Indiana, Kentucky, Missouri, Ohio, and West Virginia (FERC 2017c). It is not known to occur in Virginia.

After the 2017 FEIS, additional surveys for running buffalo clover were conducted in 2018 and 2019 due to pipeline route changes and variance requests. No running buffalo clover individuals were observed within the LOD even though potentially suitable habitat was present. Therefore, a **May Affect, Not Likely to Adversely Affect** determination is made for this species and it is not addressed in the 2020 BO (FWS 2020a; FWS 2020b).

**Shale barren rock cress (Arabis serotina)**

The shale barren rock cress is a biennial plant species within the mustard family (FERC 2017c). Young, non-reproductive individuals have leaves in a basal rosette that range in size from 0.6 to 1.4 inches in diameter. Potentially reproductive individuals are erect (16.1 to 38.2 in) and are flowering plants that lack the basal rosette. The flowering stalks are highly branched with three to 41 branches measuring 7.9 to 15.7 inches wide with many flowers. The flowers are small and white with calyces (0.08 to 0.13 in long) that bear silique fruits ranging from 1.7 to 3.1 inches long. It flowers from mid-July to September. It is only known to occur in West Virginia and Virginia at low densities on mid-Appalachian shale barrens of the Ridge and Valley Province of the Appalachian Mountains.

This species was previously determined to be likely affected by the project. However, additional surveys and the statement by FWS that unsurveyed locations were not identified known habitat or likely suitable habitat for shale barren rock cress, the determination is now that there would be **No Effect** on this species by the project.

**Plant Species – RFSS**

The list of RFSS plants considered in the 2020 SBE is different from that in the 2017 BE and FERC FEIS because the Region 8 RFSS list has been updated since those two documents were written. As of September 6, 2020, a total of eight RFSS plants were surveyed for their potential to be affected by the project, including two liverworts and six vascular plants (see Table 11). This differs from the 2017 BE (MVP 2017) that addressed three RFSS plants. Surveys for these six vascular plants species and two liverworts that are on the RFSS list, along with two species requested by the Forest Service, were conducted in summer 2020, and no individuals were found or there was no habitat (MVP 2020t). Therefore, these species were not considered in the SBE.
Table 11. RFSS Plant Species Analyzed in the 2020 FSEIS

<table>
<thead>
<tr>
<th>Group</th>
<th>Latin Name</th>
<th>Common Name</th>
<th>2017 BE</th>
<th>2020 FSEIS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liverwort</td>
<td><em>Plagiochila virginica</em></td>
<td>A liverwort</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Liverwort</td>
<td><em>Radula tenax</em></td>
<td>A liverwort</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vascular Plant</td>
<td><em>Berberis canadensis</em></td>
<td>American barberry</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vascular Plant</td>
<td><em>Clematis coactilis</em></td>
<td>Virginia white haired leatherflower</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vascular Plant</td>
<td><em>Delphinium exaltatum</em></td>
<td>Tall larkspur</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vascular Plant</td>
<td><em>Hypericum mitchellianum</em></td>
<td>Blue Ridge St. John’s-wort*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vascular Plant</td>
<td><em>Rudbeckia triloba var. triloba</em></td>
<td>Pinnate-lobed coneflower*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vascular Plant</td>
<td><em>Monotropsis odorata</em></td>
<td>Sweet pinesap</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Vascular Plant</td>
<td><em>Scutellaria saxatilis</em></td>
<td>Rock skullcap</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Vascular Plant</td>
<td><em>Talinum teretifolium</em></td>
<td>Quill fameflower</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Not on RFSS list; these species were surveyed for at the request of the Forest Service.

Note: Individuals or habitat were not found for 7 species so are not considered.

A liverwort (*Plagiochila virginica*)

*Plagiochila virginica* is a Southern Appalachian endemic occurring from West Virginia and Virginia south to Georgia and Mississippi. Habitat is described as damp to intermittently dry calcareous or sandstone ledges or cliffs in partially exposed sites. Reportedly over half of specimens were collected on calcareous rock (NatureServe 2020).

Potential habitat for this species within the ROW on the JNF is limited to two rock outcrops, both of which have been thoroughly surveyed with no target species located (MVP 2020t).

A liverwort (*Radula tenax*)

*Radula tenax* is a species of liverwort indigenous to the Appalachians from Maine to Georgia. Typical habitat includes moist rocks or trees in mountains below the spruce-fir zone along with depressed, dense mats on moist rocks. This species is described as having two discrete modes of occurrence: on shaded, damp rocks and on tree bark in deep, moist forests. Does not tolerate submersion (NatureServe 2020).

Although low quality habitat for this species is present, surveys identified no species occurrences in the JNF project ROW (ESI 2017; MVP 2020t).

Virginia white-haired leatherflower (*Clematis coactilis*)

Virginia white-haired leatherflower occurs on shale, calcareous sandstone, dolomite, and limestone outcrops and barrens. This is a bushy herbaceous perennial growing to 0.8 to 1.8 inches with solitary, terminal colorful flowers that have purplish outer parts of the flowers (sepals) that appear white because they are densely covered with white to pale-yellow hairs. The sepals form a bell-shaped floral structure (Weakley et al. 2012).
The Forest Service reevaluated this plant due to changes in the landscape since the 2017 FERC FEIS. Based on surveys in 2020, no suitable habitat was identified in the project area and the Virginia white-haired leatherflower was eliminated from further consideration.

**Tall larkspur (Delphinium exaltatum)**

Tall larkspur is an herbaceous perennial member of the buttercup family (*Ranunculaceae*). Larkspurs have distinctive flowers with four blue petals and one sepal elongated into a slender spur, which gives the plant its name. The leaves are deeply lobed into irregular segments. It blooms from July to September. Tall larkspur grows on dry, open southwest-facing slopes with limestone soils.

The Forest Service reevaluated this plant due to changes in the landscape since the 2017 FERC FEIS. While potential habitat was found, no individuals were found during a 2020 field survey. Therefore, the tall larkspur was eliminated from further consideration.

**Blue Ridge St. John’s-wort (Hypericum mitchellianum)**

Blue Ridge St. John’s-wort is a perennial herb that generally grows up to 2 feet in height. It blooms in July and August and its blooms are orange and yellow. The Blue Ridge St. John’s-wort can be found in grassy openings, forests, and seepages. The Blue Ridge St. John’s-wort’s range extends from western Virginia, eastern West Virginia, and northeastern Tennessee south to southwestern North Carolina (NatureServe 2020).

Although this species is not on the RFSS list, the Forest Service requested surveys for Blue Ridge St. John’s-wort. While potential habitat was found, no individuals were found during a 2020 field survey. Therefore, the project would not adversely affect Blue Ridge St. John’s-Wort.

**Pinnate-lobed coneflower (Rudbeckia triloba var. triloba)**

Pinnate-lobed coneflower is a native herbaceous perennial in the sunflower family (*Asteraceae*). The pinnate-lobed coneflower occurs on limestone outcrops, on cedar glades, in pastures, and on roadsides. It is a short-lived perennial with a rhizome. Stems are 1 to 3 feet in height, branched, reddish-purple or green in color, and pubescent with long white hairs. Flowers are produced in heads. Each head has 8 to 15 yellow or orange ray flowers and 150 to 300 purple-black disc flowers. It can be found in Virginia, North Carolina, Kentucky, Tennessee, and Alabama.

Although this species is not on the RFSS list, the Forest Service requested surveys for pinnate-lobed coneflower. While potential habitat was found, no individuals were found during a 2020 field survey. Therefore, the project would not adversely affect pinnate-lobed coneflower.

**American barberry (Berberis canadensis)**

American barberry is a deciduous shrub that occurs from Ohio south to Georgia and extends west to Missouri (NatureServe 2020). It is often located in rocky woods, open woods, and glades, typically with mafic or calcareous substrate. Occasionally found along fencerows (Weakley 2015).

A No Impacts determination is made for American barberry. This species was found at four locations during plant surveys on pipeline routes on JNF land in Craig County, Virginia that are not part of the proposed route. Although potentially suitable habitat is present within the Project
area, the species is likely absent based on the negative survey results (MVP 2017). It is unlikely to be directly impacted by project construction, operation, and maintenance; however, this species may benefit from an increase of potentially suitable habitat (woodland clearings and exposed hillsides).

**Sweet pinesap (Monotropis odorata)**

Sweet pinesap is a diminutive (1 - 4 in) heteromycotropic herb with a range from Maryland south to Georgia and west to Kentucky and Alabama with most occurrences located in the Appalachian highlands (NatureServe 2020; Weakley 2015). Known habitat includes dry to mesic oak-pine-heath woodlands, often on upper slopes and bluffs with abundant ericaceous shrub cover (Weakley 2015).

**A May Impact Individuals – Is Not Likely to Cause a Trend Toward Federal Listing or Loss of Viability** determination is made for sweet pinesap. Due to its diminutive size and coloration, sweet pinesap is easily overlooked and often hidden or only partially emergent from the forest leaf litter and is likely more common than documented. Although surveys did not locate any occurrence of this species, potentially suitable habitat is located along the ROW on the JNF, therefore its absence cannot be confirmed. Project activities could remove potentially suitable habitat (along with individuals not located during surveys). However, the abundance of potentially suitable habitat for this species on the JNF indicates that project activities would not lead to a trend toward federal listing or loss of viability.

**Rock skullcap (Scutellaria saxatilis)**

Rock skullcap is an herbaceous perennial distributed from Pennsylvania south to Georgia and west to Indiana primarily restricted to the Appalachian highlands. This species typically occurs in rich, rocky dry to mesic deciduous woods often on hillsides, moist cliffs, talus slopes, ravines, stream sides, and occasionally roadsides (NatureServe 2020).

**A May Impact Individuals – Is Not Likely to Cause a Trend Toward Federal Listing or Loss of Viability with Minor effects** determination is made for rock skullcap. A single occurrence was located on the ROW consisting of approximately 10,000 individuals. The proposed alignment was shifted and reduced to a width of 75 feet to partially avoid the occurrence so that 1.94 acres out of the total 3.58-acre occurrence is impacted by project activities. Additional occurrences were located on alternative alignments and habitat is apparently not uncommon on the JNF which supports a conclusion that project activities are unlikely to lead to a trend toward federal listing or reduced viability (MVP 2017).

Seed from the impacted population of Rock Skullcap were collected and plants excavated for transplantation. Plants intended for transplantation did not survive. Seed was sown at two locations with seedlings observed at one location the following season (MVP 2020).

**Quill fameflower (Phemeranthus teretifolius)**

Quill fameflower is a diminutive herbaceous perennial that is restricted to habitats including calcareous sandstone glades, metabasalt barrens and rock outcrops typically in depressions that collect rain or seepage and often co-occurring with Grimmia species (Weakley 2015). Although occurring throughout a wide range in the east from Pennsylvania south to Georgia and west to Alabama and Kentucky, it is not common across its range (NatureServe 2020).
Low-quality potential habitat for this species within the ROW on the JNF is limited to two rock outcrops, both of which have been thoroughly surveyed with no target species previously located (MVP 2020t).

Conclusion

To minimize or avoid adverse effects on vegetation habitat that support RFSS, the POD includes conservation measures and the 2020 SBE includes mitigation measures. The 2020 SBE determined that MVP would have negligible to moderate effects and would not cause a trend toward federal listing or loss of viability for any of these vegetation species.

Summary of Species Determinations

Table 12 provides a summary of all TES species effects determinations referenced in this FSEIS.

<table>
<thead>
<tr>
<th>Status</th>
<th>Group</th>
<th>Species Name</th>
<th>Common Name</th>
<th>Effects Determination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Removed from RFSS list</td>
<td>Beetle</td>
<td><em>Hydraena maureenae</em></td>
<td>Maureen’s shale stream beetle</td>
<td>-</td>
</tr>
<tr>
<td>Removed from RFSS list</td>
<td>Butterfly</td>
<td><em>Speyeria diana</em></td>
<td>Diana fritillary</td>
<td>-</td>
</tr>
<tr>
<td>Removed from RFSS list</td>
<td>Dragonfly</td>
<td><em>Ophiogomphus incurvatus alleghaniensis</em></td>
<td>Allegheny snaketail</td>
<td>-</td>
</tr>
<tr>
<td>Federally Endangered</td>
<td>Bee</td>
<td><em>Bombus affinis</em></td>
<td>Rusty patched bumble bee</td>
<td>May Affect, Likely to Adversely Affect; May Affect; Likely to Adversely Affect Proposed Critical Habitat</td>
</tr>
<tr>
<td>Federally Endangered</td>
<td>Fish</td>
<td><em>Etheostoma osburni</em></td>
<td>Candy darter</td>
<td>May Affect, Not Likely to Adversely Affect</td>
</tr>
<tr>
<td>Federally Endangered</td>
<td>Fish</td>
<td><em>Percina rex</em></td>
<td>Roanoke logperch</td>
<td>May Affect, Likely to Adversely Affect</td>
</tr>
<tr>
<td>Federally Endangered</td>
<td>Mammal</td>
<td><em>Corynorhinus townsendii virginianus</em></td>
<td>Virginia big-eared bat</td>
<td>May Affect, Not Likely to Adversely Affect</td>
</tr>
<tr>
<td>Federally Endangered</td>
<td>Mammal</td>
<td><em>Myotis grisescens</em></td>
<td>Gray bat</td>
<td>May Affect, Not Likely to Adversely Affect</td>
</tr>
<tr>
<td>Federally Endangered</td>
<td>Mammal</td>
<td><em>Myotis sodalis</em></td>
<td>Indiana bat</td>
<td>May Affect, Likely to Adversely Affect</td>
</tr>
<tr>
<td>Federally Endangered</td>
<td>Mussel</td>
<td><em>Epioblasma triquetra</em></td>
<td>Snuffbox</td>
<td>May Affect, Not Likely to Adversely Affect</td>
</tr>
<tr>
<td>Status</td>
<td>Group</td>
<td>Species Name</td>
<td>Common Name</td>
<td>Effects Determination</td>
</tr>
<tr>
<td>---------------------</td>
<td>-------------</td>
<td>------------------</td>
<td>-------------------------</td>
<td>---------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Federally Endangered</td>
<td>Mussel</td>
<td><em>Parvaspina collina</em></td>
<td>James spinymussel</td>
<td>May Affect, Not Likely to Adversely Affect</td>
</tr>
<tr>
<td>Federally Endangered</td>
<td>Mussel</td>
<td><em>Pleurobema clava</em></td>
<td>Clubshell</td>
<td>May Affect, Not Likely to Adversely Affect</td>
</tr>
<tr>
<td>Federally Endangered</td>
<td>Vascular Plant</td>
<td><em>Arabis serotina</em></td>
<td>Shale barren rock cress</td>
<td>No Effect</td>
</tr>
<tr>
<td>Federally Endangered</td>
<td>Vascular Plant</td>
<td><em>Echinacea laevigata</em></td>
<td>Smooth coneflower</td>
<td>May Affect, Not Likely to Adversely Affect</td>
</tr>
<tr>
<td>Federally Endangered</td>
<td>Vascular Plant</td>
<td><em>Trifolium stoloniferum</em></td>
<td>Running buffalo clover</td>
<td>May Affect, Not Likely to Adversely Affect</td>
</tr>
<tr>
<td>Federally Threatened</td>
<td>Mammal</td>
<td><em>Myotis septentrionalis</em></td>
<td>Northern long eared bat</td>
<td>May Affect, Likely to Adversely Affect</td>
</tr>
<tr>
<td>Federally Threatened</td>
<td>Mussel</td>
<td><em>Elliptio lanceolata</em></td>
<td>Yellow lance</td>
<td>No Effect</td>
</tr>
<tr>
<td>Federally Threatened</td>
<td>Vascular Plant</td>
<td><em>Isotria medeoloides</em></td>
<td>Small whorled pogonia</td>
<td>May Affect, Not Likely to Adversely Affect</td>
</tr>
<tr>
<td>Federally Threatened</td>
<td>Vascular Plant</td>
<td><em>Spiraea virginiana</em></td>
<td>Virginia spiraea</td>
<td>May Affect, Not Likely to Adversely Affect</td>
</tr>
<tr>
<td>Proposed Federally Threatened</td>
<td>Mussel</td>
<td><em>Fusconaia masoni</em></td>
<td>Atlantic pigtoe</td>
<td>No Effect</td>
</tr>
<tr>
<td>RFSS</td>
<td>Butterfly</td>
<td><em>Atrytone arogos</em></td>
<td>Arogos skipper</td>
<td>May Impact Individuals – Is Not Likely to Cause a Trend Toward Federal Listing or Loss of Viability</td>
</tr>
<tr>
<td>RFSS</td>
<td>Butterfly</td>
<td><em>Calephelis borealis</em></td>
<td>Northern metalmark</td>
<td>May Impact Individuals – Is Not Likely to Cause a Trend Toward Federal Listing or Loss of Viability</td>
</tr>
<tr>
<td>RFSS</td>
<td>Butterfly</td>
<td><em>Danaus plexippus</em></td>
<td>Monarch</td>
<td>May Impact Individuals – Is Not Likely to Cause a Trend Toward Federal Listing or Loss of Viability</td>
</tr>
<tr>
<td>Status</td>
<td>Group</td>
<td>Species Name</td>
<td>Common Name</td>
<td>Effects Determination</td>
</tr>
<tr>
<td>--------</td>
<td>-----------</td>
<td>-------------------------------------</td>
<td>---------------------</td>
<td>---------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>RFSS</td>
<td>Butterfly</td>
<td><em>Erora laeta</em></td>
<td>Early hairstreak</td>
<td>May Impact Individuals – Is Not Likely to Cause a Trend Toward Federal Listing or Loss of Viability</td>
</tr>
<tr>
<td>RFSS</td>
<td>Butterfly</td>
<td><em>Erynnis martialis</em></td>
<td>Mottled duskywing</td>
<td>May Impact Individuals – Is Not Likely to Cause a Trend Toward Federal Listing or Loss of Viability</td>
</tr>
<tr>
<td>RFSS</td>
<td>Butterfly</td>
<td><em>Speyeria idalia</em></td>
<td>Regal fritillary</td>
<td>May Impact Individuals – Is Not Likely to Cause a Trend Toward Federal Listing or Loss of Viability</td>
</tr>
<tr>
<td>RFSS</td>
<td>Dragonfly</td>
<td><em>Hylogomphus viridifrons</em></td>
<td>Green-faced clubtail</td>
<td>May Impact Individuals – Is Not Likely to Cause a Trend Toward Federal Listing or Loss of Viability</td>
</tr>
<tr>
<td>RFSS</td>
<td>Fish</td>
<td><em>Notropis semperasper</em></td>
<td>Roughhead shiner</td>
<td>May Impact Individuals – Is Not Likely to Cause a Trend Toward Federal Listing or Loss of Viability</td>
</tr>
<tr>
<td>RFSS</td>
<td>Fish</td>
<td><em>Noturus gilberti</em></td>
<td>Orangefin madtom</td>
<td>May Impact Individuals – Is Not Likely to Cause a Trend Toward Federal Listing or Loss of Viability</td>
</tr>
<tr>
<td>RFSS</td>
<td>Fish</td>
<td><em>Phenacobius teretulus</em></td>
<td>Kanawha minnow</td>
<td>May Impact Individuals – Is Not Likely to Cause a Trend Toward Federal Listing or Loss of Viability</td>
</tr>
<tr>
<td>RFSS</td>
<td>Liverwort</td>
<td><em>Plagiochila virginica</em></td>
<td>A liverwort</td>
<td>Not evaluated</td>
</tr>
<tr>
<td>RFSS</td>
<td>Liverwort</td>
<td><em>Radula tenax</em></td>
<td>A liverwort</td>
<td>Not evaluated</td>
</tr>
<tr>
<td>RFSS</td>
<td>Mammal</td>
<td><em>Myotis leibii</em></td>
<td>Small-footed bat</td>
<td>May Impact Individuals – Is Not Likely to Cause a Trend Toward Federal Listing or Loss of Viability</td>
</tr>
</tbody>
</table>
### Table 12 (continued). Summary of Threatened, Endangered, and Sensitive Species Effects Determinations

<table>
<thead>
<tr>
<th>Status</th>
<th>Group</th>
<th>Species Name</th>
<th>Common Name</th>
<th>Effects Determination</th>
</tr>
</thead>
<tbody>
<tr>
<td>RFSS</td>
<td>Mammal</td>
<td><em>Perimyotis subflavus</em></td>
<td>Tricolored bat</td>
<td>May Impact Individuals – Is Not Likely to Cause a Trend Toward Federal Listing or Loss of Viability</td>
</tr>
<tr>
<td>RFSS</td>
<td>Mussel</td>
<td><em>Lasmigona subviridis</em></td>
<td>Green floater</td>
<td>May Impact Individuals – Is Not Likely to Cause a Trend Toward Federal Listing or Loss of Viability</td>
</tr>
<tr>
<td>RFSS</td>
<td>Vascular Plant</td>
<td><em>Berberis canadensis</em></td>
<td>American barberry</td>
<td>No Impacts</td>
</tr>
<tr>
<td>RFSS</td>
<td>Vascular Plant</td>
<td><em>Clematis coactilis</em></td>
<td>Virginia white hairied leatherflower</td>
<td>Not evaluated</td>
</tr>
<tr>
<td>RFSS</td>
<td>Vascular Plant</td>
<td><em>Delphinium exaltatum</em></td>
<td>Tall larkspur</td>
<td>Not evaluated</td>
</tr>
<tr>
<td>RFSS</td>
<td>Vascular Plant</td>
<td><em>Monotropsis odorata</em></td>
<td>Sweet pinesap</td>
<td>May Impact Individuals – Is Not Likely to Cause a Trend Toward Federal Listing or Loss of Viability with Minor Effects</td>
</tr>
<tr>
<td>RFSS</td>
<td>Vascular Plant</td>
<td><em>Scutellaria saxatilis</em></td>
<td>Rock skullcap</td>
<td>May Impact Individuals – Is Not Likely to Cause a Trend Toward Federal Listing or Loss of Viability</td>
</tr>
<tr>
<td>RFSS</td>
<td>Vascular Plant</td>
<td><em>Talinum teretifolium</em></td>
<td>Quill fameflower</td>
<td>Not evaluated</td>
</tr>
</tbody>
</table>

**Effects of Forest Plan Amendment**

There are 11 Forest Plan standards that would be amended under the proposed action. These amended standards are required to make the construction, operation, and maintenance of the MVP through the JNF a conforming use under the Forest Plan. Direct and indirect effects to fisheries and aquatic species from adoption of the amended standards would be limited to the construction and operation/maintenance of the MVP. For terrestrial species, amended standards that facilitate tree removal may directly negatively affect Indiana bats and northern long-eared bats. These amended standards include Standard FW-14 (exposed soil and residual basal area within the channeled ephemeral zone) and Standard 6C-007 and 6C-026 (tree clearing and utility corridors in the old growth management area). A summary of potential effects to fisheries, aquatic species, and terrestrial species from the amended standards is provided in Table 13.
Table 13. Effects of Proposed Forest Plan Amendment on Aquatic and Terrestrial Species

<table>
<thead>
<tr>
<th>JNF Forest Plan Standards (Modifications in Italics)</th>
<th>Effects on Fisheries and Aquatic Species</th>
<th>Effects on Terrestrial Species</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Utility Corridors</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard FW 248: Following evaluation of the above criteria, decisions for new authorizations outside of existing corridors and designated communication sites will include an amendment to the Forest Plan designating them as Prescription Area 5B or 5C. However, this requirement does not apply to the operational ROW for the MVP Project.</td>
<td>Does not change conditions apart from those required to construct and maintain pipeline which is already addressed in FEIS and POD</td>
<td>Does not change conditions apart from those required to construct and maintain pipeline which is already addressed in FEIS and POD</td>
</tr>
<tr>
<td><strong>Soils and Riparian</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard FW-5: On all soils dedicated to growing vegetation, the organic layers, topsoil and root mat will be left in place over at least 85% of the activity area and revegetation is accomplished within 5 years, with the exception of the operational ROW and the construction zone for the MVP, for which the applicable mitigation measures identified in the approved POD and MVP design requirements must be implemented.</td>
<td>Does not change conditions apart from those required to construct and maintain pipeline which is already addressed in FEIS and POD</td>
<td>Does not change conditions apart from those required to construct and maintain pipeline which is already addressed in FEIS and POD</td>
</tr>
<tr>
<td>Standard FW-8: To limit soil compaction, no heavy equipment is used on plastic soils when the water table is within 12 inches of the surface, or when soil moisture exceeds the plastic limit, with the exception of the operational right-of-way and the construction zone for the Mountain Valley Pipeline, for which applicable mitigation measures identified in the approved POD and MVP Project design requirements must be implemented. Soil moisture exceeds the plastic limit when soil can be rolled to pencil size without breaking or crumbling.</td>
<td>Does not change conditions apart from those required to construct and maintain pipeline which is already addressed in FEIS and POD.</td>
<td>Does not change conditions apart from those required to construct and maintain pipeline which is already addressed in FEIS and POD.</td>
</tr>
<tr>
<td>Standard FW-9: Heavy equipment is operated so that soil indentations, ruts, or furrows are aligned on the contour and the slope of such indentations is 5 percent or less, with the exception of the operational rights-of-way and the construction zone for the MVP, for which applicable mitigation measures identified in the approved POD and MVP design requirements must be implemented.</td>
<td>Does not change conditions apart from those required to construct and maintain pipeline which is already addressed in FEIS and POD.</td>
<td>Does not change conditions apart from those required to construct and maintain pipeline which is already addressed in FEIS and POD.</td>
</tr>
<tr>
<td>Standard FW-13: Management activities expose no more than 10% mineral soil in the channeled ephemeral zone, with the exception of the operational ROW and the construction zone for the MVP, for which the responsible official must ensure applicable mitigation measures identified in the approved POD and MVP design requirements must be implemented.</td>
<td>Does not change conditions apart from those required to construct and maintain pipeline which is already addressed in FEIS and POD.</td>
<td>Soil exposure mitigated in FEIS. Already addressed in FEIS and POD.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Appendix H details waterbody construction mitigation, as well as upland erosion control, revegetation, and maintenance, and topsoil and spoil treatment.</td>
</tr>
</tbody>
</table>
### Table 13 (continued). Effects of Proposed Forest Plan Amendment on Aquatic and Terrestrial Species

<table>
<thead>
<tr>
<th>JNF Forest Plan Standards (Modifications in Italics)</th>
<th>Effects on Fisheries and Aquatic Species</th>
<th>Effects on Terrestrial Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard FW-14: In channeled ephemeral zones, up to 50% of the basal area may be removed down to a minimum basal area of 50 square feet per acre. Removal of additional basal area is allowed on a case-by-case basis when needed to benefit riparian-dependent resources, with the exception of the operational ROW and the construction zone for the MVP, for which applicable mitigation measures identified in the approved POD and MVP design requirements must be implemented.</td>
<td>Does not change conditions apart from those required to construct and maintain pipeline which is already addressed in FEIS and POD. POD Appendix H details waterbody construction mitigation, as well upland erosion control, revegetation, and maintenance, and topsoil and spoil treatment.</td>
<td>Soil exposure mitigated in FEIS. Already addressed in FEIS and POD. The effects of implementing mitigation measures and design requirements would be consistent with the wildlife, threatened and endangered species, and sensitive species analysis in the FERC FEIS and would not result in any additional effects beyond those disclosed in the FERC FEIS.</td>
</tr>
</tbody>
</table>

| Standard 11-003: Management activities expose no more than 10 percent mineral soil within the project area riparian corridor, with the exception of the operational ROW and the construction zone for the MVP, for which applicable mitigation measures identified in the approved POD and MVP design requirements must be implemented. | Does not change conditions apart from those required to construct and maintain pipeline which is already addressed in FEIS and POD. POD Appendix H details waterbody construction mitigation, as well upland erosion control, revegetation, and maintenance, and topsoil and spoil treatment. | Soil exposure mitigated in FEIS. Already addressed in FEIS and POD. |

### Old Growth Management Area

<table>
<thead>
<tr>
<th>Old Growth Management Area</th>
<th>Effects on Fisheries and Aquatic Species</th>
<th>Effects on Terrestrial Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard 6C-007: Allow vegetation management activities to: maintain and restore dry-mesic oak forest, dry and xeric oak forest, dry and dry-mesic oak-pine old growth forest communities; restore, enhance, or mimic historic fire regimes; reduce fuel buildups; maintain rare communities and species dependent on disturbance; provide for public health and safety; improve threatened, endangered, sensitive, and locally rare species habitat; control non-native invasive vegetation, and clear the trees within the construction zone associated with the MVP</td>
<td>Does not change analysis and conclusions of the FEIS, BA, or BE, which address these issues.</td>
<td>Has increased edge habitat on Brush Mountain that has promoted some plant and animal species. Has increased fragmentation which could have adverse effects on interior forest species. However, this amendment does not change analysis and conclusions of the FEIS, BA, or BE, which address these issues.</td>
</tr>
</tbody>
</table>
Table 13 (continued). Effects of Proposed Forest Plan Amendment on Aquatic and Terrestrial Species

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<thead>
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<th>Effects on Terrestrial Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard 6C-026: These areas are unsuitable for designation of new utility corridors, utility rights-of-way, or communication sites, with the exception of the MVP ROW. Existing uses are allowed to continue.</td>
<td>Does not change analysis and conclusions of the FEIS, BA, or BE, which address these issues.</td>
<td>Has increased edge habitat on Brush Mountain that has promoted some plant and animal species. Has increased fragmentation which could have adverse effects on interior forest species. However, this amendment does not change analysis and conclusions of the FEIS, BA, or BE, which address these issues.</td>
</tr>
</tbody>
</table>

| Appalachian National Scenic Trail |  |  |
|-----------------------------------|  |  |
| Standard 4A-028: Locate new public utilities and rights-of-way in areas of this management prescription area where major impacts already exist, with the exception of the MVP ROW. Limit linear utilities and rights-of-way to a single crossing of the prescription area, per project. | No effect on fisheries and aquatic species. | No effect on terrestrial species. |

| Scenic Integrity Objectives |  |  |
|----------------------------|  |  |
| Standard FW-184: The Forest Scenic Integrity Objectives (SIOs) Maps govern all new projects (including special uses), with the exception of the MVP ROW. MVP shall attain the existing SIOs within five years after completion of the construction phase of the project, to allow for vegetation growth. Assigned SIOs are consistent with Recreation Opportunity Spectrum management direction. Existing conditions may not currently meet the assigned SIO. | No effect on fisheries and aquatic species. | No effect on terrestrial species. |
3.4.4  National Forest Management Act

Though the presentation of the information in this section has changed since publication of the DSEIS, the substance remains unchanged. This section responds to Issue 1 (Forest Plan Amendment – Purpose and Effect and Consistency with the Planning Rule and the NFMA) and Issue 3 (Erosion and Sediment Effects).

The plan amendment process consists of several steps:

1. Determine which plan standards must be amended in order to allow the project to be consistent with the amended plan.

2. Determine which of the substantive requirement(s) within 219.8 through 219.11 are directly related to the proposed amendment.

3. Apply those directly related substantive requirements to the amended Forest Plan within the scope and scale of the proposed amendment.

3.4.4.1 Standards to be Amended

The project as proposed would not be consistent with 11 standards in the Jefferson NF Forest Plan. As described in Table 2, the following standards will be amended to allow the proposed project to be consistent with the amended plan:

- FW-248 (utility corridors)
- FW-5 ( revegetation)
- FW-8 (soil compaction in water saturated areas)
- FW-9 (soil effects from heavy equipment use)
- FW-13 (exposed soil)
- FW14 (residual basal area within the channeled ephemeral zone)
- 11-003 (exposed soil within the riparian corridor)
- 6C-007 (tree clearing in the old growth management area)
- 6C-026 (utility corridors in the old growth management area)
- 4A-028 (Appalachian National Scenic Trail [ANST] and utility corridors)
- FW-184 (scenic integrity objectives)

3.4.4.2 Determining Directly Related Substantive Requirements

Whether a substantive requirement is directly related to an amendment is determined by any one of the following: the purpose of the amendment, a beneficial effect of the amendment, a substantial adverse effect of the amendment, or a substantial lessening of plan protections by the amendment (36 CFR § 219.13(b)(5)). The purpose of the proposed amendment is to modify current plan components to allow the project to be consistent with the amended Forest Plan.
Utility Corridors

The JNF Forest Plan standard FW-248 directs that if a new utility corridor is created outside an existing corridor, the new route would be reallocated as Management Prescription 5C, a designated utility corridor. The use of designated corridors is intended to reduce fragmentation and minimize visual effects by encouraging collocation of any future utility corridors. Many public comments on the FERC Draft EIS expressed concern that a utility corridor designation could adversely impact private landowners that are interspersed and/or adjacent to the National Forest. Other comments pointed out the analysis did not address the effects of prospective utilities that may be constructed in a 500-foot management area. After consideration of public comments and further review of the proposed designation of the MVP corridor to Management Prescription 5C, the Forest Service determined that collocation of future utilities (which is the purpose of the designation) is too speculative and may not be logistically feasible or environmentally preferable. Therefore, the proposed management area designation was dropped from the FERC FEIS and a forest plan amendment was proposed. The FERC FEIS and this FSEIS assess the placement and sustainable management of the MVP corridor across the JNF, including the collocation with existing utilities. The proposed amendment would not preclude future collocation of utilities in the MVP corridor or any other utility corridor nor a future allocation change of the MVP corridor to Management Prescription 5C, though as stated, any future collocations would be speculative at this time.

The purpose of amending standard FW-248 is to allow the project to move forward while exempting the MVP project from the JNF Forest Plan approach of managing for future utility corridors. Therefore, the proposed exemption of the MVP project from standard FW-248 is directly related to 219.10(a) – integrated resources management to provide for ecosystem services and multiple uses, and more specifically 219.10(a)(3) – infrastructure, which includes utility corridors, due to the purpose of the amendment.

There are no direct environmental effects of not designating the MVP corridor as Management Prescription 5C. In addition, there is no indirect or cumulative effects of not changing the land allocation because it is too speculative to assume a future utility line would be collocated within the MVP corridor and may not be logistically feasible or environmentally preferable, and there are no reasonably foreseeable future utility corridors proposed or known that will be proposed in the vicinity of MVP on the JNF. Therefore, there are no substantive requirements directly related to the modification of FW-248 based on effects of not changing the land allocation.

Soil and Riparian

Six JNF Forest Plan standards associated with soil productivity and riparian habitat are proposed to be modified in this amendment (FW-5, FW-8, FW-9, FW-13, FW-14 and 11-003). These six standards preclude standard industry pipeline construction methods like those proposed with the MVP. FW-5 requires that at least 85% of the organic layers, topsoil, and root mat be left in place over an activity area. FW-8 limits the use of heavy equipment on plastic soils when the water table is within 12 inches of the surface or when soil moisture exceeds the plastic limit. FW-13 limits management activities from exposing no more than 10% mineral soils in the channeled ephemeral zone. FW-14 limits basal area removal to a minimum of 50 square feet per acre in channeled ephemeral zones. Standard 11-003 limits management activities from exposing more than 10% mineral soils within the project area riparian corridor. It is not possible or practical to modify the MVP construction methods and achieve consistency with these six standards. Therefore, the Forest Service proposes to amend these six standards for the construction of the MVP.
The purpose of amending standards FW-5, FW-8, FW-9, FW-13, and 11-003 is to allow the project to move forward by exempting construction of the MVP project from the application of these standards for soils and water protection and instead applying mitigation measures from the POD to protect soil and water. Therefore, the modification of these five standards is directly related to: 219.8(a)(2)(ii) – soils and soil productivity, 219.8(a)(2)(iii) – water quality, and 219.8(a)(2)(iv) – water resources in the plan area, due to the purpose of the amendment. The purpose of the proposed amendment for standard FW-14 is to allow the project to move forward by reducing measures for riparian protection, specifically level of timber removal within riparian areas, for the construction of the MVP. Therefore, the modification of this riparian standard is directly related to 219.8(a)(3)(i) – ecologic al integrity of riparian areas and 219.11(c) – timber harvesting for purposes other than timber production.

The effect of the modification of the six soils and riparian standards includes minor and temporary adverse effects to erosion and sedimentation, soil compaction, soil porosity, runoff potential, soil fertility, revegetation potential, and soil carbon budget (FERC FEIS, Sec 4.2.2.5, p. 4-88). Although the reduction of soil and riparian protection measures constitutes an adverse impact, effects would not be expected to be substantial because mitigation measures designed to minimize soil and riparian effects have been incorporated into the POD (FERC FEIS, Sec. 4.2.3, p. 4-88; Sec 5.1.2, p. 5-3; Sec. 4.3.2.2., p. 137; Sec. 4.4.2.6, p. 4-187; Sec. 4.6.2.2). Specifically, an Erosion and Sediment Control Plan (POD Appendix C-1, C-2, and C-3 [MVP 2020c, x, and y]), Landslide Mitigation Plan (POD Appendix F [MVP 2020f]), Site-Specific Design of Stabilization Measures in High Hazard Portions of the Route (POD Appendix G [MVP 2020g]), Restoration Plan (POD Appendix H [MVP 2020h]), and Winter Construction Plan (POD Appendix M [MVP 2020l]) would ensure effects to soils, riparian, and water are minimized and would occur over the short term. The mitigation measures incorporated into the POD would ensure that a substantial lessening of protections to soils, riparian, and water resources does not occur. Therefore, the MVP project is not directly related to the soil, riparian, or water substantive requirements based on effects of the amendment. However, since these substantive requirements are related to the amendment due to the purpose of the amendment, they are applied for this proposed amendment.

**Old Growth Management Area**

Two JNF Forest Plan standards associated with old growth management are proposed to be modified in this amendment (6C-007 and 6C-026). These two standards apply to NFS lands allocated to Management Prescription 6C: Old Growth Forest Communities Associated with Disturbance. Standard 6C-007 would not allow clearing of trees where the MVP corridor and areas designated under Management Prescription 6C coincide. Standard 6C-026 states areas designated as 6C are not suitable for designation for a new utility corridor. These two standards would preclude the construction and designation of the MVP project if not modified. Originally, the ROW corridor was proposed in the FERC DEIS to be reallocated to Management Prescription 5C-Utility Corridor but that part of the proposal was reconsidered in the FERC FEIS (see Section 3.4.4.1 of this FSEIS). Therefore, the Forest Service proposes to amend these two standards for the construction of the MVP.

The purpose of amending standards 6C-007 and 6C-026 is to allow the project to move forward by reducing measures for the protection of old growth for the construction of the MVP. Therefore, the modification of these two old growth standards is directly related to 219.9(a)(2) – ecosystem diversity of terrestrial and aquatic ecosystems, due to the purpose of the amendment. In addition, since Standard 6C-007 restricts timber harvesting, this standard is also directly related to 219.11(c) – timber harvesting for purposes other than timber production.
The effect of the modification of these two old growth standards is the clearing of about 2 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. These trees were cleared in 2018 prior to Forest Service issuance of the stop work order.

**Appalachian National Scenic Trail**

The JNF Forest Plan standard 4A-028 requires the Forest Service to locate new public utilities and ROWs along the ANST in areas where major impacts already exist. The FERC FEIS evaluated pipeline routes crossing the ANST along existing ROWs and at an existing road crossing (State Route 635). However, concerns regarding longer routes, and greater effects to old growth, inventoried roadless areas, wetlands, other recreational effects, and increased risks from landslide prone areas are associated with the alternative routes. This proposed amendment would allow for a pipeline route to cross the ANST at a location where no other major effects already exist. Standard 4A-028 also requires the Forest Service to limit linear utilities and ROWs to a single crossing of the prescription area, per project. This requirement was considered and the proposed action is consistent with it.

The purpose of amending standard 4A-028 is to allow the project to move forward by reducing measures for the protection of the ANST for the MVP project near milepost 196.3. Therefore, the modification of the 4A-028 standard is directly related by the purpose of the amendment to 219.10(b)(i) – sustainable recreation, including recreation setting, opportunities, access, and scenic character, and 219.10(b)(vi) – other designated areas.

The effect of the modification of the 4A-028 standard is the allowance of a new utility corridor to cross the ANST at a location other than where major impacts already exist. Although this is an adverse impact to ANST, it is not a substantial adverse impact due to the construction method proposed for crossing the trail. The MVP would cross by boring under the trail so there would be an approximate 300-foot forested buffer on either side of the trail and there would be no need for vegetation removal within 300 feet of the trail.

Minor temporary adverse effects to trail users would occur from noise, dust, and visual intrusions from crossing underneath the ANST via the 600-foot-long bore. These impacts would be limited only to the time when boring is occurring (FERC FEIS, p. 3-52) (POD, Sec. 1.3) and the POD includes mitigation to control fugitive dust (Sec 7.5.2). Long-term effects would be minor because there would be an approximate 300-foot buffer on either side of the trail, which would provide vegetative screening of the bore holes.

**Scenery Integrity Objectives**

The JNF Forest Plan standard FW-184 requires all new projects to meet specific scenery conditions as outlined in the Forest SIOs maps. The MVP proposed action would cross two areas on NFS lands assigned a high SIO, four areas with a moderate SIO, and one area with a low SIO (FERC FEIS, pp. 4-295 to 4-296). Scenery analysis in the FERC FEIS (pp. 4-334 to 4-347 and Appendix S) indicates the standard pipeline construction methods would not meet high and moderate SIOs. High SIO areas should appear unaltered to the casual observer, while moderate SIO may appear slightly altered but should borrow from elements of form, line, color, texture, and scale found in the characteristic landscape. It is not possible or practical to modify the MVP construction methods and achieve consistency with high and moderate SIOs. Therefore, the Forest Service proposes to amend FW-184 for the MVP project.
The purpose of amending standard FW-184 is to allow the project to move forward by reducing scenery protection measures for the MVP project. Therefore, the modification of the FW-184 standard is directly related to 219.10(b)(i) – sustainable recreation, including recreation setting, opportunities, access, and scenic character – due to the purpose of the amendment.

The effect of the modification of the FW-184 standards is the degradation of scenic quality inconsistent with the JNF Forest Plan SIOs. Although this is an adverse impact to scenery, it is not a substantial adverse impact due to the limited extent of the project crossing the JNF (FERC FEIS p. 4-347), the project’s proposed mitigation measures that would apply to temporary workspace, and the temporary and permanent ROW that are found in the updated POD (Section 7.9).

Additional Effect

One additional effect of the proposed amendment not tied to any particular amended standard is the short and long term beneficial impact to the local and regional economy (FERC FEIS, Sec. 5.1.9, p. 5-11). Therefore, the proposed amendment is directly related by the effects to 219.8(b)(3) – multiple uses that contribute to local, regional, and national economies. This beneficial effect is the same as the effect of the Proposed Action.

3.4.4.3 Applying the Directly Related Substantive Requirements

Forest Service regulations at 36 CFR § 219.13(b)(5) require the agency to apply the directly related substantive requirement(s) to the Forest Plan within the scope and scale of the amendment. Based on the criteria and analyses described above, the substantive requirements that are directly related to the proposed amendment, either through purpose or effects, include:

- 219.8(a)(2)(ii) – Soils and soil productivity
- 219.8(a)(2)(iii) – Water quality
- 219.8(a)(2)(iv) – Water resources in the plan area
- 219.8(a)(3)(i) – Ecological integrity of riparian areas
- 219.8(b)(3) – Multiple uses that contribute to local, regional, and national economies
- 219.9(a)(2) – Ecosystem diversity of terrestrial and aquatic ecosystems
- 219.10(a)(3) – Utility Corridor
- 219.10(b)(i) – Sustainable recreation, including recreation setting, opportunities, access, and scenic character
- 219.10(b)(vi) – Other designated areas or recommended designated areas
- 219.11(c) – Timber harvest for purposes other than timber production

The above list of directly related substantive requirements varies slightly from those identified in the NOI (July 30, 2020) based on subsequent analysis. The following narrative describes how each of the directly related substantive requirements are applied to the Jefferson NF Forest Plan.
219.8(a)(2)(ii) – Soils and soil productivity,
219.8(a)(2)(iii) – Water quality,
219.8(a)(2)(iv) – Water resources in the plan area,
219.8(a)(3)(i) – Ecological integrity of riparian areas

The scope and scale of the modification of the six soils and riparian standards is limited to the MVP project which is a 3.5-mile corridor (83 acres) across the JNF, which accounts for about 0.01% of the entire JNF. There are about 73,600 acres of the JNF allocated to management prescription 11, but these areas are not mapped. However, the MVP project would only cross 4 streams on the JNF and if conventional boring under the streams were to occur, this would substantially minimize impacts to riparian areas.

The overarching goal of the substantive requirements related to 219.8 is to provide for social, economic, and ecological sustainability within Forest Service authority and the inherent capability of the plan area. The substantive requirement specific for soils and soil productivity is to include plan components to maintain or restore soils and soil productivity including guidance to reduce soil erosion and sedimentation. The substantive requirements specific for water quality and water resources are to include plan components to maintain or restore water quality and water resources including guidance to prevent or mitigate detrimental changes in water quantity, quality, and availability. The substantive requirement specific to riparian areas is to include plan components to maintain or restore the ecological integrity of riparian areas in the plan area. The JNF Forest Plan includes numerous forest-wide goals, objectives, and standards for water and soils that are not subject to modification as part of this proposed amendment (JNF Forest Plan, Chapter 2, pp. 2-5 to 2-9). For example, although this project would amend three water and soil quality standards, the JNF has seven additional standards that would continue to protect the water and soil resource; and the riparian resource is protected by two other standards (JNF Forest Plan, Chapter 3, pp. 3-181 to 3-182). In addition, specific water and soils standards associated with individual management prescriptions are provided in many of the individual prescriptions.

Although the proposed amendment reduces protection for soils, soil productivity, water quality, water resources and riparian areas, application of BMPs and other appropriate mitigation are required in the modified standards. The design requirements and mitigation measures identified in the POD will be required by the modified standards and incorporated into BLM’s ROW grant if the project is authorized. Therefore, the amended JNF Forest Plan would meet the overarching goal of the substantive requirements related to 219.8.

219.8(b)(3) – Multiple uses that contribute to local, regional, and national economies

The overarching goal of the substantive requirements related to 219.8 is to provide for social, economic, and ecological sustainability within Forest Service authority and the inherent capability of the plan area. The substantive requirement specific to local and regional contribution to the economy is to include plan components to guide the plan area’s contribution to social economic sustainability. The JNF Forest Plan includes goals, objectives, desired conditions, and standards to ensure the JNF contributes to social and economic sustainability. The JNF Forest Plan includes plan components addressing timber, recreation, range, mineral, infrastructure, access, land uses, and special uses. All these contribute to the social and economic sustainability of the area influenced by the JNF, as summarized in the FERC FEIS, pages 5-11. Therefore, the amended JNF Forest Plan would meet the overarching goal of the substantive requirements related to 219.8.

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219.9(a)(2) – Ecosystem diversity of terrestrial and aquatic ecosystems

The scope and scale of the modification of the two old growth standards is limited to the MVP project, which is a 3.5-mile corridor (83 acres) across the JNF accounting for about 0.01% of the entire JNF. More specifically, this modification would adversely impact two acres of old growth of the approximately 30,200 acres of old growth across the JNF or about 0.00007% of the total old growth on the JNF.

The overarching goal of the substantive requirements related to 219.9 is to provide for the ecological conditions to both maintain the diversity of plant and animal communities and support the persistence of most native species in the plan area. The substantive requirement specific to ecosystem diversity is to include plan components to maintain or restore the diversity of ecosystems and habitat types throughout the plan area. The JNF Forest Plan includes numerous goals, objectives and standards for old growth, rare communities, wildlife, and listed species, both at the forest-wide level as well as for lands designated as 6C, that are not subject to modification from this proposed amendment (JNF Forest Plan, Chapter 2, p. 2-23 to 2-26). The amended JNF Forest Plan direction, which includes an old growth management strategy (Appendix B of the JNF Forest Plan) would meet the overarching goal of the substantive requirements related to 219.9.

219.10(a)(3) – Infrastructure

The scope and scale of the amendment of FW-248 is limited to the MVP project which is a 3.5-mile corridor (83 acres) across the JNF, which accounts for about 0.01% of the entire JNF.

The overarching goal of the substantive requirements related to 219.10 is to provide for ecosystem services and multiple uses within Forest Service authority and the inherent capability of the plan area. In this case the plan area is the JNF which is approximately 723,300 acres. The substantive requirement specific to utility corridors is consideration of appropriate placement and sustainable management of infrastructure, including utility corridors. The JNF Forest Plan includes forest-wide goals, objectives, and standards for lands and special uses, which include utility corridors. In addition, specific utility corridor standards associated with individual management prescriptions are provided in many of the individual prescriptions. The amended JNF Forest Plan direction achieves the overarching goal of the substantive requirements related to 219.10.

219.10(b)(i) – Sustainable recreation, including recreation setting, opportunities, access, and scenic character

The scope and scale of the modification of the FW-184 standard is limited to the MVP project which is a 3.5-mile corridor (83 acres) across the JNF, which accounts for about 0.01% of the entire JNF. More specifically as related to scenery, the MVP would be inconsistent with the areas assigned high and moderate SIO, which account for nearly all (3.4 of 3.5 miles) of the MVP project.

The overarching goal of the substantive requirements related to 219.10 is to provide for ecosystem services and multiple uses within Forest Service authority and the inherent capability of the plan area. The substantive requirement specific to scenery is to include plan components to provide for scenic character. The JNF Forest Plan includes numerous forest-wide goals, objectives, and nineteen additional standards for scenery not subject to modification from this proposed amendment (JNF Forest Plan, pp. 2-47 to 2-48), including a forest-wide assignment of SIOs by management prescriptions.
MVP mitigation measures to reduce effects to scenery include reducing the long-term operational ROW appearance from 50 feet wide to 10 feet wide on the JNF through the restoration and revegetation plan contained in Appendix H of the POD (MVP 2020h).

Application of this mitigation measure in the approved ROW on the JNF would substantially reduce the visibility of the ROW on the JNF, especially when viewed in the far middle-ground and background distance zones and at an angle. Along the edge, the linear corridor shrubs, small trees, and shallow rooted trees would be planted and maintained along a slightly undulating line to break up the straight edge effect of the utility corridor. These mitigation measures should allow the MVP project to obtain consistency with the applicable SIO within five years of construction. Therefore, the amended JNF Forest Plan direction would meet the overarching goal of the substantive requirements related to 219.10.

219.10(b)(vi) – Other designated areas

The scope and scale of the modification of the 4A-028 standard is limited to the MVP project which is a 3.5-mile corridor (83 acres) across the JNF, which accounts for about 0.01% of the entire JNF. There are about 30,700 acres of the JNF allocated to management prescription 4A; approximately 2.5 acres of the ROW are within 4A, which is less than 0.01% of all 4A acres on the JNF. The ANST is approximately 2,190 miles and the MVP project would cross the ANST once near MP 196.3 along the proposed pipeline route through a 600-foot-long bore underneath the trail, effectively mitigating impacts within the 4A management prescription.

The overarching goal of the substantive requirements related to 219.10 is to provide for ecosystem services and multiple uses within Forest Service authority and the inherent capability of the plan area. The substantive requirement specific to sustainable recreation is to include plan components to provide for recreation settings, opportunities, and access. The substantive requirement specific to other designated areas is to include plan components to provide for protection of other designated areas, such as the ANST. The JNF Forest Plan includes numerous forest-wide goals, objectives, and standards for recreation, including the ANST, which are not subject to modification from this proposed amendment. In addition, specific recreational standards associated with individual management prescriptions are provided in many of the individual prescriptions, and there is a specific management prescription for the ANST. The amended JNF Forest Plan direction would meet the overarching goal of the substantive requirements related to 219.10.

219.11(c) – Timber harvesting for purposes other than timber production

The scope and scale of the modification of the two old growth standards is limited to the MVP project which is a 3.5-mile corridor (83 acres) across the JNF, which accounts for about 0.01% of the entire JNF. There are about 30,200 acres of the JNF allocated to management prescription 6C; approximately 7.5 acres of the ROW is within 6C, which is less than 0.03% of all 6C acres on the JNF. More specifically, this modification would adversely impact two acres of old growth on Brush Mountain of the approximately 30,200 acres of old growth across the JNF or about 0.00007% of the total old growth on the JNF.

The overarching goal of the substantive requirements related to 219.11 is to provide for timber management within Forest Service authority and the inherent capability of the plan area. The substantive requirement specific to timber harvesting for purposes other than timber production states that the plan may include plan components to allow for timber harvest for purposes other than timber production throughout the plan area or portions of the plan area, as a tool to assist in achieving or maintaining one or more applicable desired conditions or objectives of the plan in order to protect other multiple-use values, and for salvage, sanitation, or public health or safety.
The JNF Forest Plan recognizes timber harvesting for purposes other than timber production but does not explicitly include goals, objectives, or standards as forest-wide direction. Some management prescriptions also recognize timber harvest for purposes other than timber production. However, the substantive requirement for timber harvesting for purposes other than timber production is optional (because the requirement is described as “may include”) and the overarching goal of providing for timber management direction is clearly provided for in the JNF Forest Plan.

3.5 Cumulative Effects

This analysis augments the FERC FEIS cumulative effects analysis. It has been updated as needed to reflect new activities or a change in status of actions disclosed in the FERC FEIS and also to consider projects identified in public comments on the DSEIS. The cumulative effects information from the FERC FEIS Section 4.13 to 5.16 and Appendix W was reviewed to determine if an activity should be added or updated. New information was gathered by reviewing the George Washington and Jefferson National Forests Schedule of Proposed Actions and by reviewing actions that have occurred, or may occur, on other non-NFS lands that are adjacent to the project area.

There are three 10-digit HUC watersheds that overlap the 3.5-mile-long portion of the MVP that crosses NFS lands. These HUC-10 watersheds, including all lands regardless of ownership, are the spatial boundary for evaluating cumulative effects relative to actions on NFS lands (Figure 6). Table 14 displays these watersheds and their acreage. Combined, the acreage of the three HUC-10 watersheds comprising the cumulative effects analysis area represents 8.6% of the 31 HUC-10 watersheds crossed by the entire 303.5-mile-long MVP.

<table>
<thead>
<tr>
<th>HUC-10 Watershed</th>
<th>HUC-10 Code</th>
<th>Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>East River – New River</td>
<td>05050000206</td>
<td>107,883</td>
</tr>
<tr>
<td>Upper Craig Creek</td>
<td>0208020110</td>
<td>71,468</td>
</tr>
<tr>
<td>Sinking Creek – New River</td>
<td>05050000203</td>
<td>126,574</td>
</tr>
<tr>
<td>Total</td>
<td>-</td>
<td>305,925</td>
</tr>
</tbody>
</table>

HUC-10 watersheds were determined to be appropriate for the cumulative effects analysis for several reasons. They are the scale at which indirect and cumulative effects are reasonably expected to occur for the resources analyzed. The FERC FEIS also used HUC-10 watersheds for its cumulative effects analysis and this FSEIS supplements the FERC FEIS. The Hydrologic Analysis for Aquatic Species, designed to quantify the amount of sediment expected within waterways with habitat for TES aquatic species, and the Hydrologic Analysis for the JNF which focuses on streams within the JNF and downstream areas, conservatively estimate impacts at HUC-10 and HUC-12 watershed scales, respectively (Geosyntec Consultants 2020a and 2020b). The FSEIS cumulative effects analysis extends the geographic scope to HUC-10 watersheds to assess the contributions of other past, present, and reasonably foreseeable projects on NFS and other lands. These projects are listed in Table 15 and Table 16. Figure 7 displays the boundaries of past, present, and reasonably foreseeable projects for which mapping is available. Forest Service specialists also reviewed actions on adjacent and nearby watersheds to determine if they should be included in the FSEIS. As a result of this review, no additional actions outside of the three HUC-10 watersheds that comprise the geographic scope of analysis were added to the FSEIS. The projects were determined to be located too far away to result in measurable impacts.
on soils or water resources and/or contained avoidance, minimization, or mitigation measures such that they would not result in a measurable impact on TES species within the analysis area.

The temporal timeframe for the short-term is two years and encompasses the construction phase (Proposed Action) and restoration activities (No Action Alternative). The long-term timeline for both alternatives is 30 years and encompasses the operation and maintenance phase under the Proposed Action. Resource specialists reviewed this information and based on their specific resource they may have added or deleted activities or adjusted the cumulative effects boundary.

The Forest Service reviewed additional past projects identified in public comments on the DSEIS. These include the Sarton Ridge, Kelly Flats, and White Rocks Vegetation Management projects. The Sarton Ridge project was approved in 2008 and included insecticide treatments to control the spread of the gypsy moth onto nearby private lands. The Kelly Flats project (2006) consisted of an 898-acre project area where timber harvest and prescribed fire were implemented. The White Rocks project (2012) was a 317-acre project that utilized timber harvest and noxious weed treatments. These three projects did occur within the HUC-10 watersheds that form the boundary of the cumulative effects analysis. The contribution of these three projects to cumulative effects is considered negligible because of the time that has passed since their implementation and the determinations made in the analysis for each project. The Sarton Ridge project was predicted to result in no significant impacts to aquatic or non-target species and it was determined that no federally listed endangered or threatened species will be affected (Forest Service 2008). The Kelly Flats project was predicted to have “no measurable or observable direct, indirect, or cumulative effects upon water quality as a result of the proposed activities” (Forest Service 2006). The White Rocks project was predicted to meet or exceed water quality standards for aquatic biodiversity and beneficial downstream uses over a 10-year post-implementation timeframe (Forest Service 2011).

Those projects or actions that could cumulatively contribute effects to soil productivity, erosion, and sedimentation; water quality; threatened and endangered species and their habitat; Forest Service RFSS; vegetation; and scenery were reviewed and included or dismissed with rationale (see project record). Resources not brought forward for detailed analysis in this FSEIS are not discussed in Cumulative Effects because the Agencies did not identify direct or indirect effects that were not previously addressed in the FERC FEIS.
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Figure 6. Cumulative Effects Analysis Area
3.5.1 Past, Present, and Reasonably Foreseeable Future Actions

3.5.1.1 FERC-jurisdictional Natural Gas Interstate Transportation Projects

The FERC FEIS (Sec. 4.13.1-11) identified seven FERC-regulated natural gas projects within proximity to the MVP. In 2017 several of those had filed applications with FERC, were in the environmental review process, or were already operational. These projects include the Columbia WB XPress (CP16-38), Supply Header (CP15-555), Atlantic Coast Pipeline (CP15-554), Rover Pipeline (CP15-93), Mountaineer Xpress Project (CP16-357), Columbia Smithfield III (CP13-477), and Virginia Southside Expansion projects (CP13-30).

Each of these projects was reviewed and determined to be located outside of the cumulative effects spatial boundary. For this reason, they are not included in the list of past, ongoing, or reasonably foreseeable actions.

Since publication of the FERC FEIS, three additional FERC-regulated natural gas projects have been identified. These projects are summarized in the following paragraphs:

- **Virginia Southside Expansion II** – This project was not in the FERC FEIS and it is currently considered a present, ongoing project. This project was considered but eliminated from cumulative effects because its location does not overlap any HUC-10 watersheds that comprise the MVP cumulative effects spatial boundary.

- **Mt. Storm to Valley Transmission Line Replacement** – A reasonably foreseeable project (fourth quarter, 2020): The line proposed for replacement runs for about 64.5 miles from Dominion's existing Mt. Storm substation in Grant County, West Virginia to the existing valley transmission line. Reference milepost is 69.8 to 92.5. This project was considered but eliminated from cumulative effects because it is located approximately 77 miles east of the MVP.

- **Southgate Project** – This is a proposed 75-mile-long interstate gas pipeline in southern Virginia and central North Carolina. As proposed, the pipeline will receive gas from the MVP in Pittsylvania County, Virginia and extend approximately 75 miles south to new delivery points in Rockingham and Alamance counties, North Carolina. This project was not in the FERC FEIS and it is currently considered a reasonably foreseeable project. The FERC issued an FEIS for the Southgate Project in February 2020 and the cumulative effects analysis in that FEIS (Section 4.13) included the MVP. The Southgate Project was considered but eliminated from cumulative effects in this FSEIS because its location does not overlap any HUC-10 watersheds that comprise the MVP cumulative effects spatial boundary.

The Columbia Gas Pipeline Replacement Project is a reasonably foreseeable project (2021) that is not a FERC-regulated project because it is not an interstate pipeline. Columbia Gas of Virginia (CGV) is proposing to replace a segment of natural gas distribution pipeline in an existing authorized ROW on the Glenwood & Pedlar Ranger District around milepost 285.1. It does not overlap any HUC-10 watersheds that comprise the MVP cumulative effects spatial boundary. The proposal entails upgrading nine miles of an aging 6-inch pipe with a 12-inch pipe. This project was considered but eliminated from inclusion in cumulative effects because it is not located within the cumulative effects boundary; it is approximately 45 miles north of the MVP.
These four projects are not located within the cumulative effects spatial boundary and are not included in this cumulative effects analysis.

3.5.1.2 Non-Federal Projects Identified in the FWS 2020 Biological Opinion

In the 2020 BO, the FWS identified six non-federal projects, including three in West Virginia and three in Virginia. The Forest Service reviewed these projects and determined that none are located within the geographic scope of analysis for cumulative effects in this FSEIS.

3.5.1.3 Change in Past, Present, and Reasonably Foreseeable Transportation Projects

Table 15 summarizes change in the transportation system actions as it relates to the MVP. Emergency road repairs funded through the Emergency Relief for Federally Owned Roads Program (ERFO) is an ongoing action that will continue to occur on 15 miles of road within the George Washington and Jefferson (GWJ) National Forests as a result of past severe weather events.

There are three reasonably foreseeable road maintenance actions that are planned to occur in 2020 and future years. Pocahontas and Mystery Ridge roads (33.7 acres; East River - New River Watershed) will receive heavy maintenance and reconstruction to repair damaged waterbars and culverts. The roads could not be adequately restored by the MVP due to limitations on the work allowed after the Forest Service ROD and BLM ROW was vacated in 2018. Approximately 59,000 acres of road corridors and 6,500 acres of existing gas and power line utility ROWs within the JNF are proposed for maintenance in the near future. Roads associated with vegetation management projects are encompassed within the total acres of each project.

3.5.1.4 Changes in Past, Present, and Reasonably Foreseeable Vegetation and Prescribed Fire Projects

Table 16 summarizes vegetation (including restoration) projects that have been completed (now part of the existing condition), are ongoing, or reasonably foreseeable. Road actions are included in the overall project acres:

- Completed Project: The 317-acre White Rocks TS located in the Sinking Creek/New River watershed and about 8.5 miles north of the MVP was completed in 2018.

- Ongoing Projects: There are three on-going vegetation management projects, totaling 1,605 acres, that are occurring within the temporal and spatial cumulative effects boundary of the MVP project.

- Reasonably Foreseeable: There are four reasonably foreseeable vegetation projects, totaling 555 acres and one prescribed fire project (Table 16) that could overlap within the temporal (2 years) and spatial boundary of the MVP cumulative effects analysis. Two projects that are technically out of the affected watersheds were included as they are located close to the watershed boundary: Middle Tub Run (foreseeable; 183 acres Johns Creek watershed) and Tub Run East (ongoing; 93 acres; Johns Creek watershed).

- Considered but Eliminated: Two reasonably foreseeable (1,283 acres) and three ongoing vegetation management projects (469 acres) were considered but eliminated from the analysis due to not being within the cumulative effects analysis watersheds: Phase II Vegetation Management (foreseeable; 1,100 acres), No Business (ongoing; 265 acres;
Kimberling Creek-Walker Creek watershed), and Dings Branch (ongoing; 111 acres; Kimberling Creek-Walker Creek watershed).

At least one project was too conceptual to provide information that would be meaningful to the cumulative effects analysis: the forthcoming Eastern Divide landscape restoration project is not reasonably foreseeable as it is in the conceptual development phase and has not been entered into the Schedule of Proposed Actions.

Figure 7 displays the past, present, and reasonably foreseeable projects overlapping the cumulative effects analysis area. Because some projects are still reasonably foreseeable, their approximate boundary is shown.
### Table 15. Past, Present, and Reasonably Foreseeable Transportation Projects

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Proponent (if relevant)</th>
<th>Description</th>
<th>Nearest approx. milepost or facility</th>
<th>Approx. Distance &amp; Direction from the MVP</th>
<th>Status: (Past; Present &amp; Ongoing/Reasonably Foreseeable)</th>
<th>Change since 2017 FERC FEIS?</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERFO road repairs</td>
<td>Forest</td>
<td>Road repairs that could include 15.5 miles of the GWJ NFs.</td>
<td>Varies by project</td>
<td>Varies by project</td>
<td>Present &amp; Ongoing</td>
<td>Yes</td>
<td>All counties within the GWJ NFs.</td>
</tr>
<tr>
<td>Routine maintenance of road corridors and utility ROWs</td>
<td>Forest</td>
<td>59,000 acres of road corridors, and 6,500 acres of existing gas and power line utility ROWs across the entire Forest</td>
<td>Varies by project</td>
<td>Varies by project</td>
<td>Reasonably Foreseeable</td>
<td>Yes</td>
<td>Highland, Bath, Augusta County East River - New River Watershed, North Fork Roanoke Watershed, Sinking Creek - New River Watershed, Upper Craig Creek Watershed, within watershed from FEIS.</td>
</tr>
<tr>
<td>Pocahontas Road</td>
<td>Forest</td>
<td>Repair of waterbars, culvert replacement</td>
<td>Less than 1 mile</td>
<td>Foreseeable – 2021</td>
<td>Yes – in 2017 the road was proposed and approved for use. In 2020, the road has been removed from the MVP proposal.</td>
<td>The road has erosion and sedimentation issues as a result of failing waterbars and culverts. Road maintenance and reconditioning scheduled to occur in early 2021.</td>
<td></td>
</tr>
<tr>
<td>Mystery Ridge Road</td>
<td>Forest</td>
<td>Repair of waterbars, culvert replacement</td>
<td>Road parallels the MVP and some of the road is within the ROW (although not used)</td>
<td>Foreseeable -2021</td>
<td>Yes – in 2017 the road was proposed and approved for use. In 2020, the road has been removed from the MVP proposal.</td>
<td>The road has erosion and sedimentation issues as a result of failing waterbars and culverts. Road maintenance and reconditioning scheduled to occur in early 2021.</td>
<td></td>
</tr>
</tbody>
</table>

17 Road actions associated with vegetation projects are not included.
<table>
<thead>
<tr>
<th>Project Name</th>
<th>Proponent (if relevant)</th>
<th>Description</th>
<th>Nearest approx. milepost or facility</th>
<th>Approx. Distance &amp; Direction from the MVP</th>
<th>Status: (Past; Present &amp; Ongoing/Reasonably Foreseeable)</th>
<th>Change since 2017 FERC FEIS?</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>White Rocks TS</td>
<td>Forest</td>
<td>317 acres of vegetation management including temporary roads</td>
<td>204.9</td>
<td>8.5 miles north of the MVP</td>
<td>Past</td>
<td>Yes, implementation was completed in 2018</td>
<td>The TS is approximately 8.5 miles north of the MVP and within the Sinking Creek/New River watershed.</td>
</tr>
<tr>
<td>MVP Settlement TS</td>
<td>Forest</td>
<td>82 acres of tree clearing for pipeline activities</td>
<td>N/A</td>
<td>Occurring along the pipeline ROW</td>
<td>Ongoing</td>
<td>Yes (this action was reasonably foreseeable in the FERC FEIS and is now an action being implemented)</td>
<td>The TS will be completed by the fall of 2020.</td>
</tr>
<tr>
<td>Fork Mountain Vegetation Management Project</td>
<td>Forest</td>
<td>11,714 acres of vegetation treatments</td>
<td>191.5</td>
<td>5 miles east of the MVP</td>
<td>Ongoing</td>
<td>Yes – there is no indication this was included in the FERC FEIS</td>
<td>Project is in the Sinking Creek/New River Watershed</td>
</tr>
<tr>
<td>Barton Road TS</td>
<td>Forest</td>
<td>1,331 acres of vegetation treatments including roads</td>
<td>191.5</td>
<td>8.5 miles east of the MVP</td>
<td>Ongoing</td>
<td>Yes – there is no indication this was included in the FERC FEIS</td>
<td>Project is in the Sinking Creek/New River Watershed and was part of the Fork Mountain Vegetation Management EA</td>
</tr>
<tr>
<td>Salt Sulphur TS</td>
<td>Forest</td>
<td>69 acres of vegetation treatments including roads</td>
<td>191.7</td>
<td>6 miles east of the MVP</td>
<td>Ongoing</td>
<td>Yes – there is no indication this was included in the FERC FEIS</td>
<td>Project is in the Sinking Creek/New River Watershed</td>
</tr>
<tr>
<td>Warren Road TS</td>
<td>Forest</td>
<td>146 acres of vegetation treatments including roads</td>
<td>191.5</td>
<td>8.5 miles east of the MVP</td>
<td>Reasonably Foreseeable and will be advertised in fiscal year 2021</td>
<td>Yes – there is no indication this was included in the FERC FEIS</td>
<td>Project is in the Sinking Creek/New River Watershed</td>
</tr>
</tbody>
</table>
Table 16 (continued). Past, Present, and Reasonably Foreseeable Vegetation Projects

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Proponent (if relevant)</th>
<th>Description</th>
<th>Nearest approx. milepost or facility</th>
<th>Approx. Distance &amp; Direction from the MVP</th>
<th>Status: (Past; Present &amp; Ongoing/Reasonably Foreseeable)</th>
<th>Change since 2017 FERC FEIS?</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Johnson Flats TS</td>
<td>Forest</td>
<td>133 acres of vegetation treatments including roads</td>
<td>191.5</td>
<td>8.5 miles east of the MVP</td>
<td>Reasonably Foreseeable and will be advertised in fiscal year 2021</td>
<td>Yes – there is no indication this was included in the FERC FEIS</td>
<td>Project is in the Sinking Creek/New River Watershed</td>
</tr>
<tr>
<td>Kelly Flats Vegetation Management Project</td>
<td>Forest</td>
<td>898 acres of harvest and/or prescribed fire</td>
<td>191.5</td>
<td>5 miles east of the MVP</td>
<td>Past</td>
<td>Yes – there is no indication this was included in the FERC FEIS</td>
<td>Project is in the Sinking Creek/New River Watershed</td>
</tr>
<tr>
<td>Sarton Ridge Vegetation Management Project</td>
<td>Forest</td>
<td>Insecticide treatments to control the spread of the gypsy moth</td>
<td>220</td>
<td>Approx. 1 mile from MVP</td>
<td>Past</td>
<td>Yes – there is no indication this was included in the FERC FEIS</td>
<td>Project is in the Sinking Creek/New River Watershed, Upper Craig Creek Watershed</td>
</tr>
<tr>
<td>Eastern Divide Highlands Prescribed Fire</td>
<td>Forest</td>
<td>60,628 acres total with 15,000 planned annually on 3 to 5-year rotation basis</td>
<td>196.2 - 197.7 and 219.6 - 220.8</td>
<td>Intersects with the MVP</td>
<td>Reasonably Foreseeable with implementation starting in 2020</td>
<td>Yes, new project with decision signed on 9/19/2019</td>
<td>East River/New River Watershed, North Fork Roanoke Watershed, Sinking Creek/New River Watershed, Upper Craig Creek Watershed</td>
</tr>
</tbody>
</table>
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Figure 7. Past, Present, and Reasonably Foreseeable Future Projects
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3.5.2 Soils

Past, present, and reasonably foreseeable future actions in the analysis area are described in Section 4.13.1 of the FERC FEIS (pp. 4-581 to 4-600), which is incorporated by reference. In summary, those actions include oil and gas exploration and production, natural gas pipelines, and mining operations, as well as other non-mineral resource development actions. Since publication of the FERC FEIS, reasonably foreseeable road maintenance and vegetation management projects have been identified within the cumulative effects analysis area. Road maintenance and reconstruction would have a long-term benefit to soil resources by minimizing erosion. Vegetation management activities can result in short-term adverse effects (e.g., erosion) from increased travel on roads and ground disturbance where harvesting or other management activities occur. These adverse effects are minor because vegetation management projects would comply with Forest standards and guidelines to minimize erosion, runoff, and sedimentation.

The MVP project would continue to encounter various soil resources and conditions as construction (Proposed Action) and/or restoration (both alternatives) progresses. Under the Proposed Action, construction activities, such as grading, trenching, and backfilling, could affect soil resources due to erosion, sedimentation, and the introduction of excessive rock to the soil surface, which could hinder restoration efforts. In areas that have already been cleared and graded during initial construction, soil compaction would not be exacerbated by further construction activities. Studies indicate that 70% to 80% of soil compaction occurs during the first pass of disturbed ground (Ampoorter et al. 2010; Wolkowski and Lowery 2008). In the Peters Mountain area, clearing, grubbing, and grading would increase the erosion potential. The Restoration Plan (POD Appendix H [MVP 2020h]) explains in detail the required preventative measures that would be used during the restoration process, including the stabilization of soil resources with temporary and permanent vegetation. Adoption of the 11 amended Forest Plan standards under the Proposed Action would address and lessen these potential effects with an approved allowance of certain disturbances, as long as those activities are managed appropriately and are compliant with the Forest Plan ROD. When added to the effects from implementation of reasonably foreseeable road and vegetation management actions, there would be moderate adverse cumulative effects where multiple actions occur within the same watershed. These effects would occur over the short term; long-term adverse cumulative effects would be minor to moderate as restoration efforts are completed.

Under either alternative, implementation of reasonably foreseeable road maintenance projects would reduce erosion and land used for vegetation management projects would revegetate, which would minimize long-term potential for erosion. Combined with the beneficial effects of restoring the MVP ROW corridor, long-term adverse cumulative effects on soil resources would be minor to moderate. The intensity would be greater in watersheds where multiple projects have been implemented in close proximity.

Under both the Proposed and No Action alternatives, soil quality would be improved by successful restoration. As stipulated in the POD, soil amendments would be applied as needed to ensure restoration success after prolonged periods of temporary stabilization and soil stockpiling. Proper use of soil amendments (lime, fertilizer, carbon-source organic matter, and biotic soil additives, such as mycorrhizae inoculations) would facilitate root growth and improve soil quality by increasing soil microbial activity, nutrient cycling, and soil aggregate stability.
3.5.3 Water Resources

Past, present, and reasonably foreseeable future actions in the analysis area are described in Section 4.13.1 of the FERC FEIS (pp. 4-581 to 4-600), which is incorporated by reference. In summary, those actions include oil and gas exploration and production, natural gas pipelines, and mining operations, as well as other non-mineral resource development actions. Since publication of the FERC FEIS, reasonably foreseeable road maintenance and vegetation management projects have been identified within the cumulative effects analysis area. Road maintenance and reconstruction would have a long-term benefit to hydrology by allowing the roads to more efficiently control runoff, resulting in a benefit to watershed hydrology. Vegetation management activities can result in short-term adverse effects from increased travel on roads and ground disturbance where harvesting or other management activities occur. These adverse effects are minor because vegetation management projects would comply with Forest standards and guidelines to minimize erosion, runoff, and sedimentation.

Under the No Action Alternative, direct and indirect adverse effects would be minor and short-term. When combined with the effects associated with road maintenance projects and approximately 2,080 acres of TS (Table 15 and Table 16), there would be minor adverse cumulative effects within the 305,925-acre analysis area. The Eastern Divide Highlands Prescribed Fire project would impact a much larger area (60,628 acres, or approximately 15,000 acres annually over 3 to 5 years). Prescribed fire is typically of low intensity/severity and is not expected to damage soils. As such, soil infiltration and hydrologic function are not expected to change significantly following prescribed fire. In stream segments or other water features where this project overlaps with other projects, cumulative effects would be moderate in intensity. Effects would be minimized by adherence to Forest standards and guidelines. Overall, these effects would occur over both the short term (i.e., during restoration) and long term if any reasonably foreseeable projects (e.g., Eastern Divide Highlands Prescribed Fire project) extend beyond the restoration timeframe for the MVP ROW.

Cumulative effects under the Proposed Action would be greater than those under the No Action Alternative. Although effects from construction of the MVP would be minimized by the same ECDs that are in place for the No Action Alternative, because the Proposed Action includes additional surface disturbing actions (e.g., trenching, stream crossings) there would be a greater potential for adverse effects. Combined with the road and vegetation projects listed in Table 15 and Table 16, cumulative effects on water resources would be moderate where multiple projects impact the same water feature. Where a water feature is impacted by only one project, cumulative effects would be minor. As under the No Action Alternative, these effects would occur over the short term (i.e., during restoration) and long term if any reasonably foreseeable projects extend beyond the restoration timeframe for the MVP ROW.

3.5.4 Threatened, Endangered, and Sensitive Species

3.5.4.1 Aquatic Species

Past, present, and reasonably foreseeable future actions in the analysis area are described in Section 4.13.1 of the FERC FEIS (pp. 4-581 to 4-600), which is incorporated by reference. In summary, those actions include oil and gas exploration and production, natural gas pipelines, and mining operations, as well as other non-mineral resource development actions. Since publication of the FERC FEIS, reasonably foreseeable road maintenance and vegetation management projects have been identified within the cumulative effects analysis area. Road maintenance and reconstruction would have a long-term benefit to aquatic species by allowing the roads to more
efficiently control runoff, resulting reduced sediment load and associated habitat degradation. Vegetation management activities can result in short-term adverse effects on water quality and aquatic species habitat from increased travel on roads and ground disturbance where harvesting or other management activities occur.

The FERC FEIS did not identify any contribution to cumulative effects from implementation of the No Action Alternative. Since then, the project has been partially constructed and the FSEIS No Action Alternative would result in restoration of the ROW on NFS lands to its pre-project condition. This would result in short-term adverse contributions to cumulative effects of an intensity similar to that described in the analysis of direct and indirect effects. Effects on aquatic species would be short-term, minor and would be noticeable in habitat that is affected by multiple concurrent projects. Over the long-term, restoration would not contribute to cumulative effects from the MVP.

Under the Proposed Action, cumulative effects on aquatic species would be similar those described in the FERC FEIS. These effects are summarized below.

Cumulative effects on aquatic species could occur if other projects occur within the same segment of a waterbody and have similar construction timeframes as the proposed MVP or that could result in permanent or long-term impact on the same or similar habitat types. Implementation of the actions identified in Appendix W of the FERC FEIS, those in Table 15 and Table 16 of this FSEIS, and the MVP could result in cumulative effects on waterbodies and fisheries from sedimentation and turbidity, habitat alteration, streambank erosion, fuel and chemical spills, water depletions, entrainment or entrapment due to water withdrawals or construction crossing operations, and blasting if constructed on the same waterbody in a similar timeframe. Based on known project schedules, there would be some overlap in project implementation in the analysis area, but other project schedules would be staggered. Staggered implementation would minimize effects on aquatic resources by limiting the amount of disturbance at a given time. Transportation and TS projects in the analysis area would be designed to minimize effects on waterbodies, and thus on aquatic species, as much as possible.

Effects on waterbodies (and therefore aquatic species) would be minor, short-term and mostly limited to construction activities associated with construction of the MVP and other reasonably foreseeable actions, including road repairs and TSs, that would be conducted in accordance with BMPs and Forest standards. As such, none of these effects would be cumulatively significant because of their temporary nature. The ensuing operation and maintenance of the proposed MVP would not contribute to cumulative effects unless maintenance activities occur in or near streams at the same time/location as other actions (FERC 2017a pp.4-620 to 4-621). As a result, long-term cumulative effects would be minor at a watershed scale.

3.5.4.2 Terrestrial Species
Past, present, and reasonably foreseeable future actions in the analysis area are described in Section 4.13.1 of the FERC FEIS (pp. 4-581 to 4-600), which is incorporated by reference, and in Table 15 and Table 16 of this FSEIS. In summary, implementation of the MVP and many of those actions (e.g., timber harvest) would result in long-term loss of habitat types important to wildlife, which is consistent with the analysis in the FERC FEIS. The actions listed in Table 15 and Table 16 were not reasonably foreseeable when the FERC FEIS was published, but they are representative of typical actions ongoing and planned on NFS lands in the JNF; they would also contribute to cumulative effects on terrestrial species where habitat is fragmented or converted. While there have been changes to the list of federally listed species and RFSS, the cumulative

Jefferson National Forest
effects on these newly listed species would not differ substantially from those analyzed in the FERC FEIS. Cumulative effects from TSs would be minor because the Proposed Action and reasonably foreseeable TSs account for approximately 2,160 acres of the 305,925-acre analysis area. In conjunction with implementation of either alternative, reasonably foreseeable road maintenance projects would contribute to minor cumulative effects because disturbance associated with equipment and vehicles may alter the movement or behavior of terrestrial species while work is occurring. For species sensitive to fragmentation, however, the adverse cumulative effects would be greater than just the acreage lost to herbaceous cover; these species would experience moderate cumulative effects within the analysis area because the reduced movement of individuals could affect local populations.

Under the No Action Alternative, restoration of the ROW to its pre-project condition would offset some of the long-term adverse cumulative effects associated with TSs and prescribed fire. However, short-term effects would be similar to those under the Proposed Action because the ROW would not fully revegetate within the next two years.

Cumulative effects on plant species would be similar to those for terrestrial species and are influenced by changes in vegetative cover, light, and dust. Both alternatives would contribute to short-term adverse cumulative effects that would be minor due to the small portion of each HUC-10 watershed that would be impacted. The Proposed Action would result in similar short-term effects but would also contribute to the long-term conversion of habitat, especially in the 50-foot-wide permanent ROW. Long-term adverse effects from the ROW would be offset by long-term improvements in habitat from implementation of the Eastern Divide Highlands Prescribed Fire project. In combination with reasonably foreseeable vegetation management actions, long-term cumulative effects would be minor because of the small portion of the analysis area (approximately 2,160 acres of the 305,925-acre analysis area) that would be impacted and because surveys in the permanent ROW did not identify suitable habitat for listed or RFSS plant species.

### 3.6 Short-term Uses and Long-term Productivity

NEPA requires consideration of “the relationship between short-term uses of man’s environment and the maintenance and enhancement of long-term productivity” (40 CFR § 1502.16) (1978, as amended in 1986 and 2005). As declared by the Congress, this includes using all practicable means and measures, including financial and technical assistance, in a manner calculated to foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans (NEPA Section 101).

“Short-term” is defined as anticipated to occur during construction of the MVP. “Long-term” is defined as the 30-year term of the ROW grant/temporary use permit. Surface-disturbing activities, including vegetation clearing, trenching, and installing the pipeline, would result in the greatest potential for effects on long-term productivity. Management prescriptions and BMPs are intended to minimize the effect of short-term commitments and reverse change over the long term.

Short-term use of the ROW for construction would result in the long-term loss of forested habitat within the permanent ROW and the fragmentation of this habitat type within the HUC-10 watersheds that the pipeline intersects.
3.7 Unavoidable Adverse Effects

Section 102(C) of NEPA requires disclosure of any adverse environmental effects that cannot be avoided should the proposed action be implemented. Unavoidable adverse effects are those that remain following the implementation of mitigation measures or effects for which there are no mitigation measures.

Construction of the MVP on NFS lands would temporarily increase air emissions, noise, erosion, and sedimentation in a localized area. Over the long-term, it would change the relative abundance of species within plant communities, the relative distribution of plant communities, and the relative occurrence of seral stages of those communities in the MVP ROW. Construction, operation, and maintenance would also introduce intrusions, which would affect the visual landscape on NFS lands.

3.8 Irreversible and Irretrievable Commitments of Resources

Section 102(2)(C) of NEPA requires a discussion of any irreversible or irretrievable commitments of resources that are involved in the proposed action should it be implemented. Irreversible commitments of resources are those that cannot be regained, such as the extinction of a species or the removal of mined ore. Irretrievable commitments are those that are lost for a period of time such as the temporary loss of timber productivity in forested areas that are kept clear for use as a powerline ROW or road.

For the construction, operation, and maintenance of the MVP on NFS lands, some of the resource commitments would be irreversible and irretrievable. The ROW on NFS lands would be cleared and graded as needed to accommodate pipeline construction. Although portions of the pipeline would cross existing access roads, and the land areas and their associated resources could be reclaimed at some point in the future, it is unlikely that they would be restored to original conditions and functionality across the entire ROW. Maintaining herbaceous cover on the permanent ROW would result in an irretrievable loss of forested wildlife habitat.

Raw materials needed for construction of the pipeline and associated facilities would include crushed stone and sand, water, diesel fuel, gasoline, and steel, for example. Construction would consume these materials, which would constitute an irreversible commitment. The construction, operation, and maintenance of the pipeline would require the irreversible commitments of human resources that would not be available for other activities during the period of their commitment, but these commitments would not be irretrievable.

Finally, the implementation of the Proposed Action would require the commitment of financial resources for construction, operation, and maintenance on NFS lands. This commitment, however, would be consistent with the Project’s purpose of and need for the Proposed Action as described in Chapter 1.

3.9 Incomplete or Unavailable Information

An effort was made to obtain and use the best available information to evaluate and compare the effects of alternatives. NEPA implementing regulations (40 CFR § 1502.22) (1978, as amended in 1986 and 2005) state that when “there is incomplete or unavailable information, the agency shall always make clear that such information is lacking.” This was done where appropriate. The regulation requirement goes on to say that if the incomplete information “is essential to a
reasoned choice among alternatives” then considerations, such as the cost of obtaining it, apply. This SEIS, in conjunction with the analyses presented in the 2017 FERC FEIS and 2004 JNF Forest Plan FEIS, along with their planning records, will provide the responsible official with the “essential” information needed to make a reasoned choice among alternatives.
4 Consultation and Coordination

The Forest Service consulted the following individuals, federal, state, and local agencies, tribes and other organization and individuals during the development of this SEIS:

4.1 Federal, State, and Local Agencies

Bureau of Land Management

Federal Energy Regulatory Commission

National Park Service

Natural Resource Conservation Service

US Fish and Wildlife Service

4.2 Tribes

Cherokee Nation
   Elizabeth Toombs, Tribal Historic Preservation Officer

Eastern Band of Cherokee Indians
   Stephen Yerka, Tribal Historic Preservation Office

Monacan Indian Nation
   Kenneth Branham, Tribal Chief; Kaleigh Pollak, Tribal Office

United Keetoowah Band of Cherokee Indians in Oklahoma
   Whitney Warrior, Historic Preservation Director

4.3 Preparers and Contributors

4.3.1 Forest Service and Bureau of Land Management Team

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B.S., Natural Resources Conservation and Management, University of Kentucky, 2003

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B.S., Biology, Oregon, Biological Sciences, California State University, 1997 and Hayward, 1994

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B.S., Environmental Science, Virginia Tech, 2007

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M.S., Ecology, Rutgers University, 1982  
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M.E.M., Duke University School of Forestry and Environmental Studies, 1987  
B.A., Environmental Studies, Warren Wilson College, 1984

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B.S., Geology, University of Wisconsin-Eau Claire, 1985  
M.S., Geology, University of Utah, 1988

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M.S., Environmental Science, University of Tennessee at Chattanooga, 2015  
B.S., Biology, East Tennessee State University, 2004

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Ph.D., Animal Sciences, University of Kentucky, 2019  
M.S., Biology, University of Louisville, 2006  
B.A., Biology, Hanover College, 1999
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    B.S., Environmental Geoscience, Texas A&M University, 2012

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    B.A., Political Science, University of Michigan, 2011

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    B.S., Agronomy, Kansas State University, 1997

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    B.S., Soil Science, University of Tennessee, 2009

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B.A., Anthropology, Indiana University, 1986

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4.4 List of Document Recipients and Those Notified or Consulted

This section provides a list of the agencies and tribes that were notified of the SEIS. This list includes federal, state, and local governments, elected officials, and federally recognized tribes who submitted comments or requested to be on the mailing list for this SEIS. It does not include the thousands of individuals on the mailing list who were notified of the SEIS availability via postcard or electronically. This information is available upon request.

4.4.1 Agencies and State and Local Governments

Advisory Council on Historic Preservation  
Attorney General of Virginia  
Braxton County  
Bureau of Land Management  
City of Bridgeport  
City of Clarksburg  
City of Hinton  
City of Richwood  
City of Weston  
Craig County  
Doddridge County  
Fayette County  
Federal Aviation Administration, Eastern Regional Office  
Franklin County  
Franklin Township  
Giles County  
Greenbriar County  
Greene County  
Harrison County  
Huntington District  
Lewis County  
Mercer County  
Monroe County  
Monroe County and Red Sulphur Public Service District  
National Park Service  
National Park Service, New River Gorge  
National River  
National Park Service, Southeast Region  
National Trust for Historic Preservation  
Natural Resources Conservation Service  
New Martinsville  
Nicholas County  
Office of Federal Programs, Advisory Council on Historic Preservation  
Pittsylvania County  
Pittsylvania County Callands - Gretna District  
Pulaski County  
Red Sulphur Public Service District  
Region IV Planning and Development Council  
Roanoke County  
Senate of Virginia  
Summers County  
Town of Addison  
Town of Blacksburg  
Town of Boones Mill  
Town of Camden On Gauley  
Town of Chatham  
Town of Cowen  
Town of Flatwoods  
Town of Meadow Bridge  
Town of Peterstown  
Town of Quinwood  
Town of Rainelle  
Town of Rupert  
Town of Summersville  
Town of Sutton  
Town of Union
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<th>Town of West Union</th>
<th>Virginia Department of Historic Resources, Division of Review and Compliance</th>
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<td>U.S. Environmental Protection Agency, Region 3</td>
<td>West Virginia Department of Conservation and Recreation, Division of Natural Heritage</td>
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<td>West Virginia Department of Environmental Protection</td>
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<td>USDA Forest Service-Ecosystem Management Coordination</td>
<td>West Virginia Department of Natural Resources Office of Land and Streams</td>
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<td>West Virginia Division of Culture and History SHPO</td>
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<td>West Virginia Division of Energy</td>
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<td>Virginia Department of Environmental Quality, Air Permitting Division</td>
<td>West Virginia Division of Forestry</td>
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<td>Virginia Department of Environmental Quality, Office of Environmental Impact Review</td>
<td>West Virginia Division of Natural Resources</td>
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<td>Virginia Department of Environmental Quality, Water Division</td>
<td>West Virginia Division of Tourism</td>
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<td>Virginia Department of Game and Inland Fisheries</td>
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Jefferson National Forest
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4.4.2 Tribes
Cherokee Nation Tribal Historic Preservation Office
Eastern Band of Cherokee Indians
Monacan Indian Nation
Nansemond Indian Tribal Association
Rappahannock Tribe
United Keetoowah Band of Cherokee Indians in Oklahoma
Wyandotte Nation
Wyandotte Nation of Oklahoma

4.4.3 Organizations
3 Pond Valley, LLC
500-Year Forest Foundation
AAA Adventures, Outdoors LLC
Advent Christian Church
Advisory Council on Historic Preservation
AED, LLC
Alice K. Mills Revocable Trust
Alleghany Country Farms, Inc.
Allegheny Defense Project
Allegheny Energy Supply Co., LLC and Tax Dept Supply
Allegheny Land Trust
Alpha Natural Resource Services, LLC
American Chemistry Council
American Electric Power
American Electric Power Service Corporation
American Hiking Society
American Mountaineer Energy, Inc. c/o Murray Energy Corp
APG Lime Corporation
Appalachian Mountain Advocates
Appalachian Mountain Club
Appalachian National Scenic Trail Office
Appalachian Power Company
Appalachian Trail Conservancy
Appalachian Trail Conservancy, Southwest and Central Virginia Regional Office
Appalachian Voices
Arthur L. Anderson Living Trust
Ashcraft Trust
Associated Builders and Contractors
Associated General Contractors of Virginia
Audubon, Virginia, Richmond Audubon Society
Audubon, West Virginia, Mountaineer Audubon
B and W Land Company, a West Virginia corporation
B L Farm
B.A. Mullican Lumber and Manufacturing Company, L.P.
Bailey and Glasser LLP
Ballengee Farm
Barbara A. Nickum Trust
Barbara B. Highland Estate
Basalt Trap Rock, LLC
BDJ, LLC
Beckley Register-Herald
Beckwith Lumber Company, Inc, a West Virginia Corporation
Bee Berry Farms
Bellwood Corporation
Bent Mountain Farms, LLC
BETS, Inc.
Betty B. Kulp Personal Residence Trust
Beverly O. Cooper Living Trust
Big Chief Drilling and Production Co. Inc.
Black Diamond Property Owners Association
Blackrock Enterprises LLC
Blacks Chapel Cemetery, Inc.
Blue Eagle Partnership, LLC
Blue Ridge Environmental Defense League
Blue Ridge Land Conservancy
Blue Ridge Parkway Association
Blue Ridge Parkway Foundation
Blue Ridge Regional Office
Blue Ridge Regional Office Air Permitting
Boones Mill Christian Church
Branch Banking and Trust Co.
Braxton Citizen's News
Braxton Co. EDA
Braxton Industries
Braxton Oil and Gas Corp.
Dyer Family Trust
Eagles Nest Ministries, Inc.
Eastern Montgomery High School
Economic Development Authority of Montgomery County
Ed Broome, Inc.
Edward R. Kuhl Revocable Trust
Edwards Properties, Ltd.
Elisabeth A. Vogel Trust
Elmer W. Boyle, Et Al / Thelma Boyle, Et Al
Elrama McGuirk, LLC and Liberty USA, Inc.
Elrama Volunteer Fire Company
EMAX Gas Company
Environmental Defense Fund
EQT Corporation
EQT Gathering, LLC
Equitrans, LP
Equitrans, LP
Ernestine Trent Estate
Estate of Alma B. Cherry
Estate of Andrew Martin
Estate of Charles J. Via, Jr.
Estate of Charles S. Shriver, et al
Estate of David L. and Delberta Cunningham
Estate of Dennis Mann
Estate of Eugene A. McKenzie
Estate of Evelyn Teresa Nicholas
Estate of Granville Parks et al
Estate of John A. Wooldridge, and Simon J. Wooldridge
Estate of Madeline Callison
Estate of Malcolm E. Goodrich
Estate of Martha C. Jones
Estate of Mary S. Randolph-Hetzel
Estate of Oscar Simmons
Estate of P. I. Apgar
Estate of Robert J. Haught
Estate of Robert Martin
Estate of Syble Ann Richmond
Estate of Thomas Clement
Evergreen Conservancy
Family Limited Beinlich Partnership
Fayette County Public Library
Fayette Tribune
Fayetteville Public Library
Field Family Trust
Finleyville Volunteer Fire Department
First American Real Tax Service, Escrow Report DRW 4-3
First Piedmont Corporation
Forks of John’s Creek Christian Church
Forward Township Volunteer Fire Company EMS, Station #155
Foundation for Pennsylvania Watersheds
Fox Brothers Properties
Francis D. Huffman and Lydia B. Huffman Family Living Trust
Franklin Center for Advanced Learning and Enterprise
Franklin Community Bank, N.A.
Franklin County Historical Society
Franklin County Library
Franklin Real Estate Company
Franklin Township Board of Supervisors
Franklin Township EMA
Franklin Township Planning Commission
Freshwater Mollusk Conservation Society
Friends of Blackwater
Friends of Buckingham
Friends of Claytor Lake
Friends of Lower Greenbrier River and Greenbrier River Watershed Association
Friends of Nelson
Friends of Nelson, Heartwood, and Wild Virginia
Friends of the Blue Ridge Parkway
Friends of the Central Shenandoah
Friends of the Lower Greenbrier River
Friends of the Rivers of Virginia
Friends of the Second Creek, Inc.
Frontier Communications as Successor to C and P Telephone Company
Gallatin-Sunnyside Volunteer Fire Department, Station #154
Garden Club of Virginia
Garnett A. Gum Trust
GFWC Blue Ridge District Public Policy Chair
GFWC Star Women’s Club
Giles Counsel
Giles County Chamber of Commerce
Giles County Farm Bureau
Giles County Historical Society
Glade Hill Farm LLC
Gladys Nadine Guilliams, Randall Keener
Glennlyn Farms LLC
Global Partisan, Inc.
Goldsboro Milling Company
Greater Bluefield Chamber of Commerce
Greater Greenbrier Chamber of Commerce
Greater Newport Rural Historic District Committee
Green County Library System
Green Valley Coal Co.
Greenbrier County Public Library
Greenbrier River Trial Association
Greenbrier River Watershed Association
Greene Tech II, LP
H Ronnie Montgomery, Executor
Harrison County Chamber of Commerce
Haught Family Trust
Hazeltine A. Clark Estate
Heartwood Forestland Fund III, Limited Partnership, a North Carolina Limited Partnership
Heartwood Forestland Fund IV
Heartwood Forestland Fund VII, Limited Partnership
Heartwood Forestland Group IV
Heartwood Properties, Inc
Heirs of Delphia Garrett
Heritage Trust Company
High Mountain Timber, LLC
High Top Properties LLC
Highlanders for Responsible Development Inc
Hilary Heights Ltd.
Hill Top Investments
Hinman Revocable Trust
Hinton News
Hollow Hill Farm
Holt Properties, LLC
HRW Properties LLC
HS Tejas, Ltd.
Huffman Family Living Trust
Hurd IIP LLC
Indian Creek Watershed Association
Industrial Energy Consumers of America
J and J Energy, Inc. a Virginia corporation
J and M Grants, Inc.
J. Maurice Payne Estate
J. Pitt Trust
J.C. Baker and Sons, Inc.
Jack Chapman Revocable Trust
Jacksonburg Volunteer Fire Department
James E. Arrington and Arlene R. Arrington
James Monroe High School
Janum Management, LLC
Jefferson Volunteer Fire Company
Jennings, Strouss, & Salmon, P.L.C.
Joan Rowles Shelhorse Trust
Joanna Mullins Life Estate
John A. Marshok, Jr. Revocable Living Trust dated June 3, 2011
John Skidmore Dev., Inc.
Jorge N. Fernandez Trust
Joyce Ann Richards Revocable Trust
Katherine M. Hanbury Revocable Trust
KDKA-TV
Lafon Living Trust
Lake Anna Investments LC
Lake Floyd Club Inc.
Land Trust of Virginia
Lands Apart, LLC
LaPaix Herb Farm
Laurel Creek Hardwoods Inc.
Law Offices of Carolyn Elefant PLLC
League of Women Voters of Montgomery County
League of Women Voters of Virginia
League of Women Voters of West Virginia
Leatha Faye Cales Allen Life Estate
Lenoir-Rhyne University
Lewis and Clark Trust, Inc.
Lewis County Chamber
Lhoist N.A.
LHOIST North America
Liberi, LLC
Lick Creek Valley Farm
Life Estate Tenants
Lighthouse Deliverance Center
LMS Enterprises, Inc.
Lock 3 Oil Coal & Dock Company
Longview Holsteins Inc.
Lonnie M. Oliver Estate
Lorraine Sanders Snider - Dower Life Estate
Louis Bennett Public Library
M. Farrell Properties LLC
Mad Dog Property Management, LLC
Margaret McGraw Slayton Living Trust
Margaret Mullooly Trust and Thomas B. Mullooly Trust
MarkWest Liberty Midstream and Resources, L. L. C.
Markwest Liberty Midstream and Resources, LLC
Marshall County Chamber of Commerce
Marshall Living Trust

Jefferson National Forest
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<tr>
<th>Organization</th>
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<td>Peters Township Public Library</td>
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4.4.4 Individuals

Notifications of the availability of the final Supplemental Environmental Impact Statement were also sent to over 6,000 individuals.
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6 References


DOI (Department of the Interior). 2020a. Standard Form 299 Application for Transportation and Utility Systems and Facilities on Federal Lands completed by Mountain Valley Pipeline, LLC.


ESI (Environmental Solutions & Innovations, Inc.). 2017. Locally Rare Species Report for the Mountain Valley Pipeline, Jefferson National Forest, Eastern Divide Ranger District. Prepared on behalf of Mountain Valley Pipeline, LLC. November.


FERC. 2017c. Biological Assessment for Mountain Valley Pipeline, LLC, Mountain Valley Pipeline Project. July.


MVP. 2020b. Supplement to the Biological Assessment. April, Revised May 28.


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IN REPLY REFER TO:
2880 (ESJ020) VMC

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

Re: Mountain Valley
Pipeline, LLC Docket
No. CP16-10-000
Mineral Leasing Act Section 28(p) Analysis for the Mountain Valley
Pipeline
Dear Ms. Bose:
Enclosed for your docket please find the Bureau of Land Management's analysis of the
Mountain Valley Pipeline project under section 28(p) of the Mineral Leasing Act of 1920.
Please note that this analysis in itself does not constitute a record of decision or right-of-way
grant.

Sincerely,

[Signature]
Victoria (Vicki) Craft
Project Manager

Enclosure (1)
-Practicality Analysis
CC: Public File, Docket No. CP16-10-000

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U.S. Department of the Interior  
1849 C Street  
NW Washington, DC  
20240  

Re: Mineral Leasing Act Section 28(p) Analysis for the Mountain Valley Pipeline  

Dear Mr. Balash:  

Section 28(p) of the Mineral Leasing Act of 1920 provides that “[i]n order to minimize adverse environmental impacts and the proliferation of separate rights-of-way across Federal lands, the utilization of rights-of-way in common shall be required to the extent practical.”1 On July 27, 2018, the U.S. Court of Appeals for the Fourth Circuit vacated the record of decision and right-of-way (ROW) grant for the Mountain Valley Pipeline (MVP). The court found that the record of decision did not address whether “the utilization of an existing right of way would be impractical, and specified that the BLM on remand must ‘favor[] routes utilizing existing rights of way unless those alternatives [are] impractical.’”2  

The Bureau of Land Management (BLM) has prepared this supplemental analysis to address the court's instructions on remand. As explained below, we conclude that the additional utilization of existing ROWs across federal lands would be impractical.  

I. Background  

In order to implement the court's instructions, we have analyzed whether any route alternative exists that would result in greater collocation with other ROWs on federal lands than the route that was previously approved by the BLM, and that would be practical. Each of these two criteria is explained in greater detail below.  

A. Collocation on Federal Lands  

The first criterion that a route alternative must satisfy is that it must result in greater collocation with other ROWs on federal lands - that is, it must cross fewer miles of federal lands without  

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collocation than the previously approved alternative. We limit our comparison of collocation to federal lands because section 28(p) aims to minimize “the proliferation of separate rights-of-way across Federal lands,” and because the BLM has no authority over the MVP route except to the extent that the route involves the use of federal lands.3

In order to determine the extent of collocation on federal lands, we rely on two independent assessments: one conducted by staff of the Federal Energy Regulatory Commission (FERC), and one conducted by MVP.4 Although the results of these two independent assessments are generally consistent, they occasionally provide different estimates of the extent of collocation on federal lands, because of the technical challenges inherent in measuring the lengths of potential pipeline routes. Where the two assessments provide conflicting results on the question of whether a given route alternative would result in greater collocation on federal lands than the previously approved route, we have assumed conservatively that the route alternative would satisfy this criterion, and proceeded to examine whether the route alternative would be practical.

B. Practicality

The second criterion that a route alternative must satisfy is that it must be practical. In interpreting the term “practical” for purposes of this analysis, we have taken into consideration the term's common usage, as well as relevant administrative and judicial interpretations. Black's Law Dictionary defines “practical” as meaning “[l]ikely to succeed or be effective,” and “[u]seful or suitable for a particular purpose or situation.”5 The BLM's regulations note that one of the objectives of the BLM's pipeline ROW program is to “[p]romote[] the use of rights-of-way in common considering engineering and technological compatibility,” and that the use of ROWs in common may be required “where safety and other considerations allow.”6 In the only judicial or administrative decision addressing section 28(p), the Interior Board of Land Appeals determined that this standard includes consideration of a route's cost and land-disturbance footprint, affirming that a route alternative was not “practical” when it would have “require[d]

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4See Email from Rich McGuire, FERC, to Victoria Craft, BLM (Aug. 16, 2018) (McGuire August 16, 2018 Email); Email from Megan Neylon, MVP, to Victoria Craft, BLM (Aug. 17, 2018) (Neylon August 17, 2018 Email). Unlike the figures reported in the FEIS for "[l]ength adjacent to existing right-of-way," these assessments included collocation with both major ROWs such as pipelines or electric transmission lines and smaller ROWs such as roads. See FEIS at 3-20. Cf. 70 Fed. Reg. 20,970, 20,970 (April 22, 2005) ("Some examples of land uses which require a right-of-way grant include: transmission lines, communication sites, roads, highways, trails, telephone lines, canals, flumes, pipelines, and reservoirs."). For this reason, along with the fact that the FEIS's figures do not distinguish between miles of collocation on federal and non-federal lands, we do not generally rely on the FEIS's figures for "[l]ength adjacent to existing right-of-way for this analysis.
6See 43 C.F.R. §§ 2881.2(c), 2882.10(b). See also 10 Fed. Reg. at 21,033 (noting that "there may be situations where for technical or safety reasons it is not practical" to make use of an existing ROW).
construction of an additional 39 miles of pipeline at an estimated additional cost of $37.5 million,” as well as “installation of an additional compressor station and … the temporary disturbance of a substantially greater acreage of lands during construction.” Similarly, in interpreting a parallel standard in another statute, e Board affirmed that a route was not “practical” where it would have “require[d] construction of up to an additional 60 miles of 345 kV power line and ha[d] an adverse impact on an additional 60 miles of public and private land,” while “preclud[ing] the opportunity to improve” service to one of the project's proposed customers. Finally, a regulation issued to implement section 404 of the Clean Water Act prohibits the issuance of a dredge or fill discharge permit “if there is a practicable alternative to the proposed discharge” that is environmentally preferable, and defines “practicable” as including “consideration [of] cost, existing technology, and logistics in light of overall project purposes.” In reviewing decisions made under this regulation by the U.S. Army Corps of Engineers (USACE), courts have deferred to the agency’s practicability determinations, and upheld its consideration of factors including cost, construction delays, logistical feasibility, and “the objectives of the applicant's project.”

Accordingly, we interpret the term “practical,” for purposes of this analysis, as referring to the suitability of a route alternative for achieving its purpose, and to the likelihood that attempting to utilize that route would succeed in achieving that purpose. The purpose of any route alternative is to construct a pipeline to deliver natural gas from the MVP's beginning point to its endpoint, via its mid-route delivery points, in a safe, environmentally responsible, and cost-effective manner. In certain cases, however, as discussed below, a particular route alternative may also have a more specific purpose, such as mitigating the impact of the MVP on certain resources. Therefore, the determination of whether a route alternative is practical includes consideration of the construction challenges and potential safety hazards that would arise from constructing or operating the pipeline along the route; the environmental consequences of constructing the

9 See 40 C.F.R. §§ 230.3(f), 230.IO(a).
12 See MVP Final Environmental Impact Statement at 1-8 (June 23, 2017) (FEIS). While the section 28(p) analysis described here is distinct from the National Environmental Policy Act analysis contained in the FEIS, the information and analysis presented in the FEIS is in many instances relevant to the section 28(p) analysis.
13 See 43 C.F.R. §§ 2881.2(c), 2882.10(b); 70 Fed. Reg. at 21,033.
pipeline along the route;\textsuperscript{14} any resulting increase in the pipeline's length and footprint;\textsuperscript{15} the ability of the route to serve the MVP's mid-route delivery points;\textsuperscript{16} the additional costs associated with the alternative;\textsuperscript{17} and the likelihood that the route would achieve any specific purpose identified for that route alternative.\textsuperscript{18}

Although our comparison of the extent of collocation is limited to federal lands, determining the practicality of a route requires consideration of the route as a whole. A route alternative may increase the extent of collocation on federal lands, but prove impractical because of technical or other considerations relating to the route as a whole.

II. The MVP and the Previously Approved Route

The MVP is intended “to transport natural gas produced in the Appalachian Basin to markets in the Northeast, Mid-Atlantic, and Southeastern United States.”\textsuperscript{19} Specifically, the project is

\textsuperscript{14}We note that section 28(p) can be read as requiring "the utilization of rights-of-way-in common" only where such collocation would "minimize adverse environmental impacts" as compared to an alternative with less collocation. See 30 U.S.C. § 18S(p). Had we applied a separate requirement that any route alternative must "minimize adverse environmental impacts" compared to the previously approved alternative, we would have concluded on this basis alone that none of the route alternatives would satisfy the criteria of section 28(p). See FEIS at 3-20, 3-22, 3-2S, 3-32, 3-47 to 3-48, 3-51, 3-55, 3-62, 3-65, 3-70 (concluding that none of the route alternatives considered in this analysis would "provide a significant environmental advantage" over the previously approved route). In this case, however, we have not excluded any route alternatives based solely on their environmental impacts.

\textsuperscript{15}See Wyo. Indep. Producers, 133 IBLA at 82; see also Paul Herman, 146 IBLA at 105.

\textsuperscript{16}See, e.g., Paul Herman, 146 IBLA at 105. See also Friends a/Santa Clara River, 887 F.3d at 912, 921 (requiring consideration of "the objectives of the applicant's project," so long as "those project objectives are not so narrowly defined as to preclude alternatives" (quotation marks omitted)). Each of the route alternatives would serve the MVP's beginning and endpoint.

\textsuperscript{17}See Friends of Santa Clara River, 887 F.3d at 921-923; Wyo. Indep. Producers, 133 IBLA at 82. In this case, the cost of each route alternative would be driven primarily by differences in length and in the extent of steep slopes, side slopes, and other challenging construction conditions. See INGAA Foundation, Inc., Final Report No. 201S-03, Mitigation a/Land Movement in Steep and Rugged Terrain for Pipeline Projects: Lessons Learned from Constructing Pipelines in West Virginia at 6 (2016) (INGAA Rugged Terrain Report), available at http://www.ingaa.org1File.aspx?id=28629 (noting that "the planning process must weigh the costs of longer alignments to avoid hazards versus cost of mitigation of the hazard"). Therefore, the information presented below about length and construction challenges serves, and was considered by the BLM, as a proxy for such cost information.

\textsuperscript{18}See Friends a/Santa Clara River, 887 F.3d at 921. We note that this definition of practicality is broader than mere technical feasibility - a standard that some, but not all, of the route alternatives considered here would satisfy. See, e.g., FEIS at 3-32 (concluding that the Northern Pipeline-ACP Collocation Alternative is "likely ... technically infeasible"); id. at 3-119 (concluding that some of the remaining route alternatives "appear to be technically feasible").

\textsuperscript{19}FEIS at 1-8.
intended to transport natural gas from an existing interconnect in West Virginia to an existing natural gas pooling point and gas trading hub located along a major existing natural gas pipeline in Virginia.\textsuperscript{20}

The previously approved route connecting these locations would be 303.5 miles long, and would cross 3.5 miles of federal lands managed by the U.S. at mileposts (MPs) 196.2 to 197.8, MPs 218.8 to 219.4, and MPs 219.8 to 220.8.\textsuperscript{21} The route would also cross 60 feet of federal lands managed by the USACE. at MP 66.8.\textsuperscript{22} The route would be collocated with an existing ROW for 1.0 miles of its crossing of the JNF, following a forest road known as Mystery Ridge Road at MPs 196.8 to 197.8.\textsuperscript{23} The previously approved route would not be collocated with another ROW for any portion of its crossing of USACE lands.

In addition to its beginning and endpoints, the MVP is also intended to serve three mid-route delivery points that are relevant to this analysis: the WB Interconnect, located at MP 77.6 of the previously approved route; the Roanoke Gas Lafayette Tap, located at MP 235.7; and the Roanoke Franklin Tap, located at MP 261.3\textsuperscript{24} The location of the WB Interconnect is determined by existing natural gas infrastructure, while the locations of the two Roanoke Gas taps are determined by the service area of the utility purchaser that will operate those taps and by existing agreements with that purchaser.\textsuperscript{25} The existence of these three mid-route delivery points was an important factor in the selection of the previously approved route, and in the approval of the MVP project by FERC.\textsuperscript{26} Therefore, to the extent that any of the route alternatives would bypass these mid-route delivery points, that fact is relevant to the BLM’s consideration of the practicality of that route alternative.

III. Route Alternatives

The BLM has analyzed nine route alternatives or families of route alternatives that would affect the MVP project’s crossing of the JNF.\textsuperscript{27} These route alternatives are analyzed in the order of the milepost at which each route alternative first diverges from the previously approved route.

\textsuperscript{20}FEIS at 1-8, 3-3. \\
\textsuperscript{21}FEIS at 1-1, 1-14. \\
\textsuperscript{22}FEIS at 1-16, 4-277. \\
\textsuperscript{23}FEIS App’x Pat P-6; MVP Plan of Development at 1-7 (Nov. 30, 2017) (POD). \\
\textsuperscript{24}FEIS at 2-14 to 2-15; FERC Order Issuing Certificates and Granting Abandonment Authority at 4 (Oct. 13, 2017) (FERC Certificate). Two additional mid-route facilities are located at points along the previously approved route that would not be affected by any of the route alternatives considered here. See FEIS at 2-14 to 2-15. \\
\textsuperscript{25}See FEIS at 1-8, 2-14; MVP Resource Report 10 and Appendices at 10-2 to 10-3 (Oct. 23, 2015) (Resource Report 10). \\
\textsuperscript{26}See FEIS at 1-8 to 1-9, 3-15; FERC Certificate at 3-5. \\
\textsuperscript{27}Several of the route alternatives addressed in this analysis would also affect the location of, or necessity for, the crossing of USACE lands. Because the USACE crossing is so short compared with the JNF crossing, however, any differences in the length or location of the USACE crossing.
A. Northern Pipeline - ACP Collocation Alternative

The Northern Pipeline - ACP Collocation Alternative would involve collocating the 42-inch-diameter MVP with the planned 42-inch-diameter Atlantic Coast Pipeline (ACP), along the ACP's proposed route.\(^{28}\) This route alternative would diverge from the previously approved route at MP 37, and re-converge at the MVP's endpoint at MP 303.5.\(^{29}\)

For purposes of this analysis, the BLM assumes that the ACP would be constructed as proposed, and therefore that this route alternative would collocate the MVP with another ROW for the MVP's entire crossing of federal lands. Accordingly, this route alternative would provide greater collocation on federal lands than the previously approved route.

Constructing the two pipelines in parallel would raise serious constructability challenges:

\[\text{[A] major disadvantage of the Northern Pipeline - ACP Collocation Alternative route is the necessity to construct two parallel pipelines along approximately 205 miles of the ACP route, much of which presents significant constructability issues related to topography and space... Based on [FERC's] review of aerial photography and topographic maps, ... in many areas, such as in Lewis and Upshur Counties, West Virginia and Augusta and Nelson Counties, Virginia,}^{30}\text{ there is insufficient space along the narrow ridgelines to accommodate two parallel 42-inch-diameter ... pipelines. This would result in side slope (i.e., side-hill) or two-tone construction techniques, with additional acres of disturbance required for [temporary workspaces], given the space needed to safely accommodate equipment and personnel, as well as spoil storage. The constructability issues alone are likely to render this alternative technically infeasible.}^{31}\]

would not affect the outcome of the BLM's analysis for these route alternatives. As to alternatives apart from those addressed in this analysis, no route alternatives exist that would result in collocation of the USACE crossing and that are practical. A private landowner whose parcel is located approximately 2.5 miles from the USACE crossing proposed collocating the MVP with an existing pipeline near her property, but this proposal (which may not have resulted in collocation at the USACE crossing itself) would be impractical due to constructability and safety concerns. See FEIS at 3-1 I 2. No other route alternative has been identified that would involve collocation with that existing pipeline. See McGuire August 16, 2018 Email.  
\(^{28}\) FEIS at 3-29.\(^{29}\) FEIS at 3-29 to 3-30.\(^{30}\) These counties include much of the ACP's crossing of federal lands. See FEIS at 3-30. \(^{31}\) FEIS at 3-32. See also FERC Order on Rehearing at 73, 163 FERC ¶ 61,197 (June 15, 2018) ("The area's steep slopes and narrow rideways make construction of two adjacent pipelines technically infeasible."). FERC's assessment is supported by information submitted by MVP. See MVP Responses to FERC Environmental Information Request at 177 (Mar. 31, 2016) (March 31, 2016 Responses) ("Significant mountaintop removal and material excavation would be required to obtain a p per level construction surface to work on during the pipeline
Moreover, the Northern Pipeline-ACP Collocation Alternative would cross at least 19.1 miles of federal lands - more than five times as much as the previously approved MVP route.\textsuperscript{32} Because a separate 125-foot-wide ROW may be required for each pipeline,\textsuperscript{33} collocating the MVP with the ACP may result in a substantial increase in federal land disturbance compared with constructing each pipeline along its previously approved route.

Furthermore, the Northern Pipeline-ACP Collocation Alternative would include 22 more miles of side slope than the previously approved route, in addition to any side slope construction required by the need to fit two parallel pipelines on narrow ridgelines.\textsuperscript{34} Construction along side slopes, where the gradient of the slope is perpendicular or oblique to the pipeline route, requires modified construction techniques and presents considerable safety and operational risks both during and after construction.\textsuperscript{35} Although the terrain of the project area makes some degree of side slope construction unavoidable, and the project incorporates best management practices to mitigate the risks associated with side slopes, reducing side slopes is a key factor in comparing route alternatives for the MVP project.\textsuperscript{36}

Finally, because the Northern Pipeline-ACP Collocation Alternative would diverge from the previously approved route at MP 37, and re-converge only at the MVP's endpoint at MP 303.5, this route alternative would bypass all three of the mid-route delivery points discussed above.\textsuperscript{37} The two Roanoke Gas taps, in particular, could not be relocated so as to meet the ACP's route, meaning that an alternative that follows the ACP route would require either forfeiting the installation phase... There is insufficient space along the tops of the ridgelines for two adjacent large diameter pipelines in these areas. Constructing two large diameter pipelines in the mountainous terrain would add significant construction personnel risk with the amount of equipment necessary to move and install both pipelines in the steep terrain. Sidebooms do not have enough weight capacity or levered distance to hold or move a second pipe over the first pipe trench. Erosion and sediment control risks significantly increase with the amount of soil and steep slope disturbance required for the two 42-inch pipelines ditch excavation and soil control.\textsuperscript{38} Resource Report IO at 10-16 (similar).

\textsuperscript{32}See FEIS at 3-31. The version of the ACP route included in that project's final environmental impact statement may cross even more federal lands. See ACP Final Environmental Impact Statement at 4-423 (July 2017).

\textsuperscript{33}See FEIS at 3-29.

\textsuperscript{34}See FEIS at 3-32.

\textsuperscript{35}FEIS at 2-37, 3-4, 4-S2 to 4-S6; INGAA Rugged Terrain Report at 26-28, 40-41; McGuire August 16, 2018 Email.

\textsuperscript{36}FEIS at 3-3. See also INGAA Rugged Terrain Report at 30 (recommending that side slope areas "should be identified early in the project design and planning processes, and minimized to the greatest extent possible"); id. at 61 ("Careful planning and routing is always preferred to avoid or minimize potential threats from landslide and erosion hazards, but mitigation is usually required when such hazards cannot be avoided.").

\textsuperscript{37}See FEIS at 3-30.
purpose of serving this customer, or else building nearly 60 miles of additional pipeline in order to reach those taps.  

For these reasons, we conclude that the Northern Pipeline - ACP Collocation Alternative is not practical.

B. Highway Collocation Alternative

The Highway Collocation Alternative is a route alternative that would follow public roads for as much of its route as possible. More specifically, this route alternative would mostly be collocated with interstate highways, intersecting the previously approved route in the vicinity of MP 60 and crossing the JNF alongside Interstate 77. For purposes of this analysis, we assume that this route alternative would collocate the MVP with an interstate highway ROW for the MVP project's entire crossing of federal lands, and would therefore provide greater collocation on federal lands than the previously approved route.

The FEIS examined two versions of this collocated route alternative, one that would be located within the highway ROWs and one that would be located "adjacent to, but outside of," the highway ROWs. The version that would be located outside the highway ROWs would likely present numerous and substantive construction challenges, including traversing roadway overpasses and underpasses, large interchanges, elevated sections of roadway including bridges, areas congested with development and homes, and narrow valleys where the most suitable terrain (i.e., flat) is already partially or fully encumbered by the roadway.

The version of this route alternative that would be located within the highway ROWs, meanwhile, would likely be prohibited by state laws and policies. In West Virginia, the state agency's utility placement policy "prohibits longitudinal occupancy inside the controlled access right of way, by any utility, on any type of [controlled] highway, ... except ... underground fiber

38 FEIS at 3-14. See also March 31, 2016 Responses at 177 ("[MVP] will also serve Roanoke Gas which is located along its Proposed Route in southwest Virginia; a market that cannot be served by moving to the Northern Pipeline Alternative route."); Resource Report 10 at 10-8, 10-16 (similar).
39 FEIS at 3-18.
40 FEIS at 3-18 to 3-19.
41 FEIS at 3-18.
42 FEIS at 3-18. This version of the Highway Collocation Alternative would not "utiliz[e a ROW] in common," and therefore does not satisfy section 28(p) f9r that reason, as well.
43 Federal regulations permit state agencies to establish policies regarding utility installations in interstate highway ROWs. See 23 C.F.R. § 64S.209(c)(l). See also 30 U.S.C. § 18S(v) ("The Secretary or agency head shall take into consideration and to the extent practical comply with State standards for right-of-way construction, operation, and maintenance.").
optic facilities."44 And in Virginia, where the JNF crossing is primarily located, state regulations provide that "[n]ew utilities will not be permitted to be installed parallel to the roadway longitudinally within the controlled or limited access right-of-way lines of any highway" except in "special cases," and even then only if such installation would not "involve tree removal or severe tree trimming."45 This limitation on tree removal or trimming is likely incompatible with the placement of a natural gas pipeline.46

In addition, the Highway Collocation Alternative would be 142.5 miles (almost 47%) longer than the previously approved route, cross six times as many miles of federal lands, and cross more than twice as many perennial waterbodies, resulting in substantial additional costs and environmental impacts.47 This route alternative would also cross an additional 51 miles of side slopes and an additional 125 miles of lands with landslide potential, amplifying the constructability concerns described above.48 It would also bypass the three mid-route delivery points discussed above.49

For these reasons, we conclude that the Highway Collocation Alternative is not practical.50

C. Alternative I/Hybrid Alternative I A

45 24 Va. Admin. Code.§ 30-151-301(2)(d). See also Va. Dep't of Trans., Utility Manual of Instructions: Utility Relocation Policies & Procedures, at 8-7 (2011), available at http://www.virginiadot.org/business/resources/right_of_way/utility_manual02132012_techrev.pdf. Such installations must also satisfy other requirements, including that "the installation will not adversely affect the safety, design, construction, operation, maintenance or stability of the highway," that "the accommodation will not interfere with or impair the present use or future expansion of the highway," and that "any alternative location would be contrary to the public interest," taking into account "the direct and indirect environmental and economic effects that would result from the disapproval of[such] use." See § 30-151-301(2)(a)-(c).
46 See FEIS at 3-18.
47 FEIS at 3-20;
48 FEIS at 3-20.
49 See FEIS at 3-19. Although such an alternative was not analyzed in the FEIS, it may be possible to construct a route alternative that generally follows the previously approved route, but deviates from that route between MPs ISO and 250 in order to cross the JNF along existing highways. See FEIS at 3-19. Such a hypothetical route alternative might avoid bypassing the three mid-route delivery points discussed above, but would otherwise be subject to most of the same practical concerns.
50 See also FEIS at 3-17 ("This alternative concept is not evaluated in detail below due to the associated construction challenges, logistical constraints, and environmental impacts which we determined render it technically infeasible and/or as not providing a significant environmentally [sic] advantage compared to the proposed action.").
Alternative 1 was designed to maximize collocation with an existing Electric transmission line. Hybrid Alternative 1A is a variant that would follow the previously approved route through MP 13S and from there on follow the route of Alternative 1, re-converging with the previously approved route at its endpoint at MP 303.5. These two route alternatives are considered together here, since they are identical at the JNF crossing. Both route alternatives would result in greater collocation on federal lands than the previously approved route, crossing fewer miles of federal lands overall and being collocated with the existing transmission line for the entirety of that crossing.

Collocating underground pipelines with electric transmission lines over long distances poses distinctive constructability and safety challenges that would be exacerbated in the circumstances of the MVP. Locating pipelines near transmission lines poses risks to pipeline workers from operating in close proximity to high voltage power lines, and increased risk of pipeline corrosion from interference with pipeline cathodic protection systems and from other forms of electrical interference. These risks increase with parallel or near-parallel installation, especially at collocation lengths over a mile. To mitigate these safety concerns, as well as concerns related to access for construction and operations, parallel installations typically involve adjacent or partially overlapping ROWs, rather than complete collocation. Finally, because side slopes and

51 FEIS at 3-22. Alternative 1 was the original proposed alternative, but was supplanted by the previously approved route due to concerns regarding side slopes. See FEIS at 3-17; Resource Report 10 at 10-10 to 10-11.

52 FEIS at 3-25.

53 Another route alternative, known as Hybrid Alternative 18, would follow Alternative 1 through MP 13S and from there on follow the previously approved route. See FEIS at 3-25 to 3-26. Hybrid Alternative 1B is not considered here, since it would be identical to the previously approved route at the JNF crossing.

54 See FEIS at 3-24, 3-27; McGuire August 16, 2018 Email; Neylon August 17, 2018 Email.


56 See INGAA Power Lines Report at 4, 45-49. The previously approved route would be collocated with electric transmission Hoses for numerous short stretches, but rarely for distances of a mile or more. See FEIS App’x P at P-1 to P-8.

57 See McGuire August 16, 2018 Email (noting that in a typical configuration, the SO-foot-wide permanent pipeline ROW would be adjacent to the transmission line ROW, and the pipeline’s temporary 100- to 12S-foot-wide construction ROW would overlap with the transmission line ROW by 2S feet); FEIS at 3-22 (“The pipeline could be installed as close as 2S feet away from powerline infrastructure, with temporary workspace located even closer, but other configurations would also be required based on soil type and working conditions where the pipeline would be located much further away.”). See also FEIS App’x Pat P-1 to P-8 (listing offset distances between the centerline of the previously approved route and the edges of existing transmission line ROWs); INOAA Power Lines Report at 4, 46 (noting that interference risk is “Medium” for separation distances of 100 to 500 feet, and “High” for distances under 100 feet). MVP has also noted that constructing a major pipeline in the immediate vicinity of an electric transmission line poses “[c]onstructability and safety issues associated with … the possibility of undermining
steep slopes\textsuperscript{58} of the kind frequently encountered along the MVP's route pose a far greater challenge for pipelines than for electric transmission lines, which have a far smaller physical footprint and are capable of spanning stretches of challenging terrain, routes that are suitable for transmission line construction may be unsuitable for pipeline construction.\textsuperscript{59} Therefore, while collocation with electric transmission lines can often be achieved, including in parts of the previously approved route of the MVP, the challenges of such collocation are highly relevant to the practicality analysis.

Alternative I would be over twenty miles longer than the previously approved route,\textsuperscript{60} resulting in significant additional construction costs, and would pose significant technical challenges. In particular, Alternative I would cross 171.4 miles of steep slopes in excess of 20\% grade - 42.8 miles more than the previously approved route, and over half the entire length of Alternative 1.\textsuperscript{61} Alternative I would also cross more miles of side slope than the previously approved route, including over 100 miles of "severe side slopes,"\textsuperscript{62} and would include two crossings of the New River, which the previously approved route avoids crossing.\textsuperscript{63} These factors would pose substantial constructability and safety challenges.\textsuperscript{64}

power line towers." MVP Responses to Data Requests issued January 27, 2017, at 570\{Feb. 17, 2017\} (February 17, 2017 Responses).

\textsuperscript{58} Construction along steep slopes where the gradient of the slope is parallel to the pipeline route poses many of the same challenges as construction along side slopes, though such challenges are typically less severe than in side slope conditions. FEIS at 2-49, 3-25, 4-28, 4-45, 4-52 to 4-56; INGAA Rugged Terrain Report at 7, 24. \textit{See also} MVP Responses to Data Requests issued December 24, 2015, at 238 (Jan. 15, 2016) (describing construction and safety challenges associated with steep slopes).

\textsuperscript{59} \textit{See} McGuire August 16, 2018 Email. \textit{See also} Resource Report 10 at 10-10 to 10-11 ("While the overhead transmission lines span significant areas of slide [sic] slope, these areas would be required to be crossed directly by the pipeline.0 ) ; February 17, 2017 Responses at 570 ("It is also important to recognize that the design requirements for a ROW for one type of infrastructure are not necessarily the same for other types of infrastructure.").

\textsuperscript{60} FEIS at 3-24.

\textsuperscript{61} \textit{See} FEIS at 3-24.

\textsuperscript{62} FEIS at 3-24; Resource Report 10 at 10-10, 10-14.

\textsuperscript{63} FEIS at 3-24. As explained by FERC staff, crossing the New River poses both constructability challenges and environmental concerns. \textit{See} McGuire August 16, 2018 Email ("The New River in the immediate vicinity of the proposed route ranges from about 300 to 350 feet wide (a major river crossing). It is not a complete obstacle, as it could be crossed (likely via [horizontal directional drilling], although with a risk of an inadvertent release of drilling mud into the River), however as a significant environmental resource, avoidance (which was accomplished with the proposed route) if possible was preferred."). Alternative I would also cross 38 more perennial waterbodies and 14.5 more miles of karst terrain. FEIS at 3-24.

\textsuperscript{64} \textit{See also} Resource Report 10 at 10-11 ("MVP determined that Route Alternative 1 represented insurmountable construction challenges, as well as a high risk of slope failure and pipeline slips, once the pipeline was to be in operation... [M]uch of the existing right-of-way was ultimately found unsuitable for pipeline construction …").
Hybrid Alternative IA would pose many of the same challenges, as Alternative 1. While this route alternative would be shorter than Alternative 1 and include fewer miles of steep slope, it would still be 6.3 miles longer than the previously approved route, and feature 140.8 miles of steep slope (almost 10% more than the previously approved route), as well as both crossings of the New River. Hybrid Alternative IA would also cross 177.2 miles of side slope (over 10% more than the previously approved route, exceeding even Alternative 1), and a significant portion of the "severe side slope" crossed by Alternative 1. The additional miles of steep slope and side slope, compared with the previously approved route, would "present[] substantially more obstacles to safe construction, increas[e] extra workspace requirements, and potentially affect[] worksite stability during construction and after restoration." The additional miles of steep slope and side slope, compared with the previously approved route, would "present[] substantially more obstacles to safe construction, increas[e] extra workspace requirements, and potentially affect[] worksite stability during construction and after restoration." The additional miles of steep slope and side slope, compared with the previously approved route, would "present[] substantially more obstacles to safe construction, increas[e] extra workspace requirements, and potentially affect[] worksite stability during construction and after restoration."

Both Alternative 1 and Hybrid Alternative 1A would also pose constructability challenges associated with the necessary crossing of the Blue Ridge Parkway. While the previously approved route would cross the Parkway in an open grassy area, allowing the pipeline to bore under the Parkway, Alternative 1 and Hybrid Alternative 1A would cross the Parkway in a location flanked on one side by a wetland and floodplain and on the other by a short, steep slope, which together would complicate the boring process.

In addition, Alternative I would bypass the three mid-route delivery points discussed above, while Hybrid Alternative 1A would bypass two of the three.

For these reasons, we conclude that Alternative 1 and Hybrid Alternative 1A are not practical.

D. Variations 110, IIOR, and I 10J

Variations 110, 11OR, and 110J were developed in order to avoid a number of sensitive resources located in the general vicinity of the JNF crossing, between MPs 17S and 235. Each of these variations would cross more miles of federal lands than the previously approved route but would be collocated for fewer of those miles. Therefore, these route alternatives do not satisfy the criteria of section 28(p).

E. SR 635-ANST Variation

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65 FEIS at 3-25, 3-27 to 3-28. Hybrid Alternative 1A would also cross 22 more perennial waterbodies. FEIS at 3-27.
66 FEIS at 3-24 to 3-25, 3-28; Resource Report 10 at 10-14.
67 FEIS at 3-25.
68 FEIS at 4-324 to 4-32S; Resource Report 10 at 10-61.
69 See FEIS at 3-26.
70 FEIS at 3-44 to 3-4S.
71 See McGuire August 16, 2018 Email; Neylon August 17, 2018 Email.
72 Furthermore, we note that Variation 110 crosses a designated wilderness area within the JNF, which renders this route variation impractical. See FEIS at 3-44, 3-46. See also Letter from U.S. Forest Service to FERC (May 16, 2016) (noting lack of authority to approve a pipeline within a wilderness area).
The SR 635-ANST Variation, located between MPs 191.7 and 207.8, was developed in order to examine the feasibility of reducing impacts on hikers traveling along the Appalachian National Scenic Trail (ANST) by crossing the ANST at the same location as an existing state road.\(^3\) This route variation would cross 2.9 miles more federal lands than the previously approved route, and would not be collocated for any part of its crossing.\(^4\) Therefore, the SR 63S-ANST Variation does not satisfy the criteria of section 28(p).\(^5\)

F. CGV Variation

The CGV Variation, located between MPs 195 and 200, was developed in order to examine the feasibility of collocating the MVP with two existing pipelines that cross the JNF.\(^6\) This route alternative would provide increased collocation on federal lands, replacing a 1.7 mile crossing of federal lands of which I mile is collocated with a 1.6 mile crossing that is mostly or entirely

\(^{73}\) FEIS at 3-52.
\(^{74}\) FEIS at 3-S4; McGuire August 16, 2018 Email; Neylon August 17, 2018 Email. While the SR 635-ANST Variation would cross the ANST at the same location as the state road, the route alternative would not continue alongside that existing road. See McGuire August 16, 2018 Email. To the contrary, due to the topography of the area, the SR 635-ANST Variation would be forced to parallel the ANST for one mile. See MVP Responses to Data Requests issued January 27, 2017 and Supplemental Materials (Mar. 2, 2017) (March 2, 2017 Responses) at 39; MVP Additional Responses to June 28, 2016 Data Request at 63 (July 18, 2016 Responses). In light of the purpose of section 28(p), we do not consider the ANST, which is a congressionally designated national scenic trail, see 16 U.S.C. § 1244(a)(l), to be an existing ROW with which Congress intended to encourage collocation of pipelines.

\(^{75}\) FEIS at 3-48.

Moreover, even if the SR 635-ANST Variation provided greater collocation than the previously approved route, this route alternative would be impractical. The environmental, constructability, and safety effects of the SR 635-ANST Variation would be mixed: the variation would be 1.5 miles shorter and would affect 89.2 fewer acres of interior forest, but would cross 2.9 more miles of federal lands and cross more wetlands, perennial waterbodies, and miles of inventoried roadless areas; similarly, the variation would cross fewer miles of steep slope and side slope, but more miles of land with landslide potential. FEIS at 3-52. More importantly, however, the SR 635-ANST Variation would be unlikely to succeed at its purpose, to reduce the impact of the MVP on ANST users. Whereas the previously approved route would cross the ANST perpendicularly, and preserve a 300-foot forested buffer on either side of the ANST by boring under the trail, the SR 635-ANST Variation would be forced to parallel the trail for about a mile, as noted above, likely increasing visual impacts on the trail. See FEIS at 3-52 to 3-53; March 2, 2017 Responses at 39; July 18, 2016 Responses at 63. Moreover, the low topography of the trail crossing site would limit the length of the borehole, eliminating the forested buffer and further increasing the visual impacts. March 2, 2017 Responses at 39; July 18, 2016 Responses at 63. Furthermore, the SR 635-ANST Variation would bring the MVP ROW closer to the ANST’s Wind Rock overlook, increasing visual impacts on this overlook. March 2, 2017 Responses at 39. For these reasons, the SR 63S-ANST Variation is not likely to succeed at its purpose of reducing impacts on users of the ANST, rendering the route impractical.
collocated. The elimination of less than three-quarters of a mile of uncollocated crossing of federal lands would come at a cost of 9 more miles of total pipeline, however, including 4.1 more miles of steep slope and 4.6 more miles of side slope. The CGV Variation would also result in 136.3 more acres of construction disturbance, including 60.8 more acres on forested land; increase the MVP's potential impacts on the watershed relied on by the Red Sulphur Public Service District, a public water supply utility; and bring the MVP ROW closer to the ANST's Angel's Rest overlook, increasing visual impacts on this overlook. For these reasons, we conclude that the CGV Variation is not practical.

G. AEP-ANST Variation

The AEP-ANST Variation, located between MPs 195.4 and 200, was developed in order to examine the feasibility of reducing impacts on hikers traveling along the ANST by crossing the ANST at the same location as an existing electric transmission line. The AEP-ANST Variation would cross approximately 0.9 more miles of federal lands than the previously approved route, while providing, at best, no more than 0.8 miles of additional collocation on federal lands. Because the AEP-ANST Variation involves at least 0.1 mile more uncollocated crossing of federal lands, this route alternative provides less net collocation on federal lands, and does not satisfy the criteria of section 28(p).

FEIS at 3-50; id. App’x P at P-6; POD at 1-7; McGuire August 16, 2018 Email; Neylon August 17, 2018 Email. While the FEIS indicates that the relevant portion of the previously approved route contains zero miles "adjacent to existing right-of-way," this figure considers only major features such as transmission lines and pipelines, and excludes the previously approved route's collocation with a forest road, as noted above. See FEIS at 3-20, 3-50.

FEIS at 3-50; McGuire August 16, 2018 Email; Neylon August 17, 2018 Email.

Underscoring the constructability and safety concerns associated with the additional steep slopes and side slopes, the same pipeline ROW with which this route alternative would be collocated was previously the site of a slope failure related to side slopes. See FEIS at 4-45, 4-67, 4-69. See also INGAA Rugged Terrain Report at 7 (noting that "[l]andslide and erosion hazards are more commonly found, or created, ... where the proposed alignment intersects existing landslide[s]").

FEIS at 3-50; March 2, 2017 Responses at 44.

FEIS at 3-52, 3-55.

See FEIS at3-S4; McGuire August 16, 2018 Email; Neylon August 17, 2018 Email.

The AEP-ANST Variation would also pose constructability and safety concerns. The general concerns related to collocating the MVP with electric transmission lines are discussed above. In the specific context of the AEP-ANST Variation, these challenges include more miles of steep slope, side slope, shallow bedrock, and areas with landslide potential than the previously approved route. FEIS at 3-54. Moreover, this route alternative would be 3.2 miles longer, would cross more perennial waterbodies and forested land (but less inventoried roadless area, inventoried semi-primitive area, interior forest, and karst area), would result in an additional 48.9 acres of construction disturbance and a larger area of forested land disturbance during both construction and operation, and would increase the MVP's potential impacts on the Red Sulphur Public Service District watershed. FEIS at 3-54; March 2, 2017 Responses at 40.
H. Brush Mountain Alternatives 1 and 2

Brush Mountain Alternatives 1 and 2, located between MPs 219.5 and 220.7, were developed in order to reduce impacts to the Craig Creek watershed. Brush Mountain Alternative 1 would feature the same amount of federal lands crossing and the same amount of collocation as the previously approved route, and therefore does not satisfy the criterion of providing greater collocation on federal lands. Brush Mountain Alternative 2, meanwhile, may provide greater collocation, but by no more than 0.22 miles. Any such increase in collocation, meanwhile, would come at the cost of a larger increase in the total mileage (0.3 additional miles), the mileage of side slope (0.4 additional miles), and the mileage of lands with landslide potential (0.3 additional miles). Because Brush Mountain Alternative 2 would entail greater

Furthermore, like the SR 635-ANST Variation, the AEP-ANST Variation would be unlikely to accomplish its purpose of reducing impacts on users of the ANST. Under either the AEP-ANST Variation or the previously approved route, hikers would experience a clearing at the location where the trail crosses the existing electric transmission line, and no clearing where the previously approved route crosses the trail (due to the 300-foot forested buffer). See FEIS at 3-52, 4-312; FEIS App'x S figs. 1a to 7b. The majority of new visual impacts on trail users would therefore occur, under either scenario, not due to near-field impacts at the location where the previously approved route crosses the trail, but rather due to more distant views of the MVP ROW from various points along the trail. See FEIS at 4-312; see generally FEIS App'x S. The AEP-ANST Variation would not reduce the overall visual footprint of the MVP ROW, and may in fact increase that overall footprint due to the larger area of forested land disturbance. See also Mah 2, 2017 Responses at 40 (noting that "the visual impact on ANST users would likely be greater because of the open view that trail users have when within the [transmission line] right-of-way"). Moreover, the AEP-ANST Variation would also bring the MVP ROW closer to the Angel's Rest overlook, increasing visual impacts on this overlook. March 2, 2017 Responses at 40. Therefore, the AEP-ANST Variation is not likely to succeed at its purpose of reducing impacts on users of the ANST.

For these reasons, we conclude that the AEP-ANST Variation is not practical.
constructability and safety challenges than the previously approved route while providing at best a marginal increase in collocation on federal lands, we conclude that this route alternative is impractical.

I. Slussers Chapel Variations

The Slussers Chapel Variations consist of two route alternatives located between MPs 220.7 and 223.7 that were developed in order to reduce impacts on the Slussers Chapel Conservation Site.\(^87\) One route alternative, Modified Variation 250, would replace a portion of the route located entirely on non-federal lands with a route that would cross 2.3 miles of federal lands, and therefore does not satisfy the criterion of increased collocation on federal lands.\(^88\) The other route alternative, the VADCR Slussers Chapel Conservation Site Avoidance Variation, would replace a portion of the route that crosses 0.04 miles of federal lands with a route that would cross 2.54 miles of federal lands, and therefore does not appear to satisfy this criterion, either.\(^89\) This route alternative would also traverse a narrow ridgetop with a designated wilderness area on one side, steep slopes on the other side, and an existing forest road along the ridge, posing significant constructability and safety concerns that the previously approved route avoids and that render this route alternative impractical.\(^90\) For these reasons, we conclude that these route alternatives do not satisfy the criteria of section 28(p).

IV. Conclusion

As the analysis above demonstrates, none of the route alternatives would result in greater collocation on federal lands and be practical. Several of the route alternatives would not result in greater collocation on federal lands. Each of the remaining route alternatives would be impractical due to a combination of constructability and safety challenges, increased

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\(^{87}\) FEIS at 3-69 to 3-70. A third route alternative, Variation 250, would not affect the MVP's crossing of federal lands, and therefore is not relevant to this analysis. FEIS at 3-71. Moreover, Variation 250 was adopted by FERC and incorporated into the MVP route. FERC Certificate at 60; id. App'x Cat 7.

\(^{88}\) FEIS at 3-71, 3-74.

\(^{89}\) FEIS ltt 3-72.

\(^{90}\) FEIS at 3-69. See also February 17, 2017 Responses at 19S-196 ("[The Slussers Chapel Variation] significantly increases the construction risks due to its placement along the ridgeline of Brush Mountain. There is an existing Forest Service Road (Forest Road 188/Brush Mountain Road) along the ridge top, with the boundary of Brush Mountain Wilderness north of and parallel to the road. Mountain Valley would need to maintain a 50-foot buffer between the Wilderness Boundary and the edge of construction work area, which would require that the 125-foot-wide construction right-of-way encompass Forest Road 188 as well as significant side slope areas along the south side of the road. In addition, during construction, this section of Forest Road 188 would be closed for an extensive period of time to regular vehicle or foot traffic.").
environmental impacts, increased length and footprint, increased cost, and inability to serve the purposes of the MVP or the specific purpose of the route alternative in question. Therefore, we conclude that the additional utilization of existing ROWs across federal lands would be impractical.

Sincerely,

Mitchell Leverette
Acting State Director, Bureau of Land Management, Eastern States

I concur

I do not concur

Joseph R. Balash
Assistant Secretary - Land and Minerals Management, U.S. Department of the Interior

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91 As noted above, the BLM has considered the information presented above about length and construction challenges as a proxy for cost information.
September 2, 2020

IN REPLY REFER TO:
2800 (020) VMC
VAES-058143-02

Mountain Valley Pipeline Project – Revised Mineral Leasing Act Application
Addendum to the BLM’s 2018 Practicality Analysis of Collocation Route Alternatives for the MVP Project Consistent with 30 U.S.C. § 185(p)
BLM, Eastern States Office

The Bureau of Land Management (BLM) has prepared this addendum to the supplemental analysis from August 23, 2018 (referred to hereinafter as “2018 Practicality Analysis”) regarding the Mountain Valley Pipeline (MVP) Project. See Attached. The purpose of this addendum is to update the 2018 Practicality Analysis based on Mountain Valley’s revised Mineral Leasing Act (MLA) right-of-way (ROW) application. As discussed below, this addendum is consistent with the U.S. Court of Appeals for the Fourth Circuit’s decision in Sierra Club, Inc. v. U.S. Forest Serv., 897 F.3d 582 (4th Cir. 2018), reh’g granted in part, 739 Fed. App’x 185 (4th Cir. 2018), and the requirements of 30 U.S.C. § 185(p).

Background

In December 2017, the BLM issued a record of decision (ROD) approving Mountain Valley’s application to cross federal land managed by the U.S. Forest Service (USFS) and the U.S. Army Corps of Engineers (USACE) pursuant to the MLA, 30 U.S.C. § 185, et seq. The BLM issued a ROW grant and temporary use permit to Mountain Valley for approximately 3.5 miles and 60 feet through USFS and USACE lands respectively. In issuing its decision, the BLM adopted and relied on the Federal Energy Regulatory Commission’s (FERC) Final Environmental Impact Statement (FEIS) for purposes of compliance with the National Environmental Policy Act (NEPA).

Environmental organizations challenged the BLM’s decision, as well as the USFS’s decision relating to the MVP Project. On July 27, 2018, the U.S. Court of Appeals for the Fourth Circuit vacated the BLM’s ROD and ROW grant through USFS lands. The court rejected Plaintiffs’ claims that the BLM’s adoption and reliance on the FERC FEIS violated NEPA. Nevertheless, the court found that the BLM’s ROD did not address whether “the utilization of an existing right

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1 In light of Mountain Valley’s revised application, the BLM has reviewed the 2018 Practicality Analysis and determined that the analysis remains valid.
2 The court also vacated and remanded the USFS’s decision on NEPA and National Forest Management Act grounds.
of way would be *impractical,*" and specified that the BLM on remand must “favor[] routes utilizing existing rights of way unless those alternatives [are] impractical.”

On August 23, 2018, as directed by the court, the BLM prepared an analysis of the route alternatives examined in the FERC FEIS to determine whether the alternatives provided for collocation of the proposed ROW on federal land to the extent practical. Section 28(p) of the MLA provides that “[i]n order to minimize adverse environmental impacts and the proliferation of separate rights-of-way across Federal lands, the utilization of rights-of-way in common shall be required to the extent practical.” The BLM’s analysis set forth criteria to assess whether a route alternative is practical. Based on this analysis, the BLM concluded that “none of the route alternatives would result in greater collocation on federal lands” and therefore “the additional utilization of existing ROWs across federal land would be impractical.” The BLM submitted the 2018 Practicality Analysis to FERC for inclusion in the MVP Project docket.

On May 1, 2020, Mountain Valley submitted to the BLM a revised MLA ROW application. Mountain Valley’s revised application seeks approval for the same proposal that BLM approved in 2017 and includes the previously examined route alternatives, which were analyzed in the FERC FEIS. The revised application also identifies two additional route alternatives not considered in the FERC FEIS. As a result, this addendum serves only to update the 2018 Practicality Analysis to consider the two additional route alternatives in the context of the practicality analysis.

**Analysis**

This analysis incorporates relevant information from Mountain Valley’s revised application and the USFS’s Draft Supplemental EIS (SEIS), which the BLM is serving as a cooperating agency. It also relies on the Section 28(p) criteria described in the 2018 Practicality Analysis - (1) whether the route alternative would result in greater collocation with other ROWs on federal lands than the route that was previously approved by the BLM, and (2) whether the route alternative would be practical.

1. **Forest Service Avoidance Alternative**

As described in the revised application, this route alternative “would entirely avoid any crossing of National Forest System Lands.” The location of this route alternative would be in the northern portion in West Virginia around milepost 20, heading east across the lower tip of Western Maryland and through Northern Virginia, and then connect with the existing Transco Pipeline. As examined in the Draft SEIS, this alternative would increase the pipeline length by approximately 48 miles, increase land disturbance by 745 acres, increase the pipeline in populated areas within ½ mile from 8 to 31, and increase use of private lands crossed by 248

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3 See Sierra Club, 897 F.3d at 604-05 (emphasis in the original).
5 2018 Practicality Analysis at 16-17.
6 Id. at 1-4.
7 Mountain Valley Pipeline Revised SF 299 at Attachment A, p. 10 (May 1, 2020).
8 See id. at Attachment A, Fig. 3-a2 p. 12; see also MVP Draft SEIS at Figure 2, p. 26.
This route alternative would still cross the Appalachian National Scenic Trail and Blue Ridge Parkway.\(^9\)

Under the Section 28(p) first criterion, this route alternative would not require the collocation of federal land within the BLM’s jurisdiction under the MLA and thus does not offer a comparison between alternatives that provide for collocation on federal land. To the extent that the BLM must consider the second criterion – “practicality,” the BLM finds this route alternative to be impractical. First, this route alternative is beyond the BLM’s authority and essentially would represent the no action alternative; it would not require Mountain Valley to obtain an MLA ROW from the BLM.\(^10\) Second, and beyond this jurisdictional problem, FERC, as the lead federal agency under the Natural Gas Act, has already issued the certificate of public convenience and necessity for the proposed route,\(^12\) and Mountain Valley has constructed 256 miles of the 303.5 miles of pipe.\(^13\) Third, this route alternative would significantly increase the use of private land, disruption of populated areas, and impacts to more natural resources, e.g., 11 additional large waterbody crossings and 15,000 feet of wetland crossings.\(^14\) Fourth, it would significantly increase the total length of the pipeline by nearly 50 miles.\(^15\) Such an increase in miles, particularly given that nearly 84 percent of the pipeline is already constructed, would represent a significant increase in costs. All of these factors taken together, especially for the stated purpose of avoiding 3.5 miles of National Forest Service lands, even if this route alternative may increase collocation on non-federal land, would be impractical. Therefore, this route alternative does not satisfy the criteria set forth in 30 U.S.C. § 185(p).

1. **Burnsville Weston Gauley Alternative**

The revised application describes an additional route alternative as deviating from the proposed alternative from approximately milepost 60 to 75 and traversing to the west around the Burnsville Lake WMA.\(^16\) This route alternative would be 19.2 miles, roughly 3.7 miles longer than the proposed alternative, and parallel to an existing natural gas pipeline for 6 miles.\(^17\) As

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\(^9\) MVP Draft SEIS at 25.
\(^10\) Id.
\(^11\) Under the MLA, the BLM has authority to grant rights-of-way through “federal land.” 30 U.S.C. § 185(a). The MLA defines “federal lands” as “all lands owned by the United States except lands in the National Park System, lands held in trust for an Indian or Indian tribe, and lands on the Outer Continental Shelf.” Id. § 185(b)(1). In this case, the BLM has authority under the MLA because the pipeline proposes to cross federal lands managed by two or more federal agencies. Id. § 185(c)(2).
\(^12\) On October 13, 2017, FERC issued a Certificate of Public Convenience and Necessity, which approved the proposed route. Even though FERC serves as the lead agency for interstate natural gas pipelines, an applicant must obtain approval from other federal agencies to cross federal lands (or obtain other necessary permits or approvals associated with a pipeline). Importantly, as is the case here, the BLM only has authority under the MLA as it relates to the proposed use of federal lands associated with a proposed pipeline.
\(^13\) MVP Draft SEIS at 3 (noting also that 155 miles of land along the pipeline ROW is in final restoration).
\(^14\) Mountain Valley Pipeline Revised SF 299 at Attachment A, p. 10-12; see also MVP Draft SEIS at 24-26.
\(^15\) Id. at 10; see also MVP Draft SEIS at 24.
\(^16\) Id. at 16; Figure 13a-3.5.
\(^17\) Id.
noted in the revised application, it “would cross more private landowners, be closer to three additional homes, impact more forested land, and cross steeper slope and landslide prone areas” and it was further identified as prohibitive “due to the steep terrain, previously existing utilities, other environmental concerns and proximity to residences and/or populated areas.” This route alternative would avoid the USACE lands (60 feet), which Mountain Valley already holds a valid MLA ROW, but otherwise would not change the proposed alternative crossing of 3.5 miles of the National Forest System lands.

Under the Section 28(p) first criterion, this route alternative would not offer a different opportunity for greater collocation on federal land within the BLM’s jurisdiction under the MLA, and thus does not offer a comparison between alternatives that provide for collocation on federal land. To the extent that the BLM must consider the second criterion – “practicality,” the BLM finds this route alternative to be impractical. First, this route alternative is beyond the BLM’s authority because, aside from the MLA ROW across USACE lands, it would not cross federal lands. Second, as noted above, FERC, as the lead federal agency under the Natural Gas Act, has already issued the certificate of public convenience and necessity for the proposed route, and Mountain Valley has constructed 256 miles of the 303.5 miles of pipe. Third, the route alternative would increase environmental impacts, create constructability issues associated with steeper lands, and create potential safety issues associated with proximity to residences and/or populated areas. These factors, plus the lack of change to the proposed alternative’s use of National Forest System lands, make this route alternative impractical.

Conclusion

In conclusion, the BLM has evaluated the two additional route alternatives through the practicality analysis and determined that neither of these alternatives represents a practical alternative that provides for greater collocation on federal land. This analysis is intended only as an addendum to the 2018 Practicality Analysis. The 2018 Practicality Analysis remains valid.

18 Id.
19 Id.
20 See supra note 11. Additionally, Mountain Valley has already completed construction of the pipeline across USACE via conventional boring. See Mountain Valley Pipeline Revised SF 299 at page 1.
21 See supra note 12.
22 See supra note 13.
23 Mountain Valley Pipeline Revised SF 299 at Attachment A, p. at 16.
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Appendix B – Federally Listed Species and Regional Forester Sensitive Species
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### Table B-1. Endangered Species List Species and Regional Forester Sensitive Species Addressed in this FSEIS

<table>
<thead>
<tr>
<th>Group</th>
<th>Listing (2020)</th>
<th>Species Name</th>
<th>Common Name</th>
<th>Screening / Survey Result</th>
<th>Survey status</th>
<th>2017 BE</th>
<th>2018 RFSS</th>
<th>2020 SBA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fish</td>
<td>Federal E</td>
<td><em>Etheostoma osburni</em></td>
<td>Candy darter</td>
<td>Suspected downstream of project/activity area. Within cumulative effects area</td>
<td>N/A</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Fish</td>
<td>RFSS</td>
<td><em>Notropis semperasper</em></td>
<td>Roughhead shiner</td>
<td>Suspected downstream of project/activity area. Within cumulative effects area</td>
<td>N/A</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fish</td>
<td>RFSS</td>
<td><em>Noturus gilberti</em></td>
<td>Orangefin madtom</td>
<td>Suspected downstream of project/activity area. Within cumulative effects area</td>
<td>N/A</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fish</td>
<td>Federal E</td>
<td><em>Percina rex</em></td>
<td>Roanoke logperch</td>
<td>Suspected downstream of project/activity area. Outside cumulative effects area</td>
<td>N/A</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Fish</td>
<td>RFSS</td>
<td><em>Phenacobius teretulus</em></td>
<td>Kanawha minnow</td>
<td>Suspected downstream of project/activity area. Within cumulative effects area</td>
<td>N/A</td>
<td>X</td>
<td></td>
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</tbody>
</table>

Jefferson National Forest
<table>
<thead>
<tr>
<th>Group</th>
<th>Listing (2020)</th>
<th>Species Name</th>
<th>Common Name</th>
<th>Screening / Survey Result</th>
<th>Survey status</th>
<th>2017 BE</th>
<th>2018 RFSS</th>
<th>2020 SBA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mussel</td>
<td>Federal T</td>
<td><em>Elliptio lanceolata</em></td>
<td>Yellow lance</td>
<td>Suspected downstream of project/activity area. Outside cumulative effects area</td>
<td>N/A</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Mussel</td>
<td>Federal E</td>
<td><em>Epioblasma triquetra</em></td>
<td>Snuffbox</td>
<td>Suspected downstream of project/activity area. Outside cumulative effects area</td>
<td>N/A</td>
<td>N/A</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Mussel</td>
<td>Proposed Federal T</td>
<td><em>Fusconaia masoni</em></td>
<td>Atlantic pigtoe</td>
<td>Suspected downstream of project/activity area. Outside cumulative effects area</td>
<td>N/A</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Mussel</td>
<td>RFSS</td>
<td><em>Lasmigona subviridis</em></td>
<td>Green floater</td>
<td>Suspected downstream of project/activity area. Within cumulative effects area</td>
<td>N/A</td>
<td>N/A</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Mussel</td>
<td>Federal E</td>
<td><em>Pleurobema clava</em></td>
<td>Clubshell</td>
<td>No records on the JNF</td>
<td>N/A</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Mussel</td>
<td>Federal E</td>
<td><em>Parvaspina collina</em></td>
<td>James spinymussel</td>
<td>Suspected downstream of project/activity area. Outside cumulative effects area</td>
<td>N/A</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Dragonfly</td>
<td>RFSS</td>
<td><em>Hylogomphus viridifrons</em></td>
<td>Green-faced clubtail</td>
<td>New R, Craig Ck, Pound R, Locust Spring</td>
<td>N/A</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dragonfly</td>
<td></td>
<td><em>Ophiogomphus incurvatus alleghaniensis</em></td>
<td>Allegheny snaketail</td>
<td>No longer on RFSS List</td>
<td>N/A</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group</td>
<td>Listing (2020)</td>
<td>Species Name</td>
<td>Common Name</td>
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<td>Survey status</td>
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<td>2018 RFSS</td>
<td>2020 SBA</td>
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<td>-------------</td>
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<td>----------------------------------------------------------------</td>
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<td>---------</td>
</tr>
<tr>
<td>Butterfly</td>
<td>RFSS</td>
<td><em>Atrytone arogos</em></td>
<td>Arogos skipper</td>
<td>Historic records, Blacksburg area.</td>
<td>Assume presence</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Butterfly</td>
<td>RFSS</td>
<td><em>Calephelis borealis</em></td>
<td>Northern metaltmark</td>
<td>Montgomery County and historical records from Giles County</td>
<td>Assume presence</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Butterfly</td>
<td>RFSS</td>
<td><em>Danaus plexippus</em></td>
<td>Monarch</td>
<td>Suitable habitat occurs</td>
<td>Assume presence</td>
<td>X</td>
<td></td>
<td></td>
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<tr>
<td>Butterfly</td>
<td>RFSS</td>
<td><em>Erora laeta</em></td>
<td>Early hairstreak</td>
<td>Historical records from Giles, Montgomery Cos.</td>
<td>Assume presence</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Butterfly</td>
<td>RFSS</td>
<td><em>Erynnis martialis</em></td>
<td>Mottled duskywing</td>
<td>Historical records from Montgomery County</td>
<td>Assume presence</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Butterfly</td>
<td>-</td>
<td><em>Speyeria diana</em></td>
<td>Diana fritillary</td>
<td>No longer on RFSS List</td>
<td>N/A</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Butterfly</td>
<td>RFSS</td>
<td><em>Speyeria idalia</em></td>
<td>Regal fritillary</td>
<td>Habitat present</td>
<td>Assume presence</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bee</td>
<td>Federal E</td>
<td><em>Bombus affinis</em></td>
<td>Rusty patched bumble bee</td>
<td>Habitat present outside of Action Area</td>
<td>N/A</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beetle</td>
<td>-</td>
<td><em>Hydraena maureenae</em></td>
<td>Maureen's shale stream beetle</td>
<td>No longer on RFSS List</td>
<td>N/A</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liverwort</td>
<td>RFSS</td>
<td><em>Plagiochila virginica</em></td>
<td>A liverwort</td>
<td>Not observed</td>
<td>Survey completed; no individuals found</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Table B-1 (continued). Federally Listed Species and Regional Forester Sensitive Species Addressed in this FSEIS

<table>
<thead>
<tr>
<th>Group</th>
<th>Listing (2020)</th>
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<th>2020 SBA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liverwort</td>
<td>RFSS</td>
<td><em>Radula tenax</em></td>
<td>A liverwort</td>
<td>Not observed</td>
<td>Survey completed; no individuals found</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mammal</td>
<td>Federal E</td>
<td><em>Corynorhinus townsendii virginianus</em></td>
<td>Virginia big-eared bat</td>
<td>No records on JNF</td>
<td>N/A</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mammal</td>
<td>Federal E</td>
<td><em>Myotis grisescens</em></td>
<td>Gray bat</td>
<td>No records on JNF</td>
<td>N/A</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mammal</td>
<td>RFSS</td>
<td><em>Myotis leibii</em></td>
<td>Small-footed bat</td>
<td>Species in project area, outside of activity area</td>
<td>Assume presence</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Mammal</td>
<td>Federal T</td>
<td><em>Myotis septentrionalis</em></td>
<td>Northern long-eared bat</td>
<td>Habitat present, species not found previously</td>
<td>N/A</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mammal</td>
<td>Federal E</td>
<td><em>Myotis sodalis</em></td>
<td>Indiana bat</td>
<td>Habitat present, species not found previously</td>
<td>N/A</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mammal</td>
<td>RFSS</td>
<td><em>Perimyotis subflavus</em></td>
<td>Tricolored bat</td>
<td>Not captured on JNF</td>
<td>Assume presence</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vascular Plant</td>
<td>Federal E</td>
<td><em>Arabis serotina</em></td>
<td>Shale barren rock cress</td>
<td>No records on JNF</td>
<td>N/A</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vascular Plant</td>
<td>RFSS</td>
<td><em>Berberis canadensis</em></td>
<td>American barberry</td>
<td>Species in project area, outside of activity area</td>
<td>N/A</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vascular Plant</td>
<td>RFSS</td>
<td><em>Clematis coactilis</em></td>
<td>Virginia white haired leatherflower</td>
<td>Survey completed; no individuals found</td>
<td>Not observed</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vascular Plant</td>
<td>RFSS</td>
<td><em>Delphinium exaltatum</em></td>
<td>Tall larkspur</td>
<td>Survey completed; no individuals found</td>
<td>Not observed</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Table B-1 (continued). Federally Listed Species and Regional Forester Sensitive Species Addressed in this FSEIS

<table>
<thead>
<tr>
<th>Group</th>
<th>Listing (2020)</th>
<th>Species Name</th>
<th>Common Name</th>
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<th>Survey status</th>
<th>2017 BE</th>
<th>2018 RFSS</th>
<th>2020 SBA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vascular Plant</td>
<td>Federal E</td>
<td><em>Echinacea laevigata</em></td>
<td>Smooth coneflower</td>
<td>Lack of suitable habitat</td>
<td>Not observed</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Vascular Plant</td>
<td>Federal T</td>
<td><em>Isotria medeoloides</em></td>
<td>Small whorled pogonia</td>
<td>Lack of suitable habitat</td>
<td>N/A</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Vascular Plant</td>
<td>RFSS</td>
<td><em>Monotropis odorata</em></td>
<td>Sweet pinesap</td>
<td>Habitat present</td>
<td>Assume presence</td>
<td></td>
<td>X</td>
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<tr>
<td>Vascular Plant</td>
<td>RFSS</td>
<td><em>Scutellaria saxatilis</em></td>
<td>Rock skullcap</td>
<td>Species located in activity area</td>
<td>N/A</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Vascular Plant</td>
<td>Federal T</td>
<td><em>Spiraea virginiana</em></td>
<td>Virginia spiraea</td>
<td>Lack of suitable habitat</td>
<td>N/A</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Vascular Plant</td>
<td>RFSS</td>
<td><em>Talinum teretifolium</em></td>
<td>Quill fameflower</td>
<td>Survey completed; no individuals found</td>
<td>Not observed</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Vascular Plant</td>
<td>Federal E</td>
<td><em>Trifolium stoloniferum</em></td>
<td>Running buffalo clover</td>
<td>No records on JNF</td>
<td>N/A</td>
<td></td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

`RFSS = Regional Forester Species, Federal E = ESA-endangered, Federal T = ESA-threatened, SBA = 2020 Supplement to the Biological Assessment.`
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Appendix C – Agency Response to Comments
Between September 27, 2020 and November 9, 2020, the Forest Service received public comments regarding the DSEIS. Public comments are summarized by the concern statements below and grouped by topic of concern. The Forest Service and BLM responses follow each concern statement.

Purpose and Need

**Concern Statement 001:** Commenters expressed concern that the Forest Service should not contradict the Fourth Circuit order vacating the Nationwide Permit 12 for the MVP.

Commenters sought clarification that the Fourth Circuit did not mention threatened and endangered species in its discussions of NFMA issues and which Planning Rule requirements were “directly related” to the proposed Forest Plan amendment.

**Response 001:** At the time of writing, the Fourth Circuit has not vacated the 2020 U.S. Army Corps of Engineers Nationwide Permit 12 for the MVP Project. On November 9, 2020, the Court granted the motions for stay based on its consideration of submissions and arguments on petitioners’ motions, pending briefing and a decision on the merits. This stay is not permanent and does not represent full disposition of the case.

Under the current application, including the FERC approved variances, the applicant is required to obtain Clean Water Act Section 404 permit coverage (i.e., Nationwide Permit or Individual Permit) from the USACE, as applicable. The FSEIS has been updated to clarify the relationship between the Fourth Circuit, NFMA, Clean Water Act, and threatened and endangered species.

**Concern Statement 002:** Commenters sought consideration of all pertinent information postdating the FERC FEIS. Respondents sought additional analysis and public comment opportunities to provide the hard look required by NEPA. Commenters said that the DSEIS did not justify amending the JNF Forest Plan or issuing the proposed ROW.

**Response 002:** As documented in the FSEIS Section 1.6, the Agencies did consider more information than the specific deficiencies identified by the Fourth Circuit Court. As required by 40 CFR § 1502.9(c)(1)(i)-(ii) (1978, as amended in 1986 and 2005), the Forest Service and BLM considered new information and changed circumstances that have occurred since the 2017 FERC FEIS was published. This new information and these changed circumstances included in the FSEIS were determined to have substantial relevance to the environmental concerns and/or bearing on the proposed actions or its effects on the JNF.

Additional analyses have occurred related to the new information, and changed circumstances for those items are identified in Section 1.8 Scope of the Analysis in the FSEIS. A 45-day comment period was provided for the DSEIS and is the regulatory timeframe for public comment opportunities on an EIS (40 CFR § 1506.10(c)) (1978, as amended in 1986 and 2005). The Forest Service and BLM believe the FSEIS, these responses to comments, and its supporting record provide the hard look as required by NEPA (40 CFR § 1502.14) (1978, as amended in 1986 and 2005).

**Concern Statement 003:** Commenters suggested that there is not a justifiable need for the pipeline. Further, commenters said that the purpose and need is too narrowly defined, relying on outdated information that does not recognize market and legislative trends in the Mid-Atlantic states where solar and other renewables are being prioritized. Commenters expressed concern that the purpose and need does not serve the public good, saying that it effectively authorizes the use of eminent domain.
The SEIS Summary (page i) should include the following new information: The Certificate issued by FERC for the MVP project was due to expire on October 13, 2020. On October 9, 2020, FERC extended that deadline to October 13, 2022. This two-year extension provides the Forest Service with additional time to ensure that the SEIS adequately addresses the issues the Fourth Circuit remanded back to the agencies.

Response 003: The FERC has sole authority to make determinations related to public necessity. Under the October 13, 2017 Order Issuing Certificates And Granting Abandonment Authority, the Commission granted the requested certificate authorizations, subject to conditions. In this Order the FERC documented its rationale for determining public convenience and necessity (FERC 2017d).

In accordance with the Natural Gas Act (Title 15 United States Code (U.S.C.) § 717), the FERC is the lead Federal agency for the environmental analysis of the construction and operation of the MVP. The Forest Service participated as a cooperating agency with the Bureau of Land Management (BLM) in the preparation of the 2017 FERC FEIS.

The Forest Service and BLM authorities are triggered, in part, by their statutory obligations as a cooperating agency in processing applications for natural gas pipelines involving Federal land under provisions Section 28 of the Mineral Leasing Act of 1920 (30 U.S.C. § 181) and Section 313 of the Energy Policy Act of 2005. In enacting the Natural Gas Act, Congress clearly articulated that the transportation and sales of natural gas in interstate commerce for ultimate distribution to the public is in the public interest.

The FERC is responsible for authorizing interstate natural gas transmission facilities; and, by law is responsible for coordinating all applicable Federal authorizations. Federal agencies with a role in authorizing an application for a natural gas pipeline are required by law to cooperate in processing the application and to comply with the processing schedule established by FERC (Section 313 of Energy Policy Act of 2005).

The Forest Service’s purpose and need for action is to respond to a proposal from Mountain Valley to construct and operate a buried 42-inch interstate natural gas pipeline that would cross NFS lands on the JNF along a proposed 3.5-mile corridor. Mountain Valley’s purpose and need for the MVP project, as articulated in the 2017 FERC FEIS and its October 13, 2017 Order, is still valid today. The demand trend for natural gas has been increasing in the U.S. The U.S. Energy Information Administration projected in their 2020 Annual Energy Outlook that U.S. natural gas consumption is likely to slow after 2020. The EIA Outlook also estimated that U.S. natural gas production is expected to grow at a faster rate than consumption after 2020; consumption is expected to rise after 2030 while remaining relatively flat between now and 2030.

The FERC examined the natural gas demand issue in 2017 and determined “end users will generally benefit from the projects because they will develop gas infrastructure that will serve to ensure future domestic energy supplies and enhance the pipeline grid by connecting sources of natural gas markets in the Northeast, Mid-Atlantic, and Southeast regions” (FERC 2017d).

The purpose of the Forest Service’s SEIS is not to approve the overall pipeline project. As stated in the FSEIS (Section 1.3), the Forest Service’s and BLM’s purpose and need for the SEIS is much narrower than was described in the FERC FEIS. The Forest Service and BLM decisions are limited to federal lands and are subcomponents of the larger FERC decision, which has already been made by the FERC when they issued the October 2017 Order for the MVP project, which has undergone legal challenge and remains valid.
The two-year extension, although an administrative change since the 2017 FERC FEIS was published, does not have a substantial change in the effects analyzed in the FSEIS. The substantial effects to the scope of the activities and impacts on the JNF from the overall delay, such as the loss in soil productivity and any approved variances on the JNF, have been analyzed in the FSEIS.

**Concern Statement 004:** Commenters were concerned with reliance on the FERC FEIS, saying that the Court found that the Forest Service was arbitrary and capricious in adopting a sedimentation analysis in the FERC FEIS and that the FERC FEIS contained numerous errors regarding the environmental consequences of this project. Commenters said changes have occurred that render the FERC FEIS outdated and now even more in error.

**Response 004:** The 2017 FERC FEIS withstood legal challenge, remains valid, and provides the basis for the broader decision to allow for construction and operation of the MVP project. The Fourth Circuit’s July 27, 2018 decision concluded that the Forest Service violated NEPA by adopting the sedimentation analysis in the FERC FEIS and NFMA regarding a decision to amend the JNF LRMP in response to the proposed MVP project. The Fourth Circuit also concluded that the BLM failed to acknowledge its obligations under the MLA. However, the Fourth Circuit upheld the Forest Service’s and the BLM’s adoption and reliance on FERC’s FEIS with respect to the other NEPA claims. This Forest Service FSEIS is intended to correct the Court-identified deficiencies and address notable changes that have occurred since the FERC FEIS was published.

**Concern Statement 005:** Commenters were concerned about the level of consultation with local and state agencies in preparation of this document.

**Response 005:** The Forest Service met the 40 CFR § 1502.24 (1978, as amended in 1986 and 2005) environmental review and consultation requirements to comply with other Federal environmental review laws and EOs. Since the 2017 FERC FEIS’s release, the Court’s 2018 ruling, and in particular since initiating work on the SEIS, the Forest Service and BLM have been in coordination with other Federal Agencies regarding respective roles, authorities and decisions pertaining to the MVP. The Forest Service has coordinated with state and local agencies concerning the SEIS and provided opportunities for comment and input. The SEIS was prepared by Forest Service and BLM personnel along with an independent third-party contractor. Information was acquired from other federal agencies, third-party contractors, the energy industry, consulting scientists, researchers, professional staff, and the applicant. All information utilized in the SEIS has been independently reviewed and accepted by the federal interdisciplinary team. Information regarding tribal consultation is provided in the responses to Concern Statements #127 and 128.

**Alternatives**

**Concern Statement 006:** Commenters expressed concern that the ANST crossing is inconsistent with the JNF Forest Plan, especially Management Area 4A.

**Response 006:** Forest Service special uses initial screening criteria set forth in 36 CFR § 251.54 (e)(1) require that the proposed use be consistent with or can be made consistent with standards and guidelines in the applicable Forest land and resource management plan. The proposal can be modified to be consistent with the forest land and resource management plan, or the plan can be amended to modify plan components with which the proposal cannot be made consistent, thereby allowing the proposed project to be consistent with the amended plan. The JNF chose the option to amend the plan, and Section 3.4.4.4 of the FSEIS describes in detail the amendment process.

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and how the proposed project will be consistent with the ANST plan components within the amended plan.

**Concern Statement 007:** Commenters supported selection of the No Action Alternative for a variety of reasons, including the environmental damage and inspection violations that have occurred elsewhere on the pipeline route, the pipeline being contrary to the Forest Service's mission, and because they favor a priority on renewable energy over fossil fuel projects.

**Response 007:** Violations have been cited by VDEQ and an MOU was developed which placed further requirements on the proponent to execute additional mitigations such as increased number of ECDs and increased staffing. While VDEQ issued citations to Mountain Valley for violations, no citations were issued because of non-compliance on NFS lands. The Forest Service discloses additional mitigations in the POD and FSEIS (Section 2.2.2.2). The FERC is the agency responsible for regulating energy development projects in accordance with regulations. Additional discussion of violations is provided in the response to comments under Permit Compliance.

The granting of a pipeline ROW across NFS lands is consistent with the Forest Service’s mission. The MLA recognizes the need for issuing pipeline ROWs across federal lands and the Energy Policy Act of 2005 directs the Secretary to take steps to expedite applications for energy transmission across federal lands. In addition, granting of a natural gas pipeline ROW is consistent with the energy infrastructure and economic development priorities of the USDA. These priorities are reflected in several Presidential Executive Orders (EO): EO 13766, Expediting Environmental Reviews and Approvals for High Priority Infrastructure Projects; EO 13868, Promoting Energy Infrastructure and Economic Growth; and EO 13927, Accelerating the Nation’s Economic Recovery From the COVID-19 Emergency by Expediting Infrastructure Investments and Other Activities.

**Concern Statement 008:** Commenters expressed concern that the terrain of steep slopes of rock and karst are not suitable for a high-pressure pipe with multiple right angle turns in these conditions.

**Response 008:** Environmental effects to steep slopes and karsts are disclosed in the FERC FEIS (Appendices G, K, L) and in the FSEIS (Sections 3.3.11 and 3.4.1.2). To minimize or avoid impacts, modeling, investigations, and site-specific designs were identified are disclosed in the POD and FSEIS. The FERC has the sole authority to approve reduction in exclusion zone.

**Concern Statement 009:** Commenters said that FERC has recently granted construction permissions for MVP, except for an exclusion zone of mileposts 196.0 through 221.0 - a zone which Mountain Valley has asked to be reduced. There is concern that if the zone were to be reduced, it could introduce construction impacts bordering an area which includes public lands, the impacts of which should be addressed.

**Response 009:** Environmental effects of construction outside of NFS lands are the responsibility of the FERC and are disclosed in the FERC FEIS.

**Concern Statement 010:** Commenters said that agencies cannot allow the costs incurred by MVP to date to tilt the agencies' determination of whether to approve the project or what route to require.

**Response 010:** Project costs for this specific project do not factor into the Forest Service’s decision-making under NEPA and NFMA. Economic factors, such as costs incurred by the proponent, are under the authority of the FERC for consideration on the entire length of the MVP proposal.
Incurred proponent costs are not an environmental effect and will not be a factor in the Forest Service’s decision on whether or not to amend the JNF Forest Plan or the BLM decision related to ROW authorization and use. Agency determinations are based on the FSEIS.

**Concern Statement 011:** Commenters said that the amended Forest Plan standards should specifically list or cite the applicable requirements in the POD and design features that must be implemented, rather than referring to them generically.

Commenters sought standard operating procedures for the construction monitoring program that specify how often the monitors will provide reports to federal agencies.

**Response 011:** Edits were made to the FSEIS (Table 2) to clarify the required protective measures in the POD that apply to each Forest Plan standard that would be amended.

Independent monitoring would continue until construction and restoration are complete. Monitoring would occur daily, and reports would be provided to the Forest Service and BLM on a daily and weekly basis.

**Concern Statement 012:** Commenters expressed concern about repeated trespassing along the ROW on NFS lands and the responsive action taken by the Forest Service, the FERC, or law enforcement. Commenters sought analysis of trespass related degradation in the ROW and compromise of the ECDs.

**Response 012:** Public access to the JNF, and all NFS lands, remains open except when specific closure orders are implemented (see Response to Concern Statement #040). Motorized vehicle travel is limited to routes or areas designated as open to that use. The proposed MVP ROW is not a NFS route or area that is designated as open to motorized travel by the public. As described in the SEIS, the proposed MVP ROW is monitored daily, and ECDs are repaired and/or enhanced as needed.

When identified, known or observed occurrence of motorized travel on the MVP ROW is brought to the attention of the Agency, Forest Service law enforcement is notified, and the Forest works with appropriate parties to eliminate access by motorized vehicles.

**Concern Statement 013:** Commenters said that the Forest Service and BLM have failed to demonstrate that alternative routes that would increase collocation with existing rights-of-way would be impractical (that the alternative physically cannot be done or would fail to achieve the project's basic purpose). "Practical," as used in subsection 185(p), should be interpreted analogously to “practicable” as used in regulations implementing Section 404 of the Clean Water Act.

**Response 013:** Consistent with 30 U.S.C. § 185(p) and the U.S. Court of Appeals for the Fourth Circuit’s decision in *Sierra Club, Inc. v. U.S. Forest Serv.*, 897 F.3d 582 (4th Cir. 2018), *reh’g granted in part*, 739 Fed. App’x 185 (4th Cir. 2018), the BLM analyzed whether the alternatives provided for collocation of the proposed ROW on federal land to the extent practical. On August 23, 2018, the BLM prepared an analysis of the route alternatives examined in the FERC FEIS, outlining in detail the criteria it used for assessing the practicality of each alternative. In connection with MVP’s revised MLA ROW application, the BLM provided an addendum to the August 23, 2018 practicability analysis in order to analyze two additional route alternatives not considered in the FERC FEIS. The BLM’s addendum relied on the same criteria outlined in the August 23, 2018, practicability analysis. Together these analyses are reasonable and sufficient, satisfying the requirement in 30 U.S.C. § 185(p).
Concern Statement 014: Commenters were concerned that off-NFS routes were not adequately analyzed. As explained in Cowpasture, “[t]his is a significantly different standard than whether the proposed use ‘cannot reasonably be accommodated off of National Forest System lands.’” The Agency is not required to choose a new route for the entire pipeline but to consider off-forest routes and deny the special use permit if reasonable off-forest routes are available. The fact that a majority of the MVP has already been constructed does not diminish the Agency’s obligation to consider off-NFS alternatives. As such, off-forest alternative routes for MVP were never adequately considered in the FERC FEIS or the DSEIS for purposes of NEPA or NFMA.

Commenters suggested that the Forest Service must look at routes that would minimize acreage of forest in the ROW, reduce environmental impacts, or both. No analysis has been done to determine whether collocation with existing utility corridors close to the proposed ROW might reduce impacts on the forest by reducing disturbance, particularly in areas designated as old growth or that may affect rare species. While the MVP SF-299 Form and the FEIS considered collocation routes on a larger scale, like Alternative 1, they did not consider smaller route changes meant specifically to eliminate or reduce forest crossings in the exclusion zone roughly between Mileposts 196 through 221. This exclusion zone is new information that has not been considered in any analysis. The FSEIS must consider these options in order to satisfy NEPA and NFMA.

Some commenters noted that the FERC has recently granted construction permissions for MVP, except for an “exclusion zone” of mileposts 196.0 through 221.0 - a zone which MVP has asked to be reduced. They were concerned that if the zone (which would abut the JNF) was further reduced, it could result in impacts to NFS lands that had not been evaluated.

Commenters state that the Forest Service cannot rely on an argument that alternative routes around the JNF have additional impacts; the currently proposed ROW is not justifiable. The additional impacts of re-routing the MVP around the JNF would be far less than the combined impacts of both the MVP and ACP, had the latter not been recently cancelled by its developers.

Response 014: To comply with NEPA, the Forest Service was required to document the examination of reasonable alternatives to the proposed action. “An alternative should meet the purpose and need and address one or more significant issues related to the proposed action. Since an alternative may be developed to address more than one significant issue, no specific number of alternatives is required or prescribed” 36 CFR 220.5(e).

As noted in Section 1.8 of FSEIS, the scope of the analysis was focused on the issues identified by the Fourth Circuit as well as the need to consider new information and changed circumstances. Alternatives that FERC considered but eliminated from detail in the 2017 FEIS that remain valid and contribute to the range of alternatives analyzed within this analysis. See Section 3.2 of the FERC FEIS (pp. 3-4 and 3-119).

Table 3 (FSEIS, Section 2.3.1), displays how the Forest Service used the BLM Practicality Analysis (as amended) to take a fresh look and evaluate whether its alternatives would meet the Court-identified issue for alternatives. The criteria used to evaluate whether this issue had been adequately addressed are found in Section 2.3.1 of the FSEIS. An alternative that would locate the pipeline completely off NFS lands, which was not within the 2017 FERC FEIS, was included in the DSEIS and the FSEIS (i.e., the Forest Service avoidance alternative). Table 3 also displays that an evaluation of how different routes and alternatives would change pipeline miles resulting in additional impacts to NFS lands. This approach is consistent with the direction found in 40 CFR Section 1502.14 (1978, as amended in 1986 and 2006) which speaks to requiring the EIS to examine all reasonable alternatives to the proposal. In determining the scope of alternatives to be
considered, the emphasis is on what is “reasonable” rather than on whether the proponent or applicant likes or is itself capable of carrying out a particular alternative (CEQ 1986).

However, in response to comments received on the DSEIS that included recommendations on the route options that would reduce or remove impacts to NFS lands, the Forest Service reviewed three additional route options that would avoid NFS lands. See that evaluation in the response to Concern Statement #015. These alternatives are added to Table 3 in the FSEIS.

Regarding minor route alternatives, Section 2.3 of the DSEIS describes the route analysis that was conducted by the FERC. This analysis, which involved the Forest Service, included the consideration of minor route variations and alternative crossing locations on the JNF (FERC FEIS, Sec. 3.4, pp. 3-17 to 3-32). For example, one of the earlier and preliminary “smaller” routes proposed by Mountain Valley would have crossed the Peters Mountain Wilderness (FERC FEIS, p. 3-47). By working with the Forest Service, that route was considered but dismissed. Figure 3.5.1-2 in the FERC FEIS displays at least four of the small route variations that were considered with Forest Service input. Because the Forest Service has been actively involved in the minor route-alternative process, the current analysis on route deviations has received a hard look.

Some commenters voiced concerns that FERC may (in the future) authorize construction in the “exclusion zone” up to the border of NFS lands that could result in impacts to the JNF that had not been evaluated in the FERC FEIS or the DSEIS. This refers to the September 22, 2020 request by MVP to the FERC to resume construction activities except for pipeline segments from mileposts 196.2-201.6 and 218.6-220.9 (the exclusion zone). On October 9, 2020, the FERC decision was to not reduce the exclusion zone around the JNF, between mileposts 196 and 221. The Forest Service reviewed the Hydrologic Analysis for the JNF, which included a catchment level evaluation, in relation to areas where construction could potentially resume. The Forest Service did not identify additional effects that have not already been disclosed. Should the exclusion area be reduced up to the border of NFS lands, any construction action off NFS lands is not likely to cause additional (and undisclosed) sedimentation impacts to NFS due to topography and elevation.

Concern Statement 015: A commenter provided three alternative route recommendations to avoid NFS lands. The recommendations include the following:

1. Recommended Gap Alternative: “Gaps in Forest Service ownership exist southwest of both current crossings, and the Forest Service must consider whether re-routing around the forest is reasonable by modifying some or all of the route currently planned near or in the construction exclusion zone (approximately MP 196.0 to 221.0).”

2. Recommended WB Xpress Alternative: “The Forest Service should consider whether a connection with the WB XPress Pipeline would meet the project purpose while avoiding national forest system lands and take into account the fact that Transco is now bidirectional.”

3. Recommended Transco Alternative: As displayed in Figure 2 of the DSEIS, the route parallels the existing Trancso pipeline for dozens of miles. Building new, parallel pipe here appears unnecessary. At the least, the Forest Service should explain why MVP could not connect to Transco at the northern terminus reflected on Figure 2 and fulfill the goals of the project. That route would entirely avoid Forest Service land, and it appears to be shorter than the preferred route.

Response 015: The Forest Service reviewed a map attachment that had been provided by a commenter and made route observations before looking back to the FERC FEIS to see if that
route had been already considered. The Forest Service had the following observations in order to avoid NFS lands around MP 196 to 221, specifically the 3.5 miles total of NFS lands:

**Recommended Gap Alternative:**

**North Route:** The route would go north from its current location; and, to be within the general proximity of the current route, this would encounter the designated Peters Mtn Wilderness. A route proposal that included crossing designated wilderness had been considered and eliminated early in the FERC process. The Forest Service looked for an alternative that could be routed north and avoid NFS lands yet still be routed back to the proposed pipeline route to the east (and off) NFS lands in the shortest distance possible. The distance needed to circumvent NFS lands to the north or south was considered excessive. A new north route that avoided NFS would go well beyond the designated wilderness, cross private (or other) lands west to east, and then connect (south) to the current pipeline route that is east of NFS lands. An alternative that routes the pipeline north, avoids the Peters Mountain Wilderness, and is shorter in distance, would still go through NFS. After this evaluation, the Forest Service reviewed the FERC FEIS and found that this route alternative was already described as Variation 110R; and, it would cross almost twice as much NFS lands (FERC FEIS, pp. 21, 23).

**South Route:** To avoid NFS lands, the route would have to go south through private lands around MP 195 in West Virginia or to Interstate 77, possibly tie into the existing Tennessee Natural Gas line, and then be re-connected with the current proposed alignment around Blacksburg, Virginia. After reviewing this option, the Forest Service reviewed the FERC FEIS and found that this route is similar to the option described in the FERC FEIS as Alternative 1 (FERC FEIS, pp. 3-20 to 3-21).

Another option that could have provided an opportunity to place the pipeline off NFS lands and address the “gaps” in land ownership was an earlier land exchange proposal (prior to 2019) that had been considered by the MVP, LLC. However, that land exchange transaction was never completed, eliminating timely completion of the project, thereby continuing the environmental impacts of an unfinished construction project.

One commenter suggested the Forest Service had not reviewed other route options. Research of previous Forest Service comments and responses to route options found that the Forest Service was entirely engaged in the review of routes. For example, on October 23, 2015, the Forest Service provided its comments to Mountain Valley on alternative routes including Alternatives 1, the Northern Pipeline, 110, 110J, 110R, the Peters Mountain variation and Alternative 93 and identified resource issues and questions for each option.

On March 13, 2015, the Forest Service sent Mountain Valley a letter which acknowledged completing additional screening to address the request for surveying alternative routes including Alternatives 110J, 110R and the Brush Mountain Wilderness Alternative. The Forest Service indicated a need to understand the impacts of the entire pipeline, including impacts to both NFS and private lands.

On August 15, 2015, the Forest Service sent correspondence to the FERC reiterating that it needed studies to be complete in order to understand potential effects, particularly to geology and soils and that these reports could influence the need for route variations. This letter also stated that Mountain Valley’s discussion “should clearly articulate why the project cannot reasonably be accommodated off NFS lands”.

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One commenter stated that no agency had reviewed collocation opportunities between milepost 196 and milepost 221. A review of August 20, 2015 meeting notes between Mountain Valley and the Forest Service indicates that Alternative 200 was under review and that collocation with other pipelines had been considered but was difficult due to the presence of karst topography. Collation with the AEP project was considered but eliminated because true collocation was not possible; a separate ROW would have to be implemented parallel to the AEP ROW. Other issues related to the AEP were the inability to conduct blasting, and the foreseen safety hazards and construction issues associated with not being able to maintain the MVP during construction if within the AEP ROW. During the August 20, 2015 meeting, the FS inquired about the potential for collate the pipeline with route 460. Mountain Valley stated that the existing utilities along the road make it difficult for pipeline construction and also noted the proximity to homes and businesses.

The BLM, who would issue the ROW, addressed collocation in detail. See Alternative 1 in its 2018 Practicality Analysis at pages 9-12. In addition, the BLM reviewed the CGV variation that would collate two existing pipeline between MP 195 and 200 (pp. 12-14); the AEP-ANST variation that would cross more miles of federal lands while collating an additional 0.8 miles of federal land between 195.4 and MP 200; and the Brush Mountain Alternatives 1 and 2 between MP 219.5 and 220.7 (pp. 15-16).

In looking at the commenter’s Attachment 1, it appears the FS/BLM have reviewed the available options. There does not overtly appear to be any new, reasonable, or practicable collocation opportunities between MP 196 to MP 221 or an alternative route that would avoid or minimize use of NFS lands without encountering other resource issues including but not limited to steep slopes, karst topography, and designated wilderness.

**Recommended WB Xpress Alternative:** The Forest Service looked at the documentation for the WB Xpress pipeline, which is part of the larger Columbia Gas pipeline. The purpose of the WB Xpress was to expand the capacity of Columbia’s existing natural gas pipeline system by 1.3 million dekatherms per day and provide bi-directional transportation service in order to meet growing market demands. The WB Xpress project included the replacement of 26.2 miles of replacement pipeline and 3.1 miles of new pipeline composed of varying diameters, two new compressor stations (one gas and one electric), expansions and modifications at seven existing gas compressor stations, and other minor aboveground facilities in West Virginia and Virginia. Approximately 12 miles of the pipeline route was on the Monongahela National Forest. FERC issued an EA in 2017 and provided final approval for the project in 2018. The Forest Service (Monongahela National Forest), as a cooperating agency, issued its decision to authorize a special use permit for the gas line in August 2017 (Forest Service 2017b).

The Forest Service reviewed the TransCanada WB Xpress pipeline project map in relation to the MVP proposed route and NFS (JNF) lands. It was unclear to the Forest Service why the 26-mile segment of the WB Xpress segment was highlighted when it is part of the larger TransCanada (Columbia) gas line. In order for the MVP to avoid additional impacts to NFS lands (note the Columbia line already impacts the Monongahela NF and the George Washington NF), the MVP would have to be routed to tie in with the TransCanada (Columbia) gas line. The TransCanada pipeline goes across NFS lands twice with one segment going northeast and passing through Washington D.C., and the second segment going southeast and passing through Petersburg, Virginia. Re-routing the MVP to use these other gas lines results in the gas not getting to its intended location in the most direct manner possible. The Forest Service had incomplete information to know whether the Columbia gas line would be able to accommodate the additional volume of gas that the MVP is intended to provide. In summary, it does not seem reasonable to take a more indirect route via the Columbia gas line to the Transco Interconnect. After
completing this review, the Forest Service looked at the FERC FEIS and found that a Columbia System Pipeline alternative had been considered but dismissed for reasons including (but not limited to) capacity which is already contracted (spoken for) (FERC FEIS, pp. 3-10 to 3-11). The WB Xpress pipeline alternative had been considered but eliminated because of current pipeline capacity limitations (FERC FEIS, p. 3-16).

**Recommended Transco Alternative:** The Forest Service used the figure in FERC FEIS (p. 3-8) to review the Transco pipeline location in relation to the proposed MVP route. This figure is helpful in that it shows the general location of several natural gas lines that serve the East Coast (including the Appalachian region). To use the Transco gas line, the Columbia line would be used to transport the product east to its intersection with Transco. From that point the product would be transported south to about MP 300 – the currently proposed MVP terminus. The Forest Service reviewed the use of the Columbia gas line in the previous alternative and found that it did not seem reasonable to take a more indirect route via the Columbia gas line to the Transco Interconnect. For this reason, the Transco route is not reasonable. After completing this review, the Forest Service reviewed the FERC FEIS and found this alternative had been considered but eliminated because it currently does not extend to the natural gas production areas of West Virginia (FERC FEIS, p. 3-13).

See the response to the previous concern which describes what is required for alternative development according to the FS NEPA regulations, the scope of this analysis, and alternatives already considered but eliminated from detailed study.

**Concern Statement 016:** Commenters expressed concern that the project would be inconsistent with the Forest Plan, which states, for Management Area 8C, “The landscape character of this area retains a natural forested appearance” (JNF Plan 3-120).

**Response 016:** The concern statement’s cited passage is contained within the Desired Condition description for the Black Bear Habitat Management Prescription 8C. The proposed pipeline ROW, and its associated construction zone, does not cross Management Prescription 8C, and therefore will have no effect upon it. Additionally, the proposed project needs to be consistent only with Forest Plan Standards and Guidelines, not Desired Conditions. FSH 1909.12 Section 21.33 states:

“The 2012 Planning Rule consistency provisions at 36 CFR § 219.15(d ) apply only to plan component(s) added or modified in conformance with, and as defined by, the 2012 Planning Rule; with respect to other plan provisions, the Forest Service's prior interpretation of consistency, that projects need only be consistent with plan standards and guidelines, applies” (FSH 1909.12 Section 21.33).

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**Concern Statement 017:** There was concern that a project requiring 11 standards to be amended veers from the vision of the Forest Plan and sets a dangerous precedent. Commenters said that adverse impacts would be significant and that the economic benefit for a private corporation does not justify environmental disturbance on public land and that there is no economic justification for the pipeline. There was concern that the rationale for changes seems to rely on the relative size of the JNF to be disturbed.

**Response 017:** Projects that are proposed for implementation within the JNF are required to be consistent with the standards contained within the Forest Plan. However, it is recognized that not
all projects can be made to be consistent with all plan standards, and this inconsistency does not necessarily preclude the forest from approving those projects. The 2012 Planning Rule contains processes that allow the Forest Service to amend the Forest Plan on a temporary, project-specific basis (36 CFR § 219.13(b)(1)) in order to modify standards with which the proposed project cannot achieve consistency. The FSEIS describes those standards that will be amended to allow this proposed project to be consistent with the amended plan.

Section 3.2 of the FSEIS discloses all adverse impacts that are anticipated from implementation of this proposed project. The commenter states that there will be significant adverse impacts that have not been disclosed in the DSEIS, yet has provided no additional information that supports this assertion.

**Concern Statement 018:** Commenters suggest that the DSEIS proposes reapproving effectively the same pipeline, along the same route, using the same Forest Plan amendments as in the FERC FEIS. Commenters state that the Forest Service previously found its 2012 Forest Planning Rule had no application to this project, while the DSEIS confirms that it does apply, but to no effect. Commenters disagree that there would be no effect; the NFMA and 2012 Planning Rule require more analysis.

The Planning Rule contains the process to amend Forest Plans on a temporary, project-specific basis (36 CFR § 219.13(b)(1)) to ensure a proposed project achieves consistency. The Fourth Circuit ruled that the Forest Service did not correctly follow the amendment procedures as described within the Agency’s regulations and directed the Forest Service to redo the amendment process properly. The Planning Rule was updated that same year to clarify and better explain the amendment process when it is applied to forest plans that were crafted prior to the 2012 Rule, such as the JNF Forest Plan. Section 3.4.4 of the FSEIS describes in detail how the Agency has followed this clarified process. This Planning Rule update was a procedural update and not a re-evaluation of project effects (that evaluation is contained in other sections of the FSEIS).

**Concern Statement 019:** Commenters said there would be no beneficial impacts for the forest from the amendments and that the alterations give a blanket, open-ended exception for the MVP. Commenters are concerned that the DSEIS makes the unsupported argument in its suggestion to change amendment FW-248 of the NFMA that the “beneficial effect” of MVP is the “same as the effect of the proposed action,” or that the economic benefit for a private corporation justifies environmental disturbance on public land. This stance presumes that the project will be operational, despite the project's ongoing legal setbacks and financial uncertainties, and it perpetuates the false narrative that the MVP is needed for domestic use. Mountain Valley’s purported need, announced in 2016, has not surfaced, as domestic demand for gas continues to be flat. Altering amendment FW-248 sets a precedent that could encourage additional unneeded fossil-fuel infrastructure across the Forest Service system, as it equates beneficial effect with economic development that is highly speculative at best. Further permissions for future projects means further cumulative impacts to waterways and soil on NFS land.

Commenters expressed that regarding Standard FW-148: The Forest Service abandons SIOs when the SEIS suggests that any project in any location may lose its SIO simply by acquiring an exception. It also acknowledges public opposition to a 500-foot utility corridor but fails to state that much of this opposition was in regards to the corridor's proximity to Peters Mountain. A plan should be developed for SIOs across the JNF and should be made available for public review and comment.

Commenters said that rather than complying with the standards in the Forest Plan, the action would make the plan consistent with adverse impacts caused by the MVP. Saying the project seeks to make the MVP
consistent with the Forest Plan, and that none of the §§ 219.8–11 requirements are related to making projects consistent with existing forest plans.

Response 019: The consideration of this proposed project is not premised on the economic benefit of a private corporation. Part of the “mission and purpose” of the JNF is to provide for multiple uses of the forest’s land and resources, including energy resources:

“GOAL 29 - Manage mineral resources to meet demands for energy and non-energy minerals.”
(Jefferson LRMP, p. 2-53)

The substantive requirements of the Planning Rule require that the Forest Plan contain plan components that provide for the multiple resources described within those requirements. For a project-specific plan amendment, these substantive requirements are to be applied to the Forest Plan within the scope and scale of the proposed amendment. Describing the small size of the proposed project area relative to the entire National Forest demonstrates how the Forest Service considered the scope and scale of the amendment when applying those directly related substantive requirements to the Forest Plan. Section 3.4.4 of the DSEIS (p. 96) describes how the JNF Forest Plan, as amended, meets the substantive requirements of the 2012 Planning Rule with the many plan components contained within the Plan, both unmodified and modified by the proposed amendment.

Projects and activities are not implemented on National Forests in order to provide “beneficial impacts for the forest.” As stated in the 2012 Planning Rule:

“Plans will guide management of NFS lands so that they are ecologically sustainable and contribute to social and economic sustainability; consist of ecosystems and watersheds with ecological integrity and diverse plant and animal communities; and have the capacity to provide people and communities with ecosystem services and multiple uses that provide a range of social, economic, and ecological benefits for the present and into the future” (36 CFR § 219.1(c))

(emphasis added).

The implementation of projects related to oil and gas development and transport is permissible under policy and direction contained within numerous laws, EOs, and agency regulations that mandate how the Forest Service manages the National Forests, as well as within the JNF Forest Plan itself.

Concern Statement 020: The DSEIS fails to adhere to several aspects of the Forest Service 2012 Planning Rule Final Directives, including the following:

Watersheds relevant to the plan should include those lands outside the National Forest System that contribute surface or subsurface water flows to the plan area, and those that receive surface of subsurface water from the plan area. Groundwater-dependent ecosystems should also be considered.

The substantive requirement at 36 CFR § 219.8(a)(2)(iv) related to water resources is never discussed, much less applied, in the DSEIS despite repeated confirmation that the amendments will affect water resources.

Response 020: Substantive requirements can be directly related to the proposed amendment either by the purpose of the amendment, or by causing substantial adverse effects or a substantial lessening of protections. The effects analysis described in Section 3.4.2.2 of the FSEIS, under the subsection for Alternative 2 – Proposed Action, concludes that all adverse effects to water resources will be short-term and minor. Additionally, due to the presence within the Forest Plan
of many other plan components that protect water resources, combined with the mitigation measures proposed within the project POD, amending these four standards does not represent a substantial lessening of protections. Therefore, this substantive requirement is not directly related to the proposed amendment based on the effects of the amendment.

The FSEIS considers the potential for effects, including those related to water resources, at the HUC-10 watershed level.

Concern Statement 021: 36 CFR § 219.8(a)(1)(ii) directs that considerations of a new or revised plan should include: “Contributions of the plan area to ecological conditions within the broader landscape influenced by the plan area.”

Response 021: “Contributions of the plan area to ecological conditions within the broader landscape influenced by the plan area” were considered throughout the analysis contained within Section 3 of the FSEIS. This concern statement has not provided specific issues that the Forest Service may have missed in its analysis.

Concern Statement 022: 36 CFR § 219.16(a)(2) requires a 90-day comment period for plan amendments necessitating an EIS. Specifically, the Forest Service is refusing to apply its plan standard requiring the MVP ROW to be reallocated to the “Designated Utility Corridor” management prescription and instead attempting to authorize a series of project-specific amendments.

Response 022: Section 219.16(a)(2) states: “For an amendment that applies only to one project or activity for which a draft EIS is prepared, the comment period is at least 45 days unless a different time period is required by law or regulation or authorized pursuant to 40 CFR § 1506.10(d).” The DSEIS describes those standards that will be amended to allow only this proposed project to be consistent with the plan, including standard FW-248 for utility corridors. Therefore, the 45-day comment period for the DSEIS is consistent with 36 CFR § 219.16(a)(2).

Concern Statement 023: 36 CFR § 219.13(b)(2) requires public participation in forest plan amendments: disclosing the Forest Plan standards that must be amended, and provisions of the 2012 Rule that are directly related to those amendments, will trigger further public notification and comment. The non-amendment issues are also weighty enough to deserve further public comment through re-publication of a revised DSEIS. See id. § 218.22 (requiring notice and comment on Forest Service projects).

Response 023: Section 3.4.4 of the FSEIS describes in detail how the substantive requirements (provisions) of the 2012 Planning Rule were determined to be directly related to the proposed amendment and applied to the amended Forest Plan.

Section 219.4(a) of the Planning Rule states:

“Subject to the notification requirements in § 219.16, the responsible official has the discretion to determine the scope, methods, forum, and timing of [public participation] opportunities.”

Additionally, § 219.13(b)(2) states:

“The responsible official may combine processes and associated public notifications where appropriate, considering the scope and scale of the need to change the plan. The responsible official must include information in the initial notice for the amendment (§ 219.16(a)(1)) about which substantive requirements of §§ 219.8 through 219.11 are likely to be directly related to the amendment (§ 219.13(b)(5)).”
The JNF has chosen to combine public notification process for the proposed project-specific amendment with the NEPA process for the proposed project, and all notification requirements have been met.

**Concern Statement 024:** 36 CFR § 219.13(b)(5) and § 219.10: achievement of a substantive provision’s requirements in an unaffected, random part of the forest is not necessarily relevant to application of the provision “within the scope and scale of the amendment” which “is limited to the MVP project.”

Applying 2012 Rule provisions “within the scope and scale of the amendment” by pointing to their application outside the scope and scale of that amendment is arbitrary, capricious, and violates the 2012 Planning Rule.

**Response 024:** The substantive requirements of the 36 CFR Part 219 Planning Rule require that Forest Plans contain plan components that provide for the multiple resources described within those requirements. For a project-specific plan amendment, these substantive requirements are to be applied to the specific Forest Plan(s) within the scope and scale of the proposed amendment.

Describing the small size of the proposed project area relative to the entire National Forest or management prescription demonstrates how the Agency considered the scope and scale. Section 3.4.4 of the FSEIS describes how the JNF Forest Plan, as amended, meets the substantive requirements of the 36 CFR Part 219 Planning Rule with the many plan components contained within the Plan, both unmodified and modified by the proposed amendment.

**Concern Statement 025:** The Forest Service's refusal to use, or even acknowledge, actual on-the-ground data violates both NEPA and the Forest Service's obligation to use the best available scientific information. See, e.g., 36 CFR § 219.3.

**Response 025:** Specific to 36 CFR § 219.3, this concern statement has not provided the Forest Service with specific data that the SEIS has not reviewed or analyzed in the SEIS.

The use of Best Available Science Information (BASI) is a hallmark of Agency environmental analysis and decision making. BASI provides the platform for informed decision-making on natural resource projects.

Forest Service planning regulations at 36 CFR § 219.3 discusses the role of science in planning within the Forest Service. It states that the responsible official shall use the best available scientific information to inform the planning process. In doing so, the responsible official shall determine what information is the most accurate, reliable, and relevant to the issues being considered.

“However, there is little direction on what constitutes BASI and how managers should discern between science sources. While definitions of BASI vary across management agencies and within academia, most include criteria emphasizing accuracy, reliability, and relevancy” (Bryce E. Esch, Amy E.M. Waltz, Tzeidle N. Wasserman, and Elizabeth L. Kalies; Using Best Available Science Information: Determining Best and Available, J. For. 116(5):473–480).

As described throughout Chapter 3, the FSEIS relies on a variety of information sources to generate professional judgments on probable effects. For example, professional judgments are based on the FERC FEIS; independent agency review of the Hydrologic Analyses (Geosyntec Consultants 2020a and 2020b); approved erosion and sediment control plans; monitoring reports; field visits and personal observation (including observation in similar areas); scientific literature;
communication with professional contacts; and opposing views, data, and information described in public comments on the DSEIS.

**Concern Statement 026:** The DSEIS’s discussion of the planning rule is flawed in multiple ways. First, it only identifies a subset of the 2012 Planning Rule substantive requirements that are “directly related” to the proposed amendments. However, additional substantive requirements are plainly directly related to the proposed amendments. The DSEIS also fails to demonstrate that the amended standards will comply with the directly related substantive requirements.

**Response 026:** 36 CFR § 219.13(b)(5) provides the process on how to determine and apply which substantive requirements are directly related to an amendment. The Forest Plan is required to comply with the planning rule’s substantive requirements.

Per the process described within § 219.13(b)(5), those substantive requirements that are directly related to the proposed amendment are applied to the entire Forest Plan. Section 3.4.4 of the FSEIS describes how the Forest Service followed that process and lists the subset of the 2012 Planning Rule substantive requirements that were determined to be directly related to the proposed amendment through its purpose or effects, and how those requirements have been applied to the Forest Plan. The only specific substantive requirement that this concern statement identified was lacking in the proposed amendment is § 219.8(a)(2)(iv), which is included in the FSEIS analysis.

**Concern Statement 027:** In 2017, the Forest Service found that its decision was “subject to the pre-decisional objection process pursuant to 36 [CFR] § Part 218” and opened a 45-day objection filing period on June 23, 2017. For the SEIS, however, no pre-decisional objection process is provided. The Agency is not free to change responsible-official horses whenever it pleases in an effort to evade pre-decisional review.

**Response 027:** The Secretary of Agriculture has broad legal authority to administer the NFS as provided by the Organic Administration Act of 1897, the Multiple-Use Sustained Yield Act of 1960, and the National Forest Management Act of 1976. These statutes provide the Secretary of Agriculture the discretion to direct the programs, plans and proper uses within any area that is part of the NFS.

The regulation for the project-level pre-decisional administrative review process at 36 CFR § 218.13(a) states “[N]othing in this section shall restrict the Secretary of Agriculture from exercising any statutory authority regarding the protection, management, or administration of the National Forest System lands.” In this specific case, the Secretary of Agriculture is retaining the decision authority at the departmental level to ensure the MVP project is expedited consistent with the administration’s priority for energy infrastructure and economic development.

**Concern Statement 028:** Records very clearly imply that the Forest Service conducted its own, more thorough Objection Review that raised questions not addressed by the FERC FEIS. Taking action, however, would have placed the Forest Service at odds with the FERC, and the Forest Service lacked the resources to pursue their own Objection Review results, which could only have been presented as recommendations to the FERC and the BLM.

**Response 028:** In 2017 the Forest Service conducted a thorough, independent review of the objection issues raised during the 36 CFR Part 218 pre-decisional administrative review process. This pre-decisional objection review was pertaining to the Forest Service’s authorities and decision(s) and not the adequacy of the 2017 FERC FEIS as a whole.
As part of that pre-decisional, deliberative review process, interdisciplinary discussions and associated documentation were created to facilitate the review. The Agency is afforded the discretion to have deliberative discourse and is in fact normal on environmental analysis and decision on Agency proposals subject to NEPA. These deliberative discussions and documents do not necessarily reflect the final Agency’s position of the issues raised.

The objection response letter dated October 19, 2017, and the subsequent December 2017 Record of Decision, reflect the Agency’s official position on the project and issues raised during the pre-decisional review. The Forest Service’s final determinations did not place the Agency at odds with the FERC or other federal agencies.

Concern Statement 029: The proposal to amend the Forest Plan and to issue a ROW is explicitly a response to a proposal submitted by MVP, not a project proposed by the Under Secretary, as required by Section 218.13(b). The Forest Service must therefore provide a draft record of decision and objection period. To make a decision without this objection period would be arbitrary and unlawful.

Response 029: The administrative review process concerning projects and activities (36 CFR Part 218) is inapplicable to decisions issued by the Secretary and subcabinet officials. As to projects and activities (36 CFR § 218.13(b)), the regulations make absolutely clear that decisions of the Secretary of Agriculture or the Under Secretary for Natural Resources and Environment are excluded from the pre-decisional administrative review process. Similarly, the regulation expressly recognize that the 218 administrative review process does not limit or interfere with the Secretary’s statutorily delegated authority regarding the protection, management, and administration of the National Forest System. See 36 CFR § 218.13(a). This express regulatory exception is firmly supported by and consistent with the Secretary’s general regulations governing delegations of authority (7 CFR § 2.12) that recognize that no delegation of authority by the Secretary or a general officer shall preclude the Secretary or general officer from exercising any of the authority so delegated. Forest Service officials only have such authority as is delegated through the Department’s regulations (see 7 CFR § 2.60) and all matters concerning the National Forests are unquestionably subject to supervision and oversight by the Secretary. Suggestions that the regulatory exclusions are somehow inapplicable to decisions concerning private applications are not well founded. The phrase “proposed by the Secretary” is used to denote the Secretary’s discretionary choice among available alternatives, not as a limitation on his supervisory authority. And critically, the notion of subjecting Secretarial decisions to some sort of administrative review above or outside the Department is neither practical nor credible. Viewed together, the prerogative to directly exercise statutory authorities and responsibilities and elevate matters for resolution by the Secretary and Under Secretary is unquestionable and the administrative review processes governing Forest Service official’s decisions are clearly inapplicable when decision making is elevated in such a manner.

Concern Statement 030: Management responsibility for the ANST is shared between the Forest Service and the National Park Service, but while BLM consulted with the Forest Service, it appears to have neglected consultation requirements with the National Park Service, in violation of the MLA. When the ROW “application involves lands managed by two or more Federal agencies, BLM will not issue or renew the grant or TUP until the heads of the agencies administering the lands involved have concurred” (43 CFR § 2882.26).

Response 030: Contrary to the commenter’s suggestion, the MLA does not require the BLM to obtain written concurrence from the National Park Service (NPS) relating to the potential ROW under the ANST. The NPS administers the ANST over land managed by the Forest Service but does not have land management authority for the Federal lands on which the ANST crosses. U.S.
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Forest Service, et al. v. Cowpasture River Preservation Assoc., et al., 140 S.Ct. 1837, 1846 (2020). As the U.S. Supreme Court clearly ruled in Cowpasture, the Forest Service manages the Federal land over the ANST such that the MLA’s prohibition against authorizing MLA ROWs for NPS-managed lands is inapplicable; the ANST is not considered land within the National Park System. See id. at 1847-48. There may be circumstances in which a proposed right-of-way might interfere with the NPS’s management of a trail crossing over the NFS land that could require some coordination between the Forest Service (or the BLM). See id. at 1850, n.7. Such coordination, however, is not the same as the requirement under the MLA for the BLM to obtain concurrence from a Federal agency before authorizing a ROW across land managed by that Federal agency. Moreover, MVP’s MLA ROW proposes to cross underneath the ANST, which is consistent with the holding in Cowpasture. In sum, the MLA and the BLM’s implementing regulations do not require the BLM to obtain concurrence from the NPS regarding MVP’s proposal to cross underneath the ANST. To the extent any coordination is required, the Forest Service, along with the BLM, has engaged with the NPS commensurate with the proposed MLA ROW.

Concern Statement 031: The Forest Service and BLM have failed to demonstrate that alternative routes that would increase collocation with existing rights-of-way would be impractical. To show that an alternative is impractical for technical reasons, the Agency must show that the alternative physically cannot be done or would fail to achieve the project's basic purpose. "Practical," as used in subsection 185(p), should be interpreted analogously to "practicable" as used in regulations implementing Section 404 of the Clean Water Act.

Response 031: The BLM disagrees with the comment that the Practicality Analysis is insufficient. Consistent with 30 U.S.C. § 185(p) and the U.S. Court of Appeals for the Fourth Circuit’s decision in Sierra Club, Inc. v. U.S. Forest Serv., 897 F.3d 582 (4th Cir. 2018), reh’g granted in part, 739 Fed. App’x 185 (4th Cir. 2018), the BLM analyzed whether the alternatives provide for collocation of the proposed ROW on federal land to the extent practical. On August 23, 2018, the BLM prepared an analysis of the route alternatives examined in the FERC FEIS, outlining in detail the criteria it used for assessing the practicality for collocation of each alternative. In connection with MVP’s revised MLA ROW application, the BLM provided an addendum to the August 23, 2018 practicality analysis in order to analyze two additional route alternatives not considered in the FERC FEIS. The BLM’s addendum relied on the same criteria outlined in the August 23, 2018 practicality analysis. Together these analyses are reasonable and sufficient, satisfying the requirement in 30 U.S.C. § 185(p).

The Forest Service reviewed public comments about alternatives and added to Table 3 one alternative that was in the 2020 SF-299 application. Three new alternatives identified in public comments were also added to Table 3.

Concern Statement 032: The Forest Service must, rather than merely should, comply with the part 220 regulations, but the Forest Service's decision to apply the prior CEQ regulations relieves the Forest Service of the need to decide whether another option would have been lawful.

Response 032: The Notice of Intent to prepare a supplemental EIS for the MVP project was published in the Federal Register on July 30, 2020, and the Council of Environmental Quality’s updated regulations took effect on September 14, 2020. The regulations apply to any NEPA process begun after this date (§ 1506.13). Projects that were underway before September 14, 2020, may, but were not required to, follow the new CEQ regulations.
Reviewing the full textural content of this concern statement, it is unclear what other options would have existed as a result of using the revised CEQ regulations, or the relationship between the SEIS, the revised regulations, and lawfulness. Therefore, the Forest Service was not able to meaningfully address or make adjustments in the FSEIS and associated analysis related to this concern statement.

**Concern Statement 033:** The cumulative effects boundary is arbitrary; Forest Service needs to explain justification for HUC-10 boundary rather than simply stating it is following FERC’s lead. Further the boundary is not appropriate for all resources; an appropriate boundary must be chosen and the analysis redone.

**Response 033:** HUC-10 watersheds were determined to be appropriate for the cumulative effects analysis for several reasons. They are the scale at which indirect and cumulative effects are reasonably expected to occur for the resources analyzed. The FERC FEIS also used HUC-10 watersheds for its cumulative effects analysis and this FSEIS supplements the FERC FEIS. The *Hydrologic Analysis for Aquatic Species* and the *Hydrologic Analysis for the JNF*, designed to quantify the amount of sediment expected within waterways with habitat for TES aquatic species and streams within the JNF and downstream areas, estimate impacts at a HUC-10 and HUC-12 watershed scale, respectively (Geosyntec 2020a and 2020b). The FSEIS cumulative effects analysis extends the geographic scope to HUC-10 watersheds to assess the contributions of other past, present, and reasonably foreseeable projects on NFS and other lands.

The cumulative effects analysis has been updated to review projects that were identified by commenters. To better display the overlap of actions in time and space for the project, a spatial overlay has been included in Section 3.5.1 of the FSEIS to display how ongoing and foreseeable actions that are relevant to the proposed action are within the HUC-10 watersheds.

**Concern Statement 034:** The geographic scope of the SEIS is too narrow; the rest of the pipeline route should be analyzed. The SEIS also fails to account for the damage already done on other portions of the pipeline during construction.

To avoid arbitrary and capricious decision-making, the Forest Service must grapple with issues raised in comments even if they are outside the Agency’s self-identified categories, because the DSEIS must be able to support a new administrative approval process following vacatur of the initial special use permit and Record of Decision; the DSEIS is “supplemental” only in the sense that it incorporates by reference information from earlier administrative action.

**Response 034:** The FSEIS (Section 1.8) describes the scope of the SEIS as being purposefully narrow; the FERC FEIS analyzed impacts on the entire 303-mile-long proposed pipeline route. Assessments were conducted to determine whether there were new issues or changed conditions that warranted supplemental analysis. This effort, in conjunction with review of public comments received on the DSEIS and consideration of issues raised by the Fourth Circuit, established the scope of analysis in the SEIS. This is consistent with 40 CFR § 1502.9(c)(1)(i)-(ii) (1978, as amended in 1986 and 2005) which addresses substantial changes to the proposed action or significant new circumstances or new information that are relevant to environmental concerns and bearing on the proposed action or its effects.

**Concern Statement 035:** There was concern that the POD is simply using different language to waive plan standards. Requiring implementation of the POD and design criteria is no different than requiring construction of the project because the POD and design criteria are part of the project. Commenters said construction of MVP with the POD does not meet NFMA’s requirements as implemented through the
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Forest Plan. Otherwise plan amendments would not be necessary. Further, comments sought a specific explanation of how the POD meets the substantive standards of the 2012 Planning Rule. Commenters said that the POD cannot substitute as a Forest Plan standard because it is not a standard.

Response 035: Projects that are proposed for implementation within the JNF are required to be consistent with the standards contained within the JNF Forest Plan. However, Agency policy (36 CFR Part 219) recognizes that not all projects can be made to be consistent with all plan standards, and this inconsistency does not necessarily preclude the Forest from approving such projects. The 36 CFR Part 219 Planning Rule contains processes that allow the Agency to amend the Forest Plan on a project-specific basis (36 CFR § 219.13(b)(1)) in order to modify standards with which the proposed project cannot achieve consistency. The FSEIS describes those standards that will be amended to allow this proposed project to be consistent with the amended plan.

The Planning Rule’s substantive requirements are not applied to the project’s POD, but rather to the JNF Forest Plan. The POD is not intended to ensure compliance with the substantive requirements. These substantive requirements require that the Forest Plan contain plan components that provide for the multiple resources described within the requirements. Section 3.4.4 of the FSEIS describes how the JNF Forest Plan, as amended, meets the substantive requirements of the Planning Rule with the many plan components contained within the Plan, both unmodified and modified by the proposed amendment. The design criteria contained within the POD are supplemental protective measures that are intended to partially mitigate for the altering of Forest Plan’s protective resource measures that are affected by the proposed amendment. These proposed design criteria together with the multitude of existing plan components contained throughout the entire Forest Plan meet the substantive requirements of the Planning Rule.

Concern Statement 036: Commenters expressed concern that the DSEIS failed to note the September 25, 2020, United States District Court (Case 4:20-cv-0062-BMM) order, which declared that William Pendley served unlawfully as the Acting BLM Director and was enjoined from exercising authority of BLM Director. Likewise, the Court enjoined Interior Secretary David Bernhardt from unlawfully delegating the authority of the BLM Director. And similarly, commenters suggest that Eastern States Director Mitchell Leverette lacks the authority to act as the Eastern States Director.

Response 036: The BLM is aware of the U.S. District Court for the District of Montana’s September 25, 2020, decision. The BLM has not issued any decisions yet with respect to Mountain Valley’s revised MLA ROW application. Any decision issued in the future would be consistent with the applicable law.

Decision to be Made

Concern Statement 037: Commenters suggest that the Forest Service has a mission-based reason to deny the pipeline and moral and ethical reasons as well.

Response 037: The Forest Service mission is to sustain the health, diversity, and productivity of the Nation’s forests and grasslands to meet the needs of present and future generations (Forest Service Manual (FSM) 1020.21). In carrying out its mission assigned by statute, the Forest Service uses an ecological approach to the multiple-use management of the National Forests and Grasslands as one of its guiding principles.

The Forest Service is also governed by multiple laws, regulations, and policies that promote its multiple use mandate, including energy development and associated infrastructure (see FERC
FEIS Section 1.3.2.1). Said plainly, the Forest Service is a multi-use agency with authority to permit infrastructure activities for the benefit of the American public at large.

Public Participation

Concern Statement 038: Commenter made 16 filings to the FERC eLibrary between November 27, 2015 and July 21, 2020 and received no response or indication that they had been considered by either agency.

Commenters are concerned that the DSEIS ignores both the DOI comments on the FERC FEIS and cooperative management required for the ANST; there is no evidence that the DSEIS was written in consultation with the key ANST partners, including the NPS, ATC, and RATC.

Response 038: The Roanoke Appalachian Trail Club (RATC) and the Appalachian Trail Conservancy (ATC), writ large, are important and valued partners in the management of the Appalachian National Scenic Trail (ANST) resource. The Forest Service continues to consult with the RATC on all matters related to the trail on JNF lands, including those associated with the MVP Project.

The DOI, Bureau of Land Management, is a cooperating agency, and both agencies have worked closely together throughout the SEIS process. No comment was received from the National Park Service on the DSEIS. However, the FERC FEIS documents its engagement efforts, including through a Programmatic Agreement executed under the NHPA which the Forest Service is a signatory, with the NPS and ANST partners in the FERC FEIS in Appendix AA, Response to Comments. For clarification, the Forest Service did receive comments on the DSEIS from both the ATC and the RATC.

The Forest Service does not have the authority to respond to comment and docket submissions on behalf of or addressed to the FERC. As part of the SEIS comment analysis process, all timely comment submissions (including attachments) were reviewed and considered. For information about karst resources and landslide mitigation, please see the responses to Concern Statements #051, 052, and 054.

Concern Statement 039: The public record has been scrubbed of evidence of the meetings where the Forest Service expressed its concerns to Mountain Valley about the original 2017 sedimentation analysis.

Response 039: This concern statement is apparently referencing documents, discussions, and meetings between parties during the preparation of the 2017 FERC FEIS and subsequent Forest Service's ROD issued December 1, 2017. The project record and subsequent administrative record in the Fourth Circuit Court of Appeals remains unchanged from that time.

The Forest Service is now supplementing the 2017 FERC FEIS and is basing the analysis and potential decision on that FEIS together with new and updated information and analysis. This includes, among other analysis, an updated Sediment Analysis, finalized in 2020. The Agency has completed a new independent agency review of that analysis.

As with any set of federal government records, there will be those that are considered deliberative, pre-decisional or attorney-client privilege, and will be redacted or withheld in accordance with the Freedom of Information Act exemptions.

Concern Statement 040: The SEIS fails to discuss the protests that occurred along the ROW and the Forest Service's actions to stifle free speech and specifically the public participation that these protests represented. A review of Forest Service Law Enforcement suppression of public involvement, denying
them their constitutional first amendment rights and abuse of peaceful demonstrators would be appropriate in this FSEIS since these are new issues that came up after the FERC EIS was published.

**Response 040:** As a general rule, all Americans have the right to access NFS lands for their use and enjoyment. The Forest Service must continually weigh this right against the health, safety, and protection of the public, Agency employees, contractors, and those holding authorized permits for use and occupancy of NFS lands, including the protection of facilities and property from damage. For this reason, the Agency occasionally issues temporary, or in some cases, permanent closure orders for specific locations on National Forests.

In the case of the MVP ROW and adjacent lands on the JNF, the Agency has previously closed specific areas to public access to safeguard members of the public from health and safety issues related to on-site infrastructure, equipment, and associated operations. These closure orders are site-specific and of limited duration. It is important to note that protests and the expression of Free Speech can occur anywhere on the Forest that isn’t closed by order.

The Forest Service takes the rights of free speech seriously. The Agency has provided for opponents and proponents alike the opportunity to express their right of free speech within safe zones where potential for injury or harm are greatly reduced. During 2017 protests events the Forest Service provided “Designated First Amendment Sites” where every effort was made for individuals to express their perspectives on the project in a safe environment.

When protests negatively impact the safety of the public, Agency employees and workers associated with lawful activities related to approved use and occupancy of NFS lands, appropriate actions are implemented, including use of law enforcement when necessary. It is also important to note that Agency Law Enforcement and Agency employees have documented incidents of vandalism to Forest Service infrastructure and MVP construction materials. Such acts of vandalism are federal crimes and the Forest Service takes such acts seriously.

The support and opposition to the MVP project remains a constant since the 2017 FERC FEIS. This is not a changed condition or new information which requires supplementation in the Forest Service’s FSEIS. The public exercising their rights to free speech is typically a nominal effect on NFS lands and to that that extent, there is no need to conduct additional analysis. The FSEIS has added statements to acknowledge that the different views on the project exist and these views are expressed in many forms, including protests.

**Concern Statement 041:** The public involvement process makes it difficult for the public to participate.

**Response 041:** Some comments indicated the Forest Service DSEIS process made public participation difficult. The Agency has and continues to follow CEQ and Agency regulatory requirements regarding public participation for its SEIS. The Forest Service acknowledges and understand the concerns around public participation opportunities above and beyond regulatory requirements, particularly for a project of this scale and complexity. The Forest Service’s efforts to engage the public have been reasonable in light of heightened concerns about the spread of COVID-19, including relying on the distribution of information via the project website or postal mail. The Forest Service could not hold open houses or offer field trips due to the current COVID-19 pandemic.

**Concern Statement 042:** Section 1.6 of the DSEIS overlooks the recent comment period that the FERC initiated regarding Mountain Valley’s request for a two-year extension to continue construction of the pipeline. Public comments to the FERC were overwhelmingly opposed to the extension request.
Response 042: The Forest Service acknowledges the documented opposition to Mountain Valley’s request to the FERC for a construction timeline extension. The consideration of Mountain Valley’s extension request falls squarely under the authority of the FERC. The FERC recently granted that timeline extension (FERC 2020a). This information has been added to the FSEIS, Section 1.2.

Concern Statement 043: The Forest Service should extend the public comment period to 90 days and hold public meetings.

Response 043: Every attempt was made to include all those individuals and entities that expressed interest or were otherwise involved in the original EIS process, and this subsequent Forest Service SEIS work, in the public notification and associate participation efforts conducted with the SEIS process. Regarding notifications, the notice of intent to prepare an EIS was published in the Federal Register on July 30, 2002. The proposed action, including the JNF forest plan amendment, was described in detail in this notice. Any citizen of Craig County that previously expressed interest in MVP and its environmental analysis under NEPA were included in the Forest Service’s mailing list.

During the 45-day comment period on the Draft SEIS, the Forest Service received 13 requests to extend the MVP DSEIS comment period. The 45-day comment period began on September 25, 2020 following the publication of the notice of availability in the Federal Register and ended at midnight on November 9, 2020.

For the DSEIS 45-day comment period, over 4,200 postcards and emails (when available) were sent to interested parties notifying them that the DSEIS comment period was imminent. The approval to respond to the extension requests was delegated by the responsible official for the project to the Southern Region’s Regional Forester, Ken Arney. The Regional Forester recently reviewed the opportunity for comment on the DSEIS and found that no extension of the comment period was warranted.

In sum, over 4,400 responses were successfully submitted, indicating the comment period was adequate. Direction related to comment extensions can be found in the Council on Environmental Quality regulations at 40 CFR § 1506.10(d) (1978, as amended in 1986 and 2005).

Permit Compliance

Concern Statement 044: Commenters suggest that the project does not comply with environmental permits and has not followed the proper legal and environmental approvals. The applicant has a multi-year history of violating Virginia and West Virginia water quality standards with over 300 violations due to sediment, ECDs failures, and inadequate practices. The Forest Service should not approve the pipeline until all applicable permits have been obtained.

When Mountain Valley obtained their Special-Use Permit to cross NFS lands it had to be shown that the proponent would demonstrate a capability to undertake the use and fully comply with the terms and conditions of the permit. Their past performance indicates that they do not have that capability. Commenters said that the Fourth Circuit Court remand in relation to anticipated mitigation effectiveness could be cleared up if the DSEIS considered MVP’s past record of failures in properly executing their responsibilities.

Response 044: Construction and related permits on non-NFS lands is outside the jurisdiction of the Forest Service. On NFS lands, Mountain Valley would need to obtain any required local, state, or federal permits prior to commencing activities subject to those permits.
The Forest Service has reviewed violations of state water quality standards that were reported and documented along the entire proposed pipeline route, and in particular those specific to the JNF. Violations were cited by VDEQ and an MOU was developed which placed further requirements on the proponent to execute additional mitigations, such as increased number of ECDs and increased staffing. While VDEQ issued citations to Mountain Valley for violations, no citations were issued because of non-compliance on NFS lands. The Forest Service has the unique authority and responsibility to manage NFS lands within the JNF and does not have legal authority for management of lands outside of NFS lands.

The Forest Service staff maintain a frequent on-site presence on the MVP ROW and associated areas in the JNF. The Forest and District staff’s historical and intimate knowledge of the environmental conditions on the sites, the knowledge of past management activities, and the response of the ecosystems to those activities provide the JNF staff with site-specific information on the edaphic, hydrologic, topographic, and climatic conditions of the locations. This site-specific data, information, and monitoring results are used in the development of any necessary and immediate corrective measures, mitigation, stabilization, and monitoring activities.

Independent third-party contractors (e.g., Transcon) have been conducting weekly monitoring on the JNF since March 2018 and inspections would continue through the life of the project. They have submitted approximately 890 daily inspection reports and during that period submitted 15 non-compliance reports specific to the JNF, all from 2018. The non-compliance reports noted five instances of sediment off the LOD, four instances of Work Conducted Outside the LOD Without Authorization, two instances of Damage to Trees on the Boundary of the LOD, two instances of Inadequate Road Maintenance, one instance of Inadequate Soil Separation, one instance of Unauthorized Road Widening, and one instance of a Windrow Outside the LOD. The Compliance Inspection Contractor made Recommendations to Mountain Valley to correct each non-compliance issue.

Violations have been cited by VDEQ and an MOU was developed which placed further requirements on the proponent to execute additional mitigations such as enhanced ECDs and increased staffing. While VDEQ issued citations to Mountain Valley for violations, no citations were issued because of non-compliance on NFS lands. The Forest Service discloses additional mitigations in the POD and FSEIS (Section 2.2.2.2). Environmental effects of operations and maintenance activities are disclosed in the FERC FEIS (Chapter 4) and FSEIS (Chapter 3).

General Impact Analysis

**Concern Statement 045:** Commenters generally noted potential adverse and sometimes irreversible impacts on forests, water quality, threatened and endangered species, biodiversity, viewsheds, recreation, the economy, family farms, and private property. Commenters also noted beneficial impacts including improvements to energy infrastructure, affordability of energy, and energy independence that would occur if the project were completed. In addition to the pipeline, commenters expressed concern about associated pressure regulators, fuel tanks, maintenance roads, and airplane and drone overflights. The various maintenance activities are further disruptions to the ecosystem.

**Response 045:** As described in Section 1.8, the FSEIS is narrow in scope to address only those impacts of the proposed pipeline within the JNF, and those effects that can be reasonably tied to direct, indirect, and cumulative effects of the proposed MVP pipeline. Changed circumstances and new information related to issues such as forests, water quality, threatened and endangered species, viewshed, recreation, and economics were analyzed in Chapter 3 of the FSEIS. The
analysis of cumulative impacts considered actions and impacts on all lands located in the HUC-10 watersheds that overlap the 3.5 miles of ROW in the JNF.

Air Quality and Climate

**Concern Statement 046**: Commenters expressed concern that climate change continues to occur and should be considered a changed condition that is analyzed in detail in the SEIS. The SEIS fails to adequately analyze the effects of climate change, both in and beyond the project area. The 2018 report by the Intergovernmental Panel on Climate Change (IPCC) informed the world that there are less than 12 years to dramatically reduce greenhouse gas emissions in order to avert the most dire of consequences from climate change. Building transmission pipelines facilitates fossil fuel extraction and concomitant greenhouse gas emissions.

**Response 046**: The FERC FEIS analyzes direct, indirect (including combustion emissions from natural gas combustion), and cumulative impacts of climate change in accordance with NEPA regulations, which suggest that emissions be quantified to allow an understanding of the relative magnitude of emissions. This approach, together with a qualitative summary discussion of the effects of Greenhouse Gas (GHG) emissions based on an appropriate literature review, allows an agency to present the environmental impacts of a proposed action in clear terms and with sufficient information to make a reasoned choice between alternatives. Such a discussion satisfies NEPA's requirement that agencies analyze the cumulative effects of a proposed action because the potential effects of GHG emissions are inherently a global cumulative effect. Therefore, a separate cumulative effects analysis is not required. Additionally, neither the emissions from the project nor the general information related to projected climate change impacts differ substantially from the analysis in the 2017 FERC FEIS to impact a reasoned choice between alternatives. Therefore, a detailed discussion in the FSEIS would not be warranted. For NEPA analysis, the rule of reason permits agencies to use their expertise and experience to decide how to analyze particular effects and suggests that impacts of a proposed action should be discussed in proportion to their significance. Incorporation of the original analysis from the 2017 FERC FEIS is adequate.

The FERC in its October 13, 2017 Order Issuing Certificates and Granting Abandonment (Issued October 13, 2017) said that a supplemental analysis of climate change was not needed. The United States Court of Appeals for the District of Columbia Circuit on February 19, 2019 found in response to challenges on the FERC FEIS's analysis of climate change that there is "no basis for saying that FERC’s treatment of the issue in the Order Issuing Certificates and Granting Abandonment was inadequate, unreasonable, or otherwise contrary to NEPA or the Natural Gas Act." The FERC provided an estimate of the upper bound of emissions resulting from end-use combustion, and it gave several reasons why it believed the Social Cost of Carbon tool is not an appropriate measure of project-level climate change impacts and their significance under NEPA or the Natural Gas Act. That is all that is required for the purposes of NEPA.

**Concern Statement 047**: Some commenters expressed concern that the project would worsen the effects of climate change, including putting temperate forests at greater risk for fires, extreme weather, and species endangerment and extinction. There is concern about methane leaks that will accelerate climate change and associated adverse effects. Conversely, some commenters state that the pipeline will encourage better, cleaner, and safer use and transportation of natural gas.

Commenters argue that project implementation would prevent Virginia from reaching its greenhouse gas reduction commitments made in Governor Northam's EO 43 and the Virginia Clean Economy Act.
Response 047: The project does not conflict with Governor Northam’s EO 43 because this order sets targets for development of renewable energy and energy efficiency but does not preclude the use of natural gas for energy generation. The Virginia Clean Economy Act does not preclude the use of natural gas for energy generation as long as the state's renewable energy targets are met by the dates specified in the Act.

The FERC in its October 13, 2017 Order Issuing Certificates and Granting Abandonment (FERC 2017d) said that a supplemental analysis of climate change was not needed. The United States Court of Appeals for the District of Columbia Circuit on February 19, 2019 found in response to challenges on the FERC FEIS’s analysis of climate change that there is ”no basis for saying that FERC’s treatment of the issue in the Order Issuing Certificates and Granting Abandonment was inadequate, unreasonable, or otherwise contrary to NEPA or the Natural Gas Act.” The FERC provided an estimate of the upper bound of emissions resulting from end-use combustion, and it gave several reasons why it believed the Social Cost of Carbon tool is not an appropriate measure of project-level climate change impacts and their significance under NEPA or the Natural Gas Act. That is all that is required for the purposes of NEPA.

Concern Statement 048: Failure to analyze climate change in the SEIS is consistent with the dissent statement of the FERC Board members who criticized the lack of climate analysis in the FERC FEIS.

Response 048: The FSEIS does not base its analysis on a dissenting opinion because this opinion is not representative of the FERC’s official decision.

Geology

Concern Statement 049: There is a concern that the steepness of ridges and valleys, the thinness of topsoil, and overall rockiness of NFS lands are all conditions not conducive to the safe and environmentally sustainable construction. There would be lasting impacts to the area's geology and, in turn, drinking water and the risk of pipeline rupture and explosion.

Response 049: Geologic hazards, including those specific to the JNF, were analyzed in Section 4.1 of the 2017 FERC FEIS. In addition, the FSEIS analyzes the effects of implementing measures described in the POD which are designed to reduce and avoid impacts to geology. No new information or changed conditions have been identified to warrant further analysis (40 CFR § 1502.9(c)(1) (1978, as amended in 1986 and 2005) and FSH 1509.15_10, Section 18.1).

Concern Statement 050: Commenters expressed concern that where the route traverses the Giles County Seismic Zone there is great risk of an earthquake that could rupture the pipeline, causing an explosion.

Response 050: The effects of seismicity, including in the Giles County Seismic Zone and in the JNF, were addressed in the 2017 FERC FEIS (Section 4.1). No new information or changed conditions have been identified and further analysis is not necessary (40 CFR § 1502.9(c)(1) (1978, as amended in 1986 and 2005) and FSH 1509.15_10, Section 18.1).

Concern Statement 051: Commenters suggest several measures to assess and monitor landslide risks, including the use of new LiDAR from the Virginia Division of Mines, Minerals, and Energy; and installation of a fiber optic cable and slip detection. Given the high frequency of slips on other pipelines, Mountain Valley should be required to implement a slip tracking program for the MVP.

Concerns were raised about the increased risk of landslides on NFS lands due to local soil conditions and topography. Commenters cite the presence of landslides elsewhere along the pipeline route, including
counties adjacent to NFS lands. These landslides, combined with ECD failures, suggest that the Landslide Mitigation Plan is ineffective.

The high hazard area analysis (Appendix G of the POD) fails to account for the stability of the bore pit locations for hazard areas 3 and 5.

Commenters argue that while the FWS BO acknowledges that future slips and slides will occur, this was not analyzed in the DSEIS.

Response 051: Section 4.1.1.5 of the FERC FEIS (p. 4-38) describes use of LiDAR data as one tool to assess pre-construction conditions along the ROW. The POD Landslide Mitigation Plan (Appendix F) describes field investigations conducted to assess conditions at landslide concern areas crossed by the MVP, including those on the JNF. At the request of the Forest Service, field investigations were also conducted at six high hazard areas on NFS lands (see POD Appendix G). Further analysis of sensitive areas on the JNF was conducted and summarized in Appendix G of the POD (Site-Specific Design of Stabilization Measures in Selected High-Hazard Portions of the Route of the Proposed Mountain Valley Pipeline Project in the Jefferson National Forest). The areas analyzed in Appendix G include Peters Mountain, upslope of the karst topography underlying private land. The thorough desktop and field-based investigations in Appendix G resulted in the identification of additional mitigation measures that would be implemented in these sensitive areas. The additional mitigation measures would minimize the potential for indirect impacts on karst topography underlying private land. Together, these efforts provide a comprehensive examination of pre-construction conditions on the ROW. The Landslide Mitigation Plan requires the use of LiDAR surveys to monitor the ROW for changes in ground topography that could indicate potential slope movement.

The 2020 FWS BO examines the entire 303-mile-long MVP. The FSEIS is limited to the 3.5 miles on NFS lands and analyzes the potential for slope movement in both the Landslide Mitigation Plan and the JNF-specific document “Site-Specific Design of Stabilization Measures in Selected High-Hazard Portions of the Route of the Proposed Mountain Valley Pipeline Project in the Jefferson National Forest” (Appendix G of the POD) which was prepared at the request of the Forest Service and contains a detailed investigation of potential slope failure hazards at six locations on the JNF. The report also identifies additional mitigation measures that would be implemented, along with a post-construction slope monitoring program.

Concern Statement 052: Commenters argue that Mountain Valley Pipeline has not fully implemented the measures in its Karst Mitigation Plan or General Blasting Plan outlined in Section 4 of the FERC FEIS in other areas along the pipeline route. As a result, there are serious issues that require further evaluation to avoid potential pipeline rupture and contamination of groundwater. Commenters suggest that these past
failures increase the likelihood of failures on NFS lands because this section of the ROW is in a highly unstable area with karst terrain.

Response 052: As described in Section 3.3.11 of the SEIS, no blasting has occurred on NFS lands, no geological units known to be associated with karst formation underlie the pipeline ROW on JNF lands, and no karst features were identified within the ROW during Mountain Valley’s Karst Hazard Assessment (POD Appendix L). As a result, the General Blasting Plan and Karst Mitigation Plan have not been implemented for activities on NFS lands. Please see Section 3.3.11 and the response for Concern Statement #051 for an explanation of the evaluation of high-hazard areas on the JNF and the mitigation measures and post-construction slope monitoring program that would be implemented and how they would minimize impacts on groundwater.

Concern Statement 053: LiDAR should be used to monitor the effects from blasting.

Response 053: The Landslide Mitigation Plan (Appendix F of the POD) requires the use of LiDAR surveys to monitor the ROW for changes in ground topography that could indicate potential slope movement. This requirement will be implemented regardless of whether blasting has occurred.

Concern Statement 054: Commenters expressed concern that the risks associated with karst terrain were not sufficiently analyzed in the DSEIS. Specific concerns include the ROW on NFS lands crossing exposed karst and/or karst overlaid by other sedimentary rocks; instances of ground movement elsewhere along the pipeline ROW increasing the risk of a rupture; the proximity of the ROW on Peters Mountain to a karst system at the base of the mountain; and the impacts to Rich Creek Cave, which has been partially mapped and dye tracing shows an underground connection that runs beneath the pipeline ROW.

Response 054: The United States Court of Appeals for the District of Columbia Circuit found that the FERC FEIS adequately considered and disclosed impacts on groundwater in karst terrain. Rich Creek Cave is located off NFS lands in Giles County, West Virginia. The subterranean connection between Rich Creek Cave and Wolf Cave shown in commenter’s map occurs under non-NFS lands. Additional mitigation measures minimize indirect effects to this cave system, and the post-construction slope monitoring program is described in Appendix G of the POD. The northwest slope of Peters Mountain is one of the high-hazard areas examined in Appendix G.

Effects to karst resources is disclosed in the FERC FEIS, and proposed mitigations are found in the Karst Mitigation Plan.

Section 3.4.1.2 of the FSEIS analyzes potential effects associated with construction on NFS lands, including landslide risks. Section 3.3.11 of the FSEIS discloses that geological units known to be associated with karst formation do not underlie the pipeline ROW on JNF lands. No karst features were identified within the ROW during Mountain Valley’s Karst Hazard Assessment (POD Appendix L).

Soils

Concern Statement 055: Commenters request that an Order 1 Soil Survey be completed and approved before the project is approved. This survey would provide information at a level of detail that would accurately characterize the local conditions and prevent costly repairs and unnecessary degradation.

Photos taken on the ground during construction shows sediment laden runoff flowing from sumps downhill along the edge of the ROW and combining with flow from downhill sumps. Runoff accumulates and increases as sheet flow turns into concentrated flow which in turn increases runoff velocity causing
downhill channel erosion. The total impact is dependent on slope length and drainage areas that flow within and into the ROW.

The SEIS fails to disclose that water management to prevent soil erosion involving soil piping and soil water seepage are impossible to control because the water movement can change according to the physics of the soil(s) involved. Stray water should not be ignored: the soils of the GW and Jefferson National Forests exhibit severe soil piping and severe seepage. The mountain ridges get more liquid precipitation and are colder than the lower elevations and so water freezing is another reality ignored in the DSEIS.

The soils mentioned in the DSEIS are those soils listed in the general soil survey, ignoring any smaller soil units that would be included in an Order 1 Soil Survey performed by qualified Licensed Professional Soil Scientists. The general soil survey includes soils that require further evaluation because the danger is mentioned and ignored in the DSEIS. Some of the soil series are on severe slopes and still are known to have severe piping and severe seepage: Bailegap, Berks, Weikert, Jefferson, Lehew, Wallen, Lily-Bailegap and Nolichucky.

The DSEIS failed to acknowledge the destruction of the mountain top, failed to acknowledge the contributions of stability Craig County offers the mountain, failed to understand the water movement through the soils and rock, and failed to acknowledge the freezing and thawing at the mountain tops as a function of current weather patterns. Peters Mountain on the West Virginia side of Spread G, in the JNF has similar weather and soil issues.

**Response 055:** While an Order 1 Soil Survey would satisfy the needs of evaluating these properties, an Order 2 Soil Survey or similar effort would accomplish similar outcomes because the desired outcome of this type of survey is to identify soil limitations. These soil limitations can then be analyzed to determine the appropriate erosion and sedimentation control devices that would be implemented, maintained, and monitored throughout the construction and restoration phases, as well as identifying any potentially problematic areas that could pose landslide or slip scenarios.

As described in the Mountain Valley Pipeline Soil Profile Descriptions Report for Jefferson National Forest, MVP conducted a soil survey that closely matches the desired outcome of an Order 1 or Order 2 soil survey. The survey was performed in the JNF to characterize soils along the pipeline corridor to determine if available USDA-NRCS data were similar to field soil characterizations. Soil series found in the JNF were identified using available USDA-NRCS data by contracted soil scientists in April of 2016. Those soil series were evaluated in person by two soil scientists that described the soil profiles for each soil series in the JNF in a manner that closely matches an Order 2 Soil Survey. The soil scientists who evaluated these soil series were able to correlate their findings with the USDA-NRCS mapping designations. Their report, Mountain Valley Pipeline Soil Profile Descriptions Report for Jefferson National Forest, stated that the use of USDA-NRCS data was appropriate for analysis on the Project based on reported soil descriptions from the JNF. Forest Service soil scientists reviewed and accepted the Mountain Valley methodology and findings as sufficient because of their correlations to NRCS designations.

In summary, the FSEIS was developed using best available USDA-NRCS data for soil series descriptions and their associated physical properties and limitations.

**Concern Statement 056:** There have been numerous violations for sedimentation and erosion controls elsewhere on the pipeline route; the route on NFS lands is steeper and more challenging, which suggests that there will be worse effects than disclosed in the DSEIS. If construction resumes, the public should be
allowed to review the inspector’s reports and photos of the Project Area during a high intensity rain event to get some idea of the actual on-the-ground conditions.

Citizen water monitoring has shown increased sediment load at six sites at two streams and two springs, including sites both upstream and downstream from the MVP construction site where the pipe has already pushed through the North Fork of the Roanoke River in Catawba Valley in Montgomery County, Virginia. The data show that impacts will be worse than acknowledged in the DSEIS.

There have been numerous areas that remained idle for more than 14 days and temporary stabilization was not applied within seven days, a violation of protocol. As a result, poor soil conditions prevent grass from growing in many areas of the ROW.

Response 056: The Forest Service acknowledges comments that have detailed the failures of erosion and sediment control structures/devices and documented violations that resulted. It is important to put these failures and violations in context of what specifically has occurred on the JNF. The Forest Service, and other entities, continually monitor site conditions on the JNF and require Mountain Valley to implement stabilization, conservation, and safety measures, as appropriate, to protect resources and public and employee safety.

On September 21, 2018 (fall 2018), the Forest Service required Mountain Valley to conduct stabilization activities on Peters Mountain and Brush Mountain that included: (1) Site preparation, addition of soil amendments, seeding, and mulching; (2) Direction to not bury any pipe and stage pipes on the edge of the LOD with secured cribbing; (3) Within the LOD, stabilize to prevent landslides, slips, or mass wasting; (4) Stabilize topsoil stockpiles; (5) Monitor and maintain erosion control structures and devices; and (6) Establishment of earthen berms and other measures to restrict access.

On June 18, 2019 (spring 2019), the Forest Service required Mountain Valley to conduct additional stabilization activities, including: (1) Remove intermittent spring discharge from roadbed on Pocahontas Road, thereby reducing erosion and sediment delivery; (2) Provide supplemental seeding for stabilization and retention of organics on topsoil stockpiles; (3) Actions to prevent landslides, slips, or mass wasting in select cut slopes on the ROW; (4) Provide data via soil testing and germination monitoring to assist in the choosing the correct reseeding practice and necessary soil amendments for late summer and early fall reseeding; (5) Utilize native seed mixes that produce the optimum germination, plant establishment, erosion and sediment reduction, and long term survival rates; (6) Reduce the density (thickness) of previously applied straw mulch that is impeding seed germination; (7) Mitigation any eroding on Sinking Creek Mountain; (8) Prepare the site for over-winter conditions where erosion and sediment delivery is mitigated by conducting a fall 2019 follow-up monitoring activities; and (9) Provide data to assist in evaluating need for additional erosion control included reseeding during a spring 2020 follow-up monitoring activities.

Following the fall 2019 on-site monitoring activities (#8 above), the Forest Service required Mountain Valley to implement the following: (1) On Sinking Creek Mountain and Brush Mountain ROW, perform actions needed within the limits of disturbance to stabilize, prevent landslides, slips or mass wasting, and minimize soil erosion or loss; (2) Regarding stabilization Adjacent to Live and Perennial Streams, perform actions to establish ground cover within the LOD to stabilize, prevent landslides, slips or mass wasting, and minimize soil erosion or loss within areas adjacent to live and perennial streams.
These on-site reviews, coupled with the frequent and continual monitoring activities detailed in Section 3.1.2 of the FSEIS, document that the Forest Service continually provides for the conservation and protection of NFS lands and its associated resources, including flora and fauna.

Since the implementation of the above-mentioned stabilization work, weekly monitoring has documented that both Sinking Creek and Brush Mountain LODs are continually noted as being largely stable with no erosion or sedimentation issues observed. These on-site weekly monitoring activities identify any maintenance necessary for ECDs. These issues are noted and quickly responded to by Mountain Valley environmental crews. Mountain Valley environmental crews continue to inspect and adjust ECDs during project shutdown on the JNF.

Based on stabilization results on NFS lands and ECDs that have been improved since 2017, the analysis in the FSEIS is accurate and describes anticipated impacts accurately. Monitoring reports show that ECDs are effective at controlling erosion, runoff, and sedimentation under normal conditions when properly installed and maintained.

The public can request inspector’s monitoring reports from the Forest Service.

Concern Statement 057: Commenters raised concerns about the hydrologic analysis, including whether its use of RUSLE2 modeling was appropriate, flaws in its methodology and inputs, independent assessment, and interpretation.

Response 057:

Model and Data Sufficiency: The DSEIS analysis incorporates the updated Hydrologic Analysis for Aquatic Species and the Hydrologic Analysis for the JNF (Geosyntec Consultants 2020a and 2020b) which utilize the RUSLE2 model and is based on approved Erosion and Sediment Control Plans, actual site conditions, and actual construction timing, which improved the analysis as compared to the 2017 analysis.

The Report addressed the issues of off-forest routes and erosion and sedimentation in relation to mitigation effectiveness. This report is thorough in describing how the RUSLE and RUSLE2 models were constructed to assess background (existing conditions) sediment yield and subsequent yield expected from project activities. The report also reports baseline and project activity results in terms of sediment delivery to water courses based on application of sediment delivery ratios (SDR).

RUSLE2 is based on science and judgment that is superior to that of RUSLE. Based on the independent Agency reviews, the RUSLE and RUSLE2 models were appropriately applied to estimate soil loss from construction sites completely within the capacity of the RUSLE2 model. The localized data (including localized soil profiles18) used to run the RUSLE and RUSLE2 modeling was appropriate to the location and environmental conditions found on the JNF where the MVP is proposed to cross. The outputs of the Model Run(s) were supported by the data and modeling.

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18 A comment on the draft sedimentation report requested additional discussion of how the Soil Survey Geographic Database (SSURGO) and Digital General Soil Map of the United States (STATS2GO) soil databases were used, the frequency of extremely steep slopes (greater than 60%) within the study area, and areas with high erosion rates. Geosyntec revised the sedimentation analysis to further clarify how the two soil databases were used in the process for selection of each data source. The revised analysis includes additional discussion of the first two requests. The areas with high erosion rates are addressed in Appendix D of the 2020 Geosyntec Report.
The FWS reviewer also concluded that “Regarding the question on about whether or not I feel MVP used the RUSLE2 and RUSLE model appropriately to estimate sediment yield for the proposed project. Based on the information provided, it is my assessment that they have used the model appropriately” (FERC Docket No. CP16-10, email communication, Friday, April 3, 2020).

It is important to note that the accuracy of any model relies on 1) the calibration of the model by the authors and 2) the quality of the data entered by the user. The calibration of the model for the stated purpose is without question as USDA-Agricultural Research Service (ARS) has delivered RUSLE2 to give reasonable estimates for several different land uses (e.g., cropland, rangeland, forest land). The quality of the data entered by the user then, is the only item in question. The MVP report clearly and methodically steps through the way each parameter was selected for the model and explains the reason behind each decision.

Although it is true that there may be many paths to a final answer (such as the citizen modeling that has been submitted for review), the input data selections and justifications given in the report gives reasonable security that the values produced by the RUSLE and RUSLE2 models are as applicable and accurate as possible, given the data available. Refer to the project record for additional information on RUSLE and RUSLE2.

Site-Specific Data Used to Validate Model: The Forest Service and associated staff maintain a frequent on-site presence on the MVP ROW and associated areas. The Forest and District staff’s historical and intimate knowledge of the environmental conditions on the sites, the knowledge of past management activities, and the response of the ecosystems to those activities provide the JNF with site-specific information on the edaphic, hydrologic, topographic and climatic conditions of the locations. For example, in June 2018, the JNF provided a guidance document on identification and mitigation of landslide risks (Turner and Collins 2018) to its contractor (Transcon) tasked with monitoring pipeline construction on the Forest. While the information provided in the guidance document was within the FERC FEIS, the document provided Forest site examples to use in identification and mitigation of landslide risks during monitoring processes on JNF lands. This data and information were used to support modeling of sediment delivery and the development of mitigation, stabilization, and monitoring activities, including the Forest Service-approved stabilization plans (Forest Service 2018, 2019a, 2019b, and 2019c).

Consideration of other sediment analysis tools: The Forest Service considered the use of Agency approved sediment models for environmental analysis associated with pipeline projects. In addition to RUSLE2, the Agency considered the use of the Water Erosion Prediction Project (WEPP). The Agency identified limitations for the use of WEPP. For example, the WEPP model only supports setting up 10 distinct soil and management sections. See the project record for additional information on how RUSLE2 and WEPP were evaluated.

Based on its discussions [review] and consideration of relevant factors the Forest Service determined that the RULSE2 model was sound, appropriate for use on the MVP Project, and therefore incorporated it into the FSEIS. The Forest Service is entitled to select the appropriate methodology and draw reasonable conclusions from available scientific evidence.

Independent Review and Interpretation: In response to the Fourth Circuit’s July 27, 2018 decision that the Forest Service failed to conduct an independent review of and take a hard look at the sedimentation analysis in FERC’s FEIS, the Forest Service and the BLM conducted their own independent review of the revised sediment modeling and associated analysis for the MVP project. A USDA-NRCS liaison to the USDA Agriculture Research Service RUSLE2 team and regional agronomist at the USDA-NRCS West National Technology Support Center with 18
years of working knowledge with RUSLE2 also provided a review on the appropriate use of the model and associated data used within. The review consisted of a review and comment of several documents, including the June 21, 2019 Draft MVP Sediment Analysis of Sedimentation for Streams near Suitable Habitat for Threatened and Endangered Aquatic Species, Virginia and West Virginia: Report of Findings prepared by Geosyntec. The applicant was provided a consolidated comment report on the finding of the reviewers on January 14, 2020. This June 2019 document was then superseded by the May 4, 2020 FWS report submitted as part of the Supplemental Biological Assessment which was reviewed for the inclusion of edits and comments provided by the Federal Agencies. Agency reviews also included the Sediment analysis of Sedimentation of the Jefferson National Forest, Virginia and West Virginia, Geosyntec Consultants, May 8, 2020 report.

All reviewers participated in discussions and reviews of the draft analysis that included other federal agency staff, the applicant, and the contractor (Geosyntec). All reviews and suggested edits were provided in context of the decision(s) to be made by the Forest Service for the JNF.

Based on reviews, comments, and incorporated edits, the Agency found that: (1) All input was appropriately considered and incorporated into the information that informed the final analysis document; (2) Questions and comments on the document(s) were addressed and informed the Forest Service’s supplemental analysis; and (3) The outputs of the Model Run(s) were used in a manner that would support the NEPA analysis and address issues raised by the Fourth Circuit Court of Appeals regarding the Sediment Analysis.

In summary, the Forest Service took the requisite hard look at the sedimentation modeling and associated environmental analysis through a documented and thorough review of draft and final documents. This review was conducted by resource staff with familiarity of the modeling tools, past analysis, public comment, associated filings in the FERC docket and the project specific proposal. This independent review of the RUSLE2 Sediment modeling confirmed the adequacy of the analysis on which to base Agency decision making.

Concern Statement 058: The ECDs used on NFS lands are inadequate for the type of project and local terrain. Proposed ECDs are insufficient on the steep slopes of Peters Mountain. Several photos in the Brush Mountain area show evidence of ECD failures. The developer has failed to control sedimentation and runoff on other lands that are less challenging than the NFS lands analyzed in this DSEIS; therefore adverse impacts on NFS lands would be worse than disclosed. There is insufficient detail in the construction plans to determine how large (and therefore effective) certain ECDs will be, nor do they show the use of enhanced ECDs.

The DSEIS does not disclose whether previous Forest Service comments submitted to the FERC on erosion and sedimentation addressed and remedied.

The effectiveness of the proposed ECDs has not been proven in the field: Forest Service consultant Transcon documented over 100 problems on the 3.5 mile MVP route in JNF between March and September 2018, including 6 Noncompliance Reports in the areas where MVP had been allowed to clear the ROW (FERC eLibrary Accession #20181017-5135).

Response 058: Transcon monitoring reports have documented the status of ECDs along the project ROW in the JNF; where necessary, ECDs have been modified or increased to reduce erosion. Erosion control measures must be adapted to accommodate field conditions; the ROW and soil conditions are evaluated daily, including after precipitation events (POD Appendix C-2). The effects on soil resources from implementation of the Proposed Action would occur over the short-term. Short-term impacts would be associated with construction and would be minor to moderate, which is consistent with the conclusions in the FERC FEIS. See FSEIS Sections 3.1.1.
and 3.4.1.2 and the response to comments for Concern Statement #057 for a discussion of how Agency comments were incorporated into the revised sedimentation and erosion analysis. Also see the response to Concern Statement #067 which provides details on how stabilization efforts on NFS lands when combined with enhanced ECDs would result in effects that are accurately displayed in the FSEIS.

The Forest Service has reviewed violations of state water quality standards that were reported and documented along the entire proposed pipeline route, and in particular those specific to the Jefferson National Forest. Violations were cited by VDEQ and an MOU was developed which placed further requirements on the proponent to execute additional mitigations, such as enhanced ECDs and increased staffing. While VDEQ issued citations to Mountain Valley for violations, no citations were issued because of non-compliance on NFS lands. The FSEIS analyzes implementation of mitigation in the POD at Section 3.4.

Transcon have been conducting weekly monitoring on the JNF since March 2018. They have submitted approximately 890 daily inspection reports and during that period submitted 15 non-compliance reports specific to the JNF, all from 2018. The non-compliance reports noted five instances of Sediment off the LOD, four instances of Work Conducted Outside the LOD Without Authorization, two instances of Damage to Trees on the Boundary of the LOD, two instances of Inadequate Road Maintenance, one instance of Inadequate Soil Separation, one instance of Unauthorized Road Widening, and one instance of a Windrow Outside the LOD. The Compliance Inspection Contractor made Recommendations to MVP to correct each non-compliance issue. Independent of the MVP, the Forest Service is planning to conduct maintenance and reconditioning of Pocahontas Road in 2021 to address erosion and sedimentation issues that were occurring prior to and during the MVP project.

As acknowledged in the Hydrologic Analysis for the JNF (Geosyntec Consultants 2020b; Section 3.4), in response to higher frequency of storm events and above-average precipitation depths fell on the Project area in 2018, Mountain Valley substantially upgraded its ECDs in many areas. As stated in the Report, use of these enhanced ECDs “mitigates the potential for extreme storms to contribute sediment loads that exceed the model’s predicted loads, as well as reduce the expected sediment loads during normal precipitation events.”

**Concern Statement 059:** Erosion and runoff would pollute streams via sedimentation and related contamination.

**Response 059:** The Forest Service agrees that it is critical to manage soil resources in a manner that minimizes erosion and runoff that could affect streams. By managing the exposure of mineral soils in proximity to these riparian corridors to less than 10%, the soil and riparian resources can be protected from earth-disturbing activities, in addition to erosion and sedimentation potential. BMPs and ECDs have been implemented in riparian corridors to limit any possible exposure of mineral soils and their deposition into riparian resources, which is the purpose of Standard 11-003. The ROW and soil conditions are evaluated daily, including after precipitation events, to determine if modifications need to be made to erosion control measures to accommodate field conditions (POD Appendix C-2). Also see the response to Concern Statement #057 which describes how site-specific data used in the sediment model, stabilization efforts on NFS land, and enhanced ECDs result in effects that were evaluated in the FSEIS. Monitoring reports show that ECDs are effective at controlling erosion, runoff, and sedimentation under normal conditions when properly installed and maintained.

**Concern Statement 060:** The sedimentation modeling fails to account for gully erosion.
Response 060: While RUSLE2 is not designed to model gully erosion, preventative measures would be implemented to minimize the potential for gully erosion. The potential for gully erosion associated with implementation of the proposed action is associated with the way in which water is released from the construction LOD. Water that is not dispersed through ECDs or other BMPs would have a greater chance of creating gully erosion. Measures would continue to be implemented to disperse water and reduce the potential for concentrated water flow. These include upslope diversions to disperse water and prevent channelized water from entering the LOD from off-site and the implementation of enhanced ECDs so that water exiting the LOD is dispersed as it is released. These enhanced ECDs are discussed in the Report and contribute to the model’s conservativeness. The model incorporates the 30-year Parameter-elevation Relationships on Independent Slopes Model (PRISM) rainfall dataset for estimating the rainfall runoff erosivity factor, a timeframe that provides high-quality data while accounting for reasonably foreseeable rainfall events. As acknowledged in the Report, in response to higher frequency of storm events and above-average precipitation depths fell on the Project area in 2018, MVP substantially upgraded its ECDs in many areas. As stated in the Report, use of these enhanced ECDs “mitigates the potential for extreme storms to contribute sediment loads that exceed the model’s predicted loads, as well as reduce the expected sediment loads during normal precipitation events.” By extension, their improved ability to disperse water that leaves the LOD during extreme storms and normal precipitation events also minimizes the potential for concentrated water flow that causes gully erosion.

Concern Statement 061: Compacted soils alter root growth, change vegetation types, and increase runoff. These impacts would be difficult to mitigate, as maintenance activities would amount to repeated harm to the environment in the active ROW of the pipeline.

Preventing soil compaction in areas with plastic soils for 24 hours is not sufficient drying time to ensure workability of underlying soils. Drying time for soils is dependent on several factors, including weather conditions, humidity, and air temperatures. Normally soils with high plasticity indexes require longer time intervals to dry. If heavy equipment is used for earth disturbing activities before it is dry, moisture is driven deeper into soil layers and the soil becomes difficult to work with. Compaction efforts will not work as the soil is too wet to compact.

Compacted soils have reduced pore space and may become prone to increased runoff and difficult to revegetate.

In areas with slopes over 15 percent, it is difficult to rip compacted soils in a safe manner because as slope steepness increases, it becomes more difficult to maneuver equipment safely. Drying time for soil should be extended to suit the conditions; 24 hours is not enough drying time.

Commenters suggested that tracking of disturbed areas could cause more adverse effects than benefits, especially on steep slopes where tracking slopes compacts underlying soils and reduces soil infiltration rates.

Response 061: Prior to resuming construction activities after precipitation, an assessment of soil moisture and plasticity must be made to determine if construction activities and equipment traffic would result in soil compaction. Soil compaction could occur from use of heavy equipment and vehicles on the ROW and potentially result in adverse short-term effects on soil resources; however, the spatial extent of effects would be limited to those areas where heavy equipment or vehicles were used. Long-term effects would be minimized by ripping compacted soil and planting deep-rooting species to restore soil function by increasing the root mass (DSEIS, pp. 54-57; also see POD Appendix H, Restoration Plan). Practices that are required to protect soils,
including those found in channeled ephemeral zones and riparian vegetation, are found in the POD Appendices C1 to C3, F, G, H, I, K, L, M, R, S, U, and V.

Concern Statement 062: The project would ruin functioning soils. A definition of "soil amendments" should be provided earlier in the DSEIS.

Response 062: Soil testing would be implemented as needed to analyze soil agronomical and biological properties (POD Appendix H, Restoration Plan). If deficiencies are determined from these tests, soil amendments may be incorporated to increase the soil quality and to promote healthier final restoration efforts. Where loss of soil quality is observed, soil deficiencies would be offset by application of soil amendments intended to increase the soil quality and promote healthier final restoration conditions. Soil amendments were also required in Forest Service stabilization plans (Forest Service 2018, 2019b). Soil amendments vary in type and the selection of amendment type is based on site needs and agronomic data; soil amendments may include lime, fertilizer, carbon-source organic matter, and biotic soil additives, such as mycorrhizae inoculations, and are intended to facilitate root growth and improve soil quality by increasing soil microbial activity, nutrient cycling, and soil aggregate stability. With application of soil amendments, long-term impacts on soil resources would be minor. The POD, Appendix H, contains guidelines for fertilizer and liming rates. The definition of soil amendments can be found in the FSEIS in the Summary (p. iv).

Concern Statement 063: Initial grading, stripping, and stockpiling of topsoil on Brush Mountain have contributed to losses of soil quality. The stoppage of project construction resulted in stockpiling of soils for two years. Disrupting, moving, and stockpiling soil for any amount of time degrades soil quality through loss of nutrient cycling and microbial activity, homogenization of soil layers, and loss of overall organic matter and organic carbon.

Stockpiled soils should be tested and analyzed for biological properties. If deficiencies are determined from these tests, soil amendments must be incorporated to increase the soil quality and to promote healthier final restoration efforts. Without application of soil amendments, the potential effects on soil resources change the outcome of final restoration activities and result in decreased restoration, thereby increasing the potential for soil erosion throughout the project area.

Response 063: The DSEIS (p. 51) acknowledges that the stockpiling of soil on Brush Mountain had contributed to temporary losses of soil quality. Stockpiling of soil resources was originally planned to occur for short periods of time during construction, however, the stoppage of project construction resulted in stockpiling of soils for an extended period of time. Temporary vegetation was used to stabilize the windrowed topsoil stockpiles, the working surface of the project ROW, and areas with erosion potential to preserve soil quality. Soil testing would be conducted as outlined in Appendix H of the POD during the restoration phase of the project. While soil chemical parameters would be tested (soil pH, cation exchange capacity, and soil macronutrients), the Environmental Inspector would determine which soils would need the additional agronomic and biological properties analyzed where impacts to stockpiled soil may have occurred. If testing indicates deficiencies exist, soil amendments would be incorporated to increase the soil quality and to promote healthier final restoration efforts (POD Appendix H, Sec. 3.7). With the application of soil amendments, any loss of soil quality in stockpiled soils would be offset and the soil amendments would increase the soil quality. In addition to the planting of appropriate native species, soil amendments would facilitate root growth and improve soil quality by increasing soil microbial activity, nutrient cycling, and soil aggregate stability.
Water Resources

**Concern Statement 064:** Commenters said that the DSEIS did not analyze the impact of obtaining natural gas from fracked wells.

**Response 064:** The source of natural gas for the proposed pipeline is disclosed in the FERC FEIS.

**Concern Statement 065:** Commenters expressed concern that the cumulative effects analysis failed to incorporate several past projects in the Stony Creek watershed, including the Fork Mountain, Kelly Flats, Sarton Ridge, and White Rocks vegetation management projects.

**Response 065:** The cumulative effects analysis in Section 3.5 of the FSEIS has been updated to account for additional projects within the HUC-10 watershed boundaries, including the Fork Mountain, Kelly Flats, Sarton Ridge, and White Rocks vegetation management projects.

**Concern Statement 066:** The DSEIS failed to analyze many direct impacts, including those associated with clearing and grading the ROW, installing ECDs, stabilization, road upgrades, ROW repair, and other activities.

**Response 066:** No actions known to the Forest Service and BLM (including connected actions) have been overlooked in the FSEIS. The FSEIS analysis takes into account all activities needed to complete construction, operations, maintenance, and restoration as outlined in the proposed action (FSEIS Section 2.2.2).

**Concern Statement 067:** Commenters expressed concern that the Forest Service has not taken a hard look at impacts to sediment, erosion, and water quality impacts in the new hydrologic analysis. Additional data from VDEQ as well as habitat monitoring data and aquatic biota data should have been included. Commenters request that the Agencies require a water quality monitoring program, including new baseline data to better assess risk to the local species populations.

Commenters expressed concern that no justification was given for direct water quality monitoring in favor of relying on modeling results. Commenters claim prior field analysis provides evidence that during the construction period, sediment was contributed to the waterway at rates far higher than before construction. An adaptive management and contingency plan should also be developed to respond to these changes.

**Response 067:** Since the inception of the proposed MVP project, and in particular following the initiation of ground disturbing activities, the Forest Service and associated monitors have continually maintained field observation to assess conditions and implement stabilization measures, maintenance of erosion control devices, and other necessary activities to protect resources. For example, on September 21, 2018 (fall 2018), the Forest Service required MVP conduct stabilization activities on Peters Mountain and Brush Mountain that included: (1) Site preparation, addition of soil amendments, seeding, and mulching; (2) Direction to not bury any pipe and stage pipes on the edge of the LOD with secured cribbing; (3) Within the LOD, stabilize to prevent landslides, slips, or mass wasting; (4) Stabilize topsoil stockpiles; (5) Monitor and maintain erosion control structures and devices; and (6) Establishment of earthen berms and other measures to restrict access.

On June 18, 2019 (spring 2019), the Forest Service required Mountain Valley to conduct additional stabilization activities, including: (1) Remove intermittent spring discharge from roadbed on Pocahontas Road, thereby reducing erosion and sediment delivery; (2) Provide
supplemental seeding for stabilization and retention of organics on topsoil stockpiles; (3) Actions to prevent landslides, slips, or mass wasting in select cut slopes on the Right of Way (ROW); (4) Provide data via soil testing and germination monitoring to assist in the choosing the correct reseeding practice and necessary soil amendments for late summer and early fall reseeding; (5) Utilize native seed mixes that produce the optimum germination, plant establishment, erosion and sediment reduction, and long term survival rates; (6) Reduce the density (thickness) of previously applied straw mulch that is impeding seed germination; (7) Mitigation of any eroding on Sinking Creek Mountain; (8) Prepare the site for over-winter conditions where erosion and sediment delivery is mitigated by conducting a fall 2019 follow-up monitoring activities; and (9) Provide data to assist in evaluating need for additional erosion control included reseeding during a spring 2020 follow-up monitoring activities.

Following the fall 2019 on-site monitoring activities (#8 above), the Forest Service required Mountain Valley to implement the following: (1) On Sinking Creek Mountain and Brush Mountain ROW, perform actions needed within the limits of disturbance to stabilize, prevent landslides, slips or mass wasting, and minimize soil erosion or loss; (2) Regarding stabilization Adjacent to Live and Perennial Streams, perform actions to establish ground cover within the limits of disturbance to stabilize, prevent landslides, slips or mass wasting, and minimize soil erosion or loss within areas adjacent to live and perennial streams.

These on-site reviews, coupled with the frequent and continual monitoring activities demonstrate that the Forest Service continually provides for the conservation and protection of NFS lands and its associated resources, including flora and fauna. While VDEQ issued citations to Mountain Valley for violations, no citations were issued because of non-compliance on NFS lands.

Regarding the sediment analysis, the purpose of the updated Hydrologic Analysis for the JNF (Geosyntec Consultants 2020b) was to more accurately estimate the amount of sediment loss delivered to streams that intersect JNF lands. The scope of the analysis includes immediate and downstream sedimentation impacts that occur as a result of activities within the Project ROW. The analysis is based on the best available science information, including actual Project design and schedule. The Forest and District staff’s historical and intimate knowledge of the environmental conditions on the sites, the knowledge of past management activities, and the response of the ecosystems to those activities provide the JNF with site-specific information on the edaphic, hydrologic, topographic and climatic conditions of the locations. As described in Section 3.4 of the Hydrologic Analysis for the JNF (Geosyntec 2020b), these data and information have been used to support modeling of sediment delivery and the development of mitigation, stabilization, and monitoring activities.

**Concern Statement 068:** Commenters are concerned that erosion, sedimentation, and the risk of spills/leaks would degrade surface water, groundwater, and drinking water.

**Response 068:** The POD includes a Spill Prevention, Containment, and Counter Measures Plan (SPCCP) for both Virginia and West Virginia (POD Appendix D1 and D2) to protect water resources from accidental spills or leaks of hazardous materials, such as fuel and oil during construction and operation. Also see the response to Concern Statement #069. The SPCCP contains measures, such as personnel training, equipment inspection, and refueling procedures, to reduce the likelihood of spills. It also describes mitigation measures, such as containment and cleanup, to minimize potential impacts if a spill occurs. For more discussion of potential impacts on groundwater and drinking water, please refer to the responses to Concern Statements #052, 068, and 069.
Concern Statement 069: Commenters are concerned that groundwater and karst will be adversely impacted by the MVP, especially by spills and/or leaks of hazardous materials that will degrade quality of surface, ground, and drinking water, and could adversely affect aquatic habitats.

Response 069: The FSEIS, Section 3.4.2, states that short-term impacts would be associated with construction and would be minor, which is consistent with the conclusions in the FERC FEIS. Construction activities are not likely to significantly affect groundwater resources because the majority of construction would involve relatively shallow excavations. The project would prevent or adequately minimize accidental spills and leaks of hazardous materials into groundwater resources during construction, operation, and maintenance by adhering to its Spill Prevention, Control, and Countermeasure Plan included the POD (Appendices D-1, D-2, and Y). Long-term impacts would be associated with post-construction restoration, operation, and maintenance and would be minor in intensity, which is consistent with the conclusions in the FERC FEIS. The FERC FEIS Chapter 3.5.1.10 details alternative changes to avoid the Mount Tabor Sinkhole Plain (outside of JNF) and to avoid or minimize effects to karst, caves, and groundwater. The FERC FEIS Chapter 4.1 details impacts to resources associated with geology, including groundwater. Mountain Valley prepared a Karst Hazard Assessment, Karst Mitigation Plan, and Karst-specific Erosion and Sediment Control Plans for the project. Additional information on Mountain Valley's efforts to avoid, minimize, and mitigate impacts to groundwater and karst can be found in chapter 4.1 of the FERC FEIS.

Concern Statement 070: Commenters say they are concerned that the headwaters of pristine streams would be polluted by the storage of radioactive gas and its byproducts.

Response 070: Downstream use of natural gas in markets, including effects of radon from gas use in homes, is outside the scope of the SEIS; however, background information on radon is provided in the FERC FEIS in Section 4.11.1.4 beginning on p. 4-516. The area in which the MVP would occur does have a potential for radon to exist. Gas, transported through natural gas pipelines, typically has higher levels upstream relative to downstream due to radon's degradation half-life of less than four days. The longer the transport distance and time prior to combustion, the lower the levels of radon. Some radon removal occurs in gas processing plants during the removal of liquified petroleum gasses. Exhaust venting of gas appliances also limits exposure pathways for humans. The FERC FEIS background review suggested that indoor radon from use in the home is unlikely to pose a hazard to domestic users. Likewise it concluded that combustion of gas delivered by local delivery companies would comply with all applicable air emission standards which should not introduce new adverse health risks.

Concern Statement 071: Commenters expressed concerns about MVP’s numerous citations/violations of state water quality standards. Commenters are concerned that MVP has not demonstrated they can uphold water quality standards in the future and that there is a risk to aquatic life.

Response 071: Per the 2020 POD (Section 6.4), a third-party inspector selected by, managed by, and reporting solely to FERC to provide monitoring services. The Monitor will provide daily reports to FERC and the Forest Service on compliance issues and make recommendations on compliance issues and construction changes which will be communicated to Mountain Valley’s Environmental Inspector or Chief Inspector who will direct the contractor to make changes. The FERC staff will also conduct periodic inspections during all phases of construction and throughout restoration, as necessary. This provision has been in effect since initial construction on MVP, the independent monitor is conducting monitoring following the POD, and ECDs are being addressed as warranted. These measures combined with measures to avoid, minimize, and mitigate effects to riparian zones (see POD Appendices C-1 through C-3, D-1 and D-2, H, and
K), will be protective to aquatic life. Effects to aquatic species are addressed in the responses to Concern Statements #086, 087, 096, 103, and 104.

**Concern Statement 072**: Commenters expressed concern about the potential degradation of drinking water.

**Response 072**: According to the Virginia Department of Health Office of Drinking Water (ODW), there are two public groundwater wells: a spring at Lhoist North America located upstream of the MVP route and outside of JNF holdings in the Stony Creek Watershed, and a drilled well at Camp Tuk-A-Way in the Craig Creek Watershed, downstream of the MVP crossing. ODW indicated no surface water intakes occur within a 5-mile radius of the project (VDEQ 2020). The project occurs within the watershed of the following public surface water sources: Henrico County Water System, James River Correctional Center, City of Lynchburg (two water facilities), City of Richmond, and Virginia-American Water Co. The Forest Service would require Mountain Valley to implement BMPs and enhanced ECDs (see responses to Concern Statements #052, 068, and 069) which address Mountain Valley’s plan that would minimize and mitigate effects to groundwater resources and planning and response to spills.

**Concern Statement 073**: Commenters assert that they have already seen increased turbidity or soft sediment accumulation since implementation of constructed portions of the MVP (Sinking Creek Valley and Teels Creek).

**Response 073**: Monitoring of ECDs and erosion and sedimentation issues within the JNF is ongoing by the independent monitor Transcon. The *Hydrologic Analysis for the JNF* predicted minor increases in sedimentation during construction and in the restoration period post construction for all streams analyzed. The risk of erosion is being addressed with enhanced ECDs and BMPs and in riparian areas, where the riparian zone would be restored excluding the herbaceous permanent ROW.

**Concern Statement 074**: Commenters expressed concern that the project will have adverse effects to fisheries including the trout hatchery sourced by Rich Creek Spring/Cave.

**Response 074**: No streams would be crossed on NFS lands that drain into the Rich Creek Spring/Cave area. Adverse impacts to groundwater and karst ecosystems would be avoided or minimized through the measures described in the responses to Concern Statements #052, 068, and 069.

In addition to description of effects to riparian zones included in the SEIS, the FERC FEIS is appended by reference and goes into greater detail on effects, avoidance measures, mitigation measures, and restoration proposed for riparian zones. Chapter 4.3.2.2 of the FEIS beginning on p. 4-136 details measures proposed to protect riparian zones and streams. Also see the POD Appendices C1 through C3 (Erosion and Sediment Control Plan) and Appendix H (Restoration Plan).

**Concern Statement 075**: Commenters asked whether watershed analyses have been conducted annually or recently.

**Response 075**: Hydrologic analysis of sedimentation studies were conducted for watersheds within the JNF (Geosyntec Consultants 2020b) and watersheds potentially harboring threatened and endangered aquatic species (Geosyntec Consultants 2020a). Both models incorporate analysis of watershed-level components.
Concern Statement 076: Commenter provided description and exhibits detailing suspected adverse effects to drinking water by disturbing karst areas from work already completed on Johnson Ridge. Commenter urges JNF not to allow trenching and to preserve drinking water for others by not allowing MVP through JNF.

Response 076: Johnson Ridge is located on private land east of the NFS lands on Brush Mountain. Concerning trenching on the JNF, the FERC, Forest Service, and BLM are evaluating the use of conventional bores for all stream crossings on the JNF. Disturbance to karst and groundwater is not predicted within the section of the MVP that is proposed to cross the JNF.

Concern Statement 077: Commenters request that the Forest Service and BLM be the deciding parties regarding the method of stream crossing that would be used on NFS lands. The Forest Service and BLM should choose the method with the least environmental impacts.

Commenters suggest that it is impossible to lay pipe under a stream in the period of time required and that other stream crossings along the pipeline route have caused resource damage.

Response 077: The method of stream crossing would be approved by the FERC, Forest Service, and BLM. Under the proposed action analyzed in the FSEIS, there would be four stream crossings on NFS lands. As stated in Section 2.2.2.2 of the FSEIS, if the four streams on NFS lands are crossed using a conventional bore method, the procedures in the Water Crossing Plans (POD Appendix K) and the stream crossing method variance request (MVP 2020u) would be implemented. Section 2.2.2.2 of the FSEIS also describes the measure that would be implemented should the four streams be crossed using a dry-ditch open cut method. Further, the Hydrologic Analysis for the JNF (Geosyntec Consultants 2020b) assumes use of the dry-ditch open cut method, resulting in conservative estimations of sedimentation; the conventional bore method would result in less sedimentation in streams because no in-stream work would be performed. The FERC FEIS analyzed the impacts of dry-ditch open cut crossings and indicated that horizontal directional drilling would have fewer impacts than dry-ditch open cut (FERC FEIS pp. 4-120, 4-139).

Concern Statement 078: Commenters expressed concern that boring under streams and the ANST would adversely affect groundwater and drinking water supplies.

Response 078: Four streams (unnamed tributaries of Craig Creek) would be crossed on NFS lands. Implementation of the Water Crossing Plans (Appendix K of the POD) would avoid or minimize impacts on groundwater. If dry-ditch open cut crossing method is used, groundwater is not likely to be significantly affected due to the shallow excavations for this method.

There would be no stream crossings on Peters Mountain, but the ANST would be crossed using an approximately 600-foot-long conventional bore. As described in Section 4.3.1 of the FERC FEIS, the proximity of the proposed pipeline to public or private water supply wells or springs has been conducted where landowner permission was obtained. Mountain Valley would conduct two pre-construction water quality evaluations on water wells within 150 feet of the project (500 feet in karst terrain). One pre-construction evaluation would be conducted six months prior to construction; the second pre-construction evaluation would be conducted three months prior to construction. Mountain Valley would evaluate any complaints of damage to water supply wells associated with construction of the projects and identify a suitable settlement with the landowner.

Concern Statement 079: Commenters expressed concern that steep slopes adjacent to the stream crossings render impossible the use of conventional boring for stream crossings in the JNF. In addition,
there is not adequate space at the stream crossing locations to install bore pits and stage conventional boring equipment.

**Response 079:** In the POD, Mountain Valley has developed site-specific design and engineering plans, Water Crossing Plans (Appendix K) and Bore Profile (Appendix A-2) for how it anticipates boring could occur at the stream crossings. The stream crossing design plans identify proposed locations of bore pits and confirm that there is adequate space within the LOD for staging boring equipment.

**Concern Statement 080:** Commenters raised questions about pending litigation regarding USACE Nationwide Permit 12 which could influence the pipeline route and/or stream crossing methods on NFS lands.

**Response 080:** Mountain Valley, as required by the FERC Certificate, would be required to adhere with all applicable permits for construction and operation of the proposed pipeline. The Forest Service is aware of the litigation concerning Nationwide Permit 12 and proposed modifications to Nationwide Permit 12 by the U.S. Army Corps of Engineers. Mountain Valley would be required to obtain appropriate permits for stream crossings if the dry-ditch open cut method was approved.

**Concern Statement 081:** Commenters request that riparian areas be protected from pipeline construction impacts because they offer a buffer to waterways from sediment and nutrient runoff, stabilize banks, regulate stream temperatures, and provide shade as well as provide food sources for river ecosystems.

Concerns were raised that the DSEIS underestimates impacts on riparian zones, especially impacts from tree removal, compaction and disturbance of soils, changes to contours, and changes to stream morphology.

**Response 081:** In addition to the description of effects to riparian zones included in the DSEIS in Section 3.4, Section 4.3.2.2 of the FERC FEIS details potential effects to riparian zones as well as measures proposed to avoid, limit, and minimize adverse impacts to riparian zones and streams. Measures include reducing construction corridor within riparian zone, implementing dry-crossing methods, limiting timeframe for crossing construction, restoring bank and contours, and limiting maintained areas of the ROW. MVP’s Wetland and Waterbody Construction and Mitigation Procedures allow a riparian strip of at least 25 feet wide to permanently revegetate across the entire construction ROW excluding a corridor centered on the pipeline up to 10 feet wide which can be cleared as needed to maintain in a herbaceous state. Trees located within 15 feet of the pipeline may be cut and removed from the permanent ROW. Areas between bore entry and exit points would not be cleared during construction or mowed during operations. Please see POD Appendices C-1 through C-3, D-1 and D-2, H, and K for additional measures designed to avoid or minimize impacts on riparian resources.

**Concern Statement 082:** Commenters request that water quality data collected from monitoring of portions of the pipeline that have been constructed should be used to improve future work and models. Commenters also request that Mountain Valley be required to implement water quality monitoring and turbidity monitoring more widely.

**Response 082:** The Forest Service is utilizing (and would continue to use) an independent monitoring contractor to monitor ROW conditions, erosion and sedimentation, and ECDs within the JNF. They conduct daily inspections and report regularly to the FERC and the Forest Service and their reports include recommendations on how to address issues. This information is then passed onto contractors who implement ECD repair, adjustment, or addition.
Concern Statement 083: Commenters expressed concern that major destruction of forest from large fires and subsequent degradation of streams could occur as a result of the MVP.

Response 083: Large destructive wildfires do have the capacity to increase erosion and sedimentation by removing stabilizing vegetation and adding ash to streams. As described in the FERC FEIS (p. ES-16), Mountain Valley commits to utilize a Fire Prevention and Suppression Plan to reduce the chance of wildfires and associated adverse effects. In addition, the JNF has its own wildfire planning procedures that would help to reduce fire risk within JNF lands in the project area. For this FSEIS, Appendix X of the POD is the Fire Prevention and Suppression Plan that responds to this concern.

Wetlands

Concern Statement 084: Commenters inquire about the identification, inventory, and monitoring of any wetland communities; glades, barrens and associated woodlands; forest communities; cliffs and rock outcrops; and other communities in, near, or downstream from the project area.

Response 084: The FERC FEIS describes the resources identified on the portion of the ROW on NFS lands. See Section 4.2.1.5 for soils, 4.3.3.1 for wetlands, 4.4.1 for vegetation and forest types, and 4.1.1.7 for geological resources. In addition, the SBA, SBE, and the POD and its appendices describe the field studies conducted to characterize natural resources within the ROW, along with the conservation measures and BMPs that would be applied to avoid or minimize impacts. Other agencies have also reviewed resource information on NFS lands, including the BLM, FERC, FWS, USACE, and state resource agencies (e.g., VDEQ). The Forest Service reviewed the JNF Forest Plan and did not identify an inability to meet goals or objectives therein.

Concern Statement 085: Commenters request that existing vegetation not be removed within a 100-foot buffer zone between the edge of streams and the ROW so that the functional value of the streamside corridors is maintained. This is because clearing and construction in wetland zones in the streamside corridor increases the possibility of continued water quality degradation. Commenters noted that the ROW is less than 100 feet from the edge of Craig Creek.

Commenters identified potential impacts on wetlands from interrupting the hydrologic function due to ruts in wet soils. Ruts can form when removing underbrush, trees, leaves, and root mass, as well as topsoil stripping, grading, and compaction by heavy equipment activities. Further, compaction of soils in wetlands blocks the flow of underground water which deprives existing vegetation of adequate water supply by reducing infiltration of runoff.

Response 085: The MVP was routed and designed to avoid directly impacting wetlands within the JNF. No wetlands are within the permanent ROW on NFS lands (FSEIS Section 3.4.2).

There would be four stream crossings within the JNF, all of which are unnamed tributaries of Craig Creek. The proposed Craig Creek crossing is not within the JNF.

Section 3.4.2.2 of the FSEIS discusses the short-term, minor adverse effects on hydrology to ephemeral zones and riparian corridors within the JNF. Additional discussion of potential riparian effects was addressed in the FERC FEIS (Sections 4.3.2 and 5.1.3.2).

Aquatic Species

Concern Statement 086: Commenters were concerned that the reduction of riparian buffers could alter stream temperatures causing adverse impacts on aquatic habitat. Specifically, the concerns are about
Craig Creek being a priority watershed and trout fishery. Effects to riparian zones could lead to a negative impact on recreational angling.

Response 086: The proposed ROW crosses four unnamed tributaries of Craig Creek on NFS lands. The proposed Craig Creek crossing is on private lands. Craig Creek is known trout habitat and is periodically stocked by the Virginia Department of Wildlife Resources. Effects to aquatic species and recreational fishing are disclosed in the FSEIS at Sections 3.3.10, 3.3.13, and 3.4.3. BMPs are disclosed in the POD to mitigate effects to aquatic species.

Concern Statement 087: Commenters expressed concerns about potential impacts to a previously documented, unnamed crayfish found in a spring in Rice's Field.

Response 087: Rice's Field is approximately four miles (6.5 kilometers) to the southeast of the pipeline ROW and outside the spatial extent of expected direct or indirect impacts.

Vegetation

Concern Statement 088: Commenters were concerned that the variances Mountain Valley has obtained (and may request to obtain in the future) variances that have increased the amount of impacted land above and beyond what was documented in the FERC FEIS. An example was given of a requested variance in October 2020 that would impact forest edge and intrude on the exclusion zone.

Response 088: The FERC FEIS analyzed impacts along the entire project ROW, including outside of the JNF. The FERC has authority to approve variances. Environmental effects of variances and additional mitigations are disclosed in the FSEIS. After the POD is finalized (through project implementation), any requests made by the company for activities not included in the approved POD or that fall outside of the ROW must be requested to the FERC as a variance, with concurrence from the Forest Service and/or BLM as a variance. If accepted, the variance becomes a POD Plan Amendment. The Amendment must be approved prior to the activity taking place (POD Appendix N).

Concern Statement 089: Vulnerable interior forest species would be harmed by the clearing of a permanent ROW through old growth forests that creates new edge habitats and fragments existing habitats. Edge habitat can increase vulnerability to invasive species and increase average light and temperature, creating an altered ecosystem unreceptive to many native species.

Response 089: The FERC FEIS analyzed the impact of creating edge habitat and fragmenting existing habitats (see Sections 4.4.1.5, 4.4.2.3, 4.4.2.6, and 4.5.2.2). Since publication of the 2017 FERC FEIS, the ROW on NFS lands was cleared of standing trees.

Concern Statement 090: Old growth forests are valuable for creating topsoil and retain more carbon and nitrogen than younger forests. They harbor rare species and provide unique experiences for recreation. Old growth forests should be off-limits to harvest because there are so few old growth forests remaining in the eastern United States and because timber harvest is inconsistent with the goals of the JNF Forest Plan for Management Area 8A1.

Commenters suggested several adverse effects that would result from cutting in old growth forests, including the creation of permanent edge habitats and loss of a buffer zone, resulting in introduced competitive, invasive plant and animal species that would be difficult to mitigate and would adversely affect critical habitats and interior forest species that reside in old growth forests.

Jefferson National Forest
Response 090: The FSEIS discloses adverse impacts to old growth forest and the creation of forest edge habitat (Section 3.4.4.3). As stated in the FSEIS, project construction has resulted in clearing two acres on Brush Mountain out of approximately 30,200 acres of JNF old growth or about 0.00007% of the total old growth on the JNF.

As described in Section 2.2.2.1 of the FSEIS, the NFMA requires proposed projects, including proposals from non-federal entities subject to permits or ROW grants, be consistent with the applicable Forest Plan (16 U.S.C. § 1604(i)). The JNF Forest Plan states that, “[p]rojects are evaluated to determine if they are consistent with the management direction in the Revised Plan.” The Forest Service evaluated the JNF Forest Plan and determined that 11 standards would need to be amended. Analysis of amending these standards is disclosed in the FSEIS.

Concern Statement 091: Some commenters believe that the construction process will be successful in minimizing impacts and returning the ROW to a natural state quickly. Some commenters suggest that the DSEIS fails to discuss the post-construction monitoring process, including identification of the responsible parties for monitoring and how monitoring will be performed.

Commenters suggest that it is unreasonable to expect that “one full growing season is needed after restoration planting is complete to achieve revegetation.” Instead, a minimum of three years, preferably five years, should be used for restoration modeling. Restoration is a continuous process throughout the life of the project and language should be added to clarify continued management of the ROW. Commenters suggest that other areas of the pipeline are still not completely restored.

Commenters argue that hydroseeding cannot be applied in mountainous terrain due to steep slopes and site access. The use of helicopters to drop seed pellets would result in the seeding of adjacent areas and not just the ROW.

Commenters expressed concern over seeding on steep slopes and suggest that the seedbed should be prepared by scarifying the disturbed areas to reduce compaction and fertilize the soil. However, due to concern over operator safety on steep slopes, the slopes are not scarified before seeding is applied. The seed was not tamped or pressed onto or into the soil surface because it is JNF policy to minimize compaction on pipeline ROW and trench surfaces to encourage infiltration. Despite amendments to boost growth of seed pellets, if the seed is not pressed into the soil, the chances for growth decrease due to lack of contact with soil surface and lack of soil nutrients.

Commenters provided photos from Franklin County as evidence of the lack of stabilization despite efforts to grow grass on gentler slopes than those found on the ROW on NFS lands. Commenters requested that trees be planted to block the view of the ROW.

Trees along the edge of the pipeline corridor have been degraded (stressed and dying). This impact should be evaluated and addressed in corridor restoration activities.

Response 091: As stated in the Hydrologic Analysis for Aquatic Species and the Hydrologic Analysis for the JNF, “Mountain Valley anticipates that one full growing season is needed after restoration planting is complete to achieve revegetation.” Seed mixes used for revegetation would be those approved by VDEQ, West Virginia DEP, and the Forest Service. See Appendix H of the POD (Restoration Plan) for a more detailed discussion of the approved seed mixes. After pipeline installation, the ROW would be restored and revegetated in accordance with the FERC’s Upland Erosion Control, Revegetation, and Maintenance Plan and any Forest Service requirements that exceed those of the FERC Plan and Procedures including the “Suggested Seeding Techniques for Pipeline Rights-of-Way and Associated Disturbances on the Monongahela and George
Washington-Jefferson National Forests” and the “Forest Service Tree and Shrub Planting Guidelines for Pipeline Rights-of-Way and Associated Disturbances.” It is reasonable to expect that initial coverage would be attained within one year by following these procedures, which include prioritizing fast-germinating, non-invasive, annual cover crops for the first round of seeding to stabilize exposed soil (per Attachment H-3 in Appendix H of the POD).

The ROW would be revegetated to an herbaceous cover. The POD Restoration Plan (Appendix H) specifies seed mixes that include both fast-growing, annual/short-lived perennial nonnative grass species approved by the Forest Service, as well as some perennial native species. The annual species are designed to establish vegetative cover in one growing season.

Section 2.2.2.2 of the FSEIS describes the mitigation and compliance monitoring requirements. The POD Restoration Plan (Appendix H) specifies annual monitoring of revegetation for five years and then every five years thereafter. Revegetation will be required to meet standards outlined in the POD Restoration Plan (Appendix H) and revegetation efforts will continue until the targeted areas are determined by the Forest Service to be successfully revegetated.

As described in the POD Restoration Plan (Appendix H), “seeding will be conducted using drill seeding, mechanical broadcast seeding, or hydroseeding according to the guidelines in the FERC Plan and/or specifications made by the FS.” ... “Broadcast seeding will be the preferred seeding method used on steep slopes (i.e., slopes greater than 3:1); other areas that cannot be accessed with other seeding equipment; areas that will be covered with erosion control fabric; or other areas determined to be appropriate for broadcast seeding by the Environmental Inspector and FS.”

The project is required to meet restoration and revegetation standards. Revegetation conditions will be monitored annually for five years and every five years thereafter.

**Threatened, Endangered, and Sensitive Species**

**Concern Statement 092:** Concerns were raised about the candy darter analysis in the 2020 FWS BO. The effects of the sedimentation models were estimated using a study on bull trout, the analysis fails to quantify embeddedness, and the analysis fails to consider sublethal effects and cumulative stressors to individuals within a population.

**Response 092:** The FWS used a framework that represents the best available methodology for assessing project-related effects. The FWS BO and ITS is the appropriate document to be used to inform discussions and analysis for threatened and endangered species and their habitat. The FWS explains the framework and reasonings for choosing the most appropriate model as well as supporting literature (FWS 2020b, pg. 111-112). The analysis did not quantify existing or predicted embeddedness but instead identified areas where increases in embeddedness are reasonably likely to harm candy darter given ≥20 mg/L TSS concentrations above background levels (FWS 2020b, pg. 114). Additionally, standard techniques to measure embeddedness does not yet exist (FWS 2020b, pg. 172). Sub-lethal effects and cumulative stressors are addressed in Analysis for Jeopardy (FWS 2020b, pg. 149).

**Concern Statement 093:** Questions were raised that the DSEIS does not include completed species surveys in the document.

**Response 093:** Threatened and endangered species analysis, monitoring, and surveys can be found in the 2017 BA (FERC 2017c) and 2020 SBA (MVP 2020b). All forest sensitive species surveys and analysis can be found in the 2017 BE (MVP 2017) and 2020 SBE (MVP 2020t).
Concern Statement 094: Questions and concerns were raised about creating new edge habitat and how that may affect bats as well as the removal of riparian environments from candy darter and Roanoke logperch habitats.

Response 094: Standing trees have been felled and, on Brush Mountain, removed from the ROW and measures would be implemented to avoid, minimize, and mitigate impacts on the Indiana and northern long-eared bat. In regards to riparian environments, the MVP pipeline would not cross any streams known to harbor candy darter or Roanoke logperch or their habitat within the JNF; therefore, there would be no direct effects to the riparian environment in their habitat. ECDs and vegetation restoration will be implemented around all riparian areas including avoidance and mitigation measures in the JNF.

Concern Statement 095: Commenters expressed concerns regarding impacts to the Allegheny woodrat, peregrine falcon, and the rusty patched bumble bee.

Response 095: The Allegheny woodrat is not federally endangered, threatened, or proposed species nor is it considered an RFSS; therefore, it was not analyzed in detail in the FSEIS or SBE. The peregrine falcon was addressed in the 2017 FERC FEIS and determined that the project would not impact this species. No new information regarding the peregrine falcon was identified; therefore, the species was not reassessed in the FSEIS.

For the response to additional surveys for rusty patched bumble bee, see the response to Concern Statement #100.

Concern Statement 096: Concerns were raised that the MVP project contradicts the George Washington and Jefferson National Forests Federally Listed Threatened and Endangered Mussels and Fish Conservation Plan.

Response 096: The MVP pipeline is consistent with the goals and objectives of the Federally Listed Threatened and Endangered Mussels and Fish Conservation Plan. Predicted impacts to aquatic threatened and endangered species were analyzed in the FERC FEIS and the SEIS and only minor impacts were identified. Sedimentation has been modeled to better understand impacts and to evaluate the appropriate use of ECDs and avoidance and mitigation measures in the JNF. Additionally, MVP would revegetate and restore the ROW including riparian environment. The conservation measures that would be required within the JNF to protect all parts of the ecosystem fulfill the goals and objectives set by the Federally Listed Threatened and Endangered Mussels and Fish Conservation Plan.

Concern Statement 097: Commenters are concerned that the project would harm federally listed species in an area of unique statewide importance for these species and their habitat. Specifically, the Roanoke logperch and candy darter were mentioned. Commenters were concerned these species will be negatively impacted by pipeline activities due to increased sedimentation, TSS, and turbidity in Stony Creek. Comments about indirect effects to the candy darter and adequacy of the project timelines to allow sufficient consideration to these issues were included.

Response 097: Section 3.4.3 of the DSEIS discloses that the MVP pipeline inside the JNF would not cross known habitat for the Roanoke logperch or the candy darter and that known Roanoke logperch habitat is beyond the extent of sedimentation from the JNF. Known candy darter habitat would experience indirect temporary increase of sedimentation over baseline levels from the pipeline ROW construction via Kimballton Branch. Project-related effects on the candy darter
would be minimized based on the avoidance and mitigation measures and the Restoration and Rehabilitation Plan.

**Concern Statement 098:** Concerns were raised that Mountain Valley and the Forest Service do not have adequate time to review new information and incorporate mitigation measures requirements from the recently issued BO on September 4, 2020. Commenters expressed concern about the continuation of the project with active legal challenges to the BO.

**Response 098:** Forest Service staff immediately reviewed the 2020 FWS BO upon receipt and coordinated necessary changes to the FSEIS. The Forest Service is aware of the lawsuit filed against the FWS in the Fourth Circuit, which challenges the 2020 FWS BO. The Forest Service also understands that the Fourth Circuit denied petitioner's motion for stay of the 2020 FWS BO and ITS on November 18, 2020. The 2020 FWS BO remains valid and it is reasonable for the Forest Service and BLM to continue to rely on it.

**Concern Statement 099:** Commenters expressed concerns that information was not taken into consideration when determinations for ESA-listed and RFSS were made and clarification and reconsideration are advised. New information that may affect the determinations include sedimentation analysis, road use, and embeddedness studies. There is also confusing language about determinations for some species (candy darter and Virginia spiraea) and not others (Roanoke logperch).

**Response 099:** New information relating to the *Hydrologic Analysis for Aquatic Species* and the *Hydrologic Analysis for the JNF*, updated ROW application and road use, as well as embeddedness concerns were taken into consideration when making determinations for RFSS and ESA-listed species as required by 40 CFR § 1502.9(c)(1) (1978, as amended in 1986 and 2005) and FSH 1509.15_10, Section 18.1. (Determinations for ESA-listed species are made by FWS and are disclosed in the 2020 FWS BO.) More information can be found in the FSEIS Section 3.4.3. In addition, language regarding determinations of mentioned species have been reviewed for consistency and modified for clarity.

**Concern Statement 100:** Questions were raised that the candy darter determination was focused on mortality and did not account for sublethal effects of sedimentation.

**Response 100:** Sublethal effects from sedimentation were considered and addressed in the 2020 Biological Opinion. The FWS determined that candy darter populations may experience some temporary adverse impacts to fitness but not enough to result in a population declines that could not recover quickly.

**Concern Statement 101:** Questions were raised about the need for a timeline of surveys for the Indiana bat, the rusty patched bumble bee, bald eagles, and golden-winged warblers.

**Response 101:** Indiana bat surveys are valid for 5 years, therefore the survey conducted in 2016 is still valid (FWS 2020c). Trees (i.e., potential roosts) have already been removed, therefore roosting habitat will not be impacted further. Recent coordination with FWS has not resulted in the need for additional surveys.

Surveys were completed in 2020 for the rusty patched bumble bee, the results and consideration for which are cited in the FSEIS as WEST 2020. In addition, because the bee is not a forest species, the removal of trees is not detrimental to this species. Native plants will be planted in the ROW and invasive species control will be implemented to ensure native plants dominate the ROW to benefit pollinators and grassland dependent species.
Although neither species is on the RFSS list, the golden-winged warbler and bald eagle are addressed in the 2017 FERC FEIS Section 4.5.2.6 on Migratory Birds (pp. 4-205 to 4-208) along with mitigation measures. Additionally, Section 7.1.1.2 of the 2020 POD states that Mountain Valley will follow the USFWS Bald Eagle Management Guidelines to reduce disturbance. Golden-winged warblers prefer open shrubby habitat and management includes restoring, creating, and maintaining open habitats with periodic disturbance within broader forested matrices.

**Concern Statement 102:** The 2020 FWS BO states that the MOU for federally listed bat species will be finalized by completion of project. Any MOU must be finalized prior to the start of the project for it to be effective, and to make sure that MVP does not walk away without signing a MOU at project completion.

**Response 102:** The finalization of a Memorandum of Understanding regarding federally listed bat mitigation prior to the completion of project construction is a requirement of the terms and conditions set in the 2020 FWS BO.

**Concern Statement 103:** The scale of the hydrologic analysis is inappropriately small; it fails to account for downstream effects, particularly the effects of sedimentation in streams on the candy darter. Severe rain events will carry sediment from Peters Mountain to Stony Creek; the DSEIS failed to account for worst-case scenarios such as these (and the fact that they'd be avoidable if the pipeline was not constructed). Sediment events are already occurring in nearby springs.

**Response 103:** The 2020 *Hydrologic Analysis for Aquatic Species* and the *Hydrologic Analysis for the JNF* (Geosyntec Consultants 2020a and 2020b) update a previous analysis conducted by Environmental Solutions & Innovations, Inc. (ESI). The 2020 hydrologic analyses conservatively estimates potential delivered sediment loads from the project study area, which includes the streams intersecting and draining to JNF lands and accounts for the upstream drainage area contributing to those intersecting streams.

Stream watershed boundaries were identified using USGS HUC-12 watersheds. Eight HUC-12 watersheds within or draining to JNF lands containing the Project LOD; an additional watershed was identified that was downstream of Project LOD but within JNF lands and was analyzed because it included JNF lands.

Three watersheds that exhibit suitable habitat for one or more TES aquatic species (those associated with Craig Creek and Stony Creek) were identified in the study area. The analysis incorporates models for construction work areas to account for Project-specific and site-specific BMPs.

In addition, the updated hydrologic analysis uses a more advanced model, RUSLE2, which incorporates the site-specific, approved erosion and sediment control best management practices for the Mountain Valley Pipeline Project.

The *Hydrologic Analysis for Aquatic Species* and the *Hydrologic Analysis for the JNF* account for direct and indirect impacts at a HUC-10 and HUC-12 watershed scale, respectively. The analysis discloses indirect effects at the watershed and individual stream levels. This FSEIS analyzes indirect effects on the candy darter (see Section 3.4.3). The hydrologic analyses acknowledge the effects of higher frequency of storm events and above-average precipitation; these events resulted in the installation of enhanced ECDs in affected areas of the ROW.

**Concern Statement 104:** Commenters suggested that the sedimentation model fails to address direct and indirect effects on water quality and threatened and endangered aquatic species and critical habitat.
Another concern is that HUC-12 watersheds may be too large for sufficient analysis of threatened and endangered species.

**Response 104:** Sedimentation is a potential concern for aquatic threatened and endangered species. In addition to modeling impacts at a watershed scale, the *Hydrologic Analysis for the JNF* used a RUSLE2 analysis to model impacts on individual stream segments.

**Concern Statement 105:** Commenters expressed concern that the DSEIS violates NEPA because the Forest Service has not analyzed the ability to achieve the Forest Plan objectives with regards to the orangefin madtom.

**Response 105:** Section 3.4.3.2 of the FSEIS discloses impacts to and the effects determination for the orangefin madtom.

**Concern Statement 106:** Commenters requested a re-examination of noise, dust, and visual effects to flora and fauna.

**Response 106:** As stated in Section 3.3.9 of the FSEIS, no new information was identified to necessitate the need for the re-examination of noise, dust, and visual effects to flora and fauna. These impacts were covered in the 2017 FERC FEIS analysis (pp. 4-202 to 4-204).

**Wildlife**

**Concern Statement 107:** Sustained noise during construction (e.g., boring under the ANST and other construction activities) is disruptive to species’ communication, predator avoidance, and effective use of habitat. Sound disruptions would be intensified because construction would be rushed after being paused for more than two years.

**Response 107:** Section 3.3.1 of the DSEIS disclosed the noise conditions and effects would be limited to mechanized construction equipment, would be localized and short term, and minimized by the surrounding undisturbed forest. The effects of noise on ESA-listed species was also analyzed in the 2020 FWS BO (FWS 2020b). Additionally, as stated in Section 3.3.9 of the FSEIS, the FERC FEIS analysis (pp. 4-202 to 4-204) of noise impacts on wildlife remains accurate, and the effects of implementing the No Action Alternative and Proposed Action in the FSEIS are consistent with those described in the FERC FEIS.

**Concern Statement 108:** The project would fragment wildlife habitat, which could reduce wildlife populations and introduce invasive species. Interior forest species including those that rely on old growth forests would be harmed by the permanent ROW. The project will degrade habitat for native species like the black bear, which performs valuable ecological services that benefit other species and keep ecosystems in place.

**Response 108:** Section 3.3.9 of the FSEIS discloses the effects of completion of construction, the long-term conversion of the permanent ROW from forest to herbaceous cover, and the natural regeneration of temporary workspace from mature forest to an early successional condition. As stated in Section 3.3.9 of the FSEIS, the FERC FEIS analysis (pp. 4-210 to 4-211) remains accurate and the effects of implementing the No Action Alternative and Proposed Action in the SEIS are consistent with those described in the FERC FEIS.
**Transportation**

**Concern Statement 109:** Commenters expressed concern that damage that has already been done to Pocahontas and Mystery Ridge roads caused by MVP Project Area access and years of Forest Service neglect before MVP should be included in the SEIS so the impacts and cumulative effects of sediments over that period can be properly assessed.

**Response 109:** Section 3.3.14 of the FSEIS describes the use of Pocahontas and Mystery Ridge roads to access the MVP ROW and to access recent TSs. Existing conditions are described as well as reasonably foreseeable maintenance that would occur. The cumulative effects analysis (FSEIS Section 3.5) and the *Hydrologic Analysis for the JNF* (Geosyntec 2020b) evaluated impacts associated with Pocahontas and Mystery Ridge roads, including where Mystery Ridge Road is partially collocated with the pipeline LOD and where the pipeline crosses Mystery Ridge Road.

**Concern Statement 110:** Commenters appreciate that Mystery Ridge Road would no longer be used but suggest that damage has already been done by MVP project access.

**Response 110:** Section 3.3.14 of the FSEIS describes the use of Pocahontas and Mystery Ridge roads to access the MVP ROW and to access recent TSs. Existing conditions are described as well as impacts from construction activities where Mystery Ridge Road is partially collocated with the pipeline LOD and where the pipeline crosses Mystery Ridge Road. The FSEIS also discloses reasonably foreseeable maintenance that is scheduled to occur in 2021.

**Concern Statement 111:** Commenters expressed concern that the DSEIS is unclear about how access is going to be accomplished because it fails to identify which off-NFS roads would be used to access the Project Area and how local public roads would be affected. The DSEIS also fails to analyze impacts from the use of heavy equipment and construction vehicles traveling along the ROW. Without knowing which roads would supplant the existing Mystery Ridge Road and Pocahontas Road access into the Project Area, there is no basis for the DSEIS statement that the amended proposal would have fewer adverse effects than that which were previously analyzed and disclosed in the FERC FEIS.

**Response 111:** Off-NFS routes that may be used to access the ROW were identified and analyzed in the FERC FEIS (see Appendix E of the FERC FEIS for a list of proposed access routes). The FSEIS (Section 3.3.14) clarifies that the use of off-NFS access roads was analyzed in the FERC FEIS and that there would be fewer impacts on NFS roads from implementation of the proposed action. Sections 3.4.1 and 3.4.2 of the FSEIS analyze the impacts of implementing the proposed action within the ROW on the JNF.

**Concern Statement 112:** Commenters expressed concern that the use of the ROW for construction, operation, and maintenance traffic would increase soil compaction, reduce infiltration, and hinder growth of vegetation.

**Response 112:** Sections 3.4.1 and 3.4.2 of the FSEIS analyze the impacts of implementing the proposed action within the ROW on the JNF. The analysis accounts for various construction and post-construction activities including the use of equipment and vehicles needed to install the pipeline and restore the ROW. As described in the POD, ECDs would be implemented to minimize short- and long-term effects on soil, water, and vegetation. One requirement of the restoration process is to establish perennial vegetative cover along the ROW.

**Concern Statement 113:** Commenters said that Order Number 08-08-11-18-05, dated April 7, 2018, was applied inconsistently, that it punished hikers but did not cite MVP security for off-road vehicle use that
damaged the ANST in violation of 36 CFR § 261.56, Forest Plan standard 4A-009, and Order 10-08-15. Commenters described this as new information to be analyzed in the SEIS.

Response 113: The consistent application of any closure order and their impact to forest users is not considered new information in context of purpose and need of this FSEIS. How the order(s) was/are enforced has no direct, indirect, or cumulative impact from implementation of the proposal itself. Any analysis of such impacts is considered speculative.

Recreation and Special Interest Areas

Concern Statement 114: Commenters suggested that the project would degrade recreational opportunities for present and future generations. This is important because the project area provides unique and important recreational experiences, and destination-based recreation is a primary part of the economy.

Commenters requested supplemental analysis for changed conditions to recreation and special interest areas. The FERC FEIS never mentioned the removal of a portion of Peters Mountain Wilderness from public recreational use, a violation of FSM 2320.3 “do not maintain internal buffer zones that degrade wilderness values.”

Response 114: Section 3.3.13 of the FSEIS and Section 4.8.2.4 of the FERC FEIS disclose potential effects to recreation, including on the ANST. Disruptions to recreation from the project would be temporary during construction, and there would be no impediments to recreation during operation. The management of Peters Mountain Wilderness is outside of the scope of the FERC FEIS and FSEIS. As specified in Section 3.3.13 of the FSEIS, there are no changes to project-related land uses or land use resources, including Peters Mountain Wilderness, beyond those described in the FERC FEIS. As stated in the FSEIS, FERC FEIS analysis remains accurate and the effects of implementing the No Action Alternative and Proposed Action in the FSEIS are consistent with those described in the FERC FEIS. Therefore, no supplemental analysis of recreation and special interest areas effects is needed.

Concern Statement 115: Some commenters expressed concern that the project would degrade the ANST and the National Forest. Other commenters noted that there are 55 pipelines crossing the ANST and many more utility crossings on NFS lands and there have not been any accidents or damage to these lands. On the other hand, boring would result in far greater impacts than what was disclosed in the DSEIS, such as sedimentation downstream, diminished recreational experiences, safety risks due to the risk of seismic activity and related pipeline explosions, and lasting effects to geology and scenery.

Commenters noted that the Forest Service, in its comments on the POD in July 2017, concluded that there would be adverse effects on the ANST. Commenters said that the DSEIS ignores the Forest Service's own admission that MVP violates 36 CFR § 800.5: Assessment of Adverse Effects, paragraph 2, subpart 5 and harms the ANST.

Commenters referred to various errors and inaccuracies underlying the proposed action and associated analysis, rendering them unusable. These include misidentification of the ANST as a dirt road administered by the Commonwealth of Virginia and a faulty map that misidentified the number of ANST crossings associated with alternate routes.

Response 115: Changes and disruptions to the use of the ANST were evaluated in the FERC FEIS and reevaluated in the FSEIS Section 3.3.13 to determine whether land use resources have changed since publication of the FERC FEIS. Forest Service comments on the POD in July 2017 referenced by the commenter were in regards to an initial proposal to cross the ANST via

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trenching. Since that time, the crossing method has changed to use of a conventional bore: the updated POD describes the use of a trenchless crossing method to bore underneath the ANST to avoid surface disturbance and therefore avoid changes to or disruptions to the use of the ANST.

The FSEIS analyzes the proposed ANST crossing and ROW access. Changes to other resources that could lead to changes in land uses, including water quality, health and safety, geology, and scenery, were also identified and evaluated in the FERC FEIS and FSEIS, as appropriate.

**Concern Statement 116:** Commenters expressed concern that the ANST crossing contradicts precedent set by the December 2002 Record of Decision for the American Electric Power line where the Forest Service ruled that the crest of Peters Mountain was an inappropriate location for a utility project, especially because of its visual impacts.

**Response 116:** Buffer zones, or areas of no disturbance, have been established around the ANST and Wilderness Areas, including Peters Mountain. The management of Peters Mountain Wilderness is outside the scope of the FERC FEIS and FSEIS. Decisions made by the Forest Service on a transmission line project would not be directly applicable, because the pipeline proposed under the Project would not result in the same types of visual impacts that may occur from an overhead transmission line.

**Concern Statement 117:** Commenters expressed concern that the project would violate a 1982 deed between Mercer Anglers Club, Inc. and the United States of America for land on Peters Mountain in Monroe County, West Virginia, to protect the ANST.

**Response 117:** While there are restrictions on this tract, the proposed ROW does not cross this tract. Prior to development of the 2017 FERC FEIS, the proposed ANST crossing was adjusted specifically to avoid this tract.

**Concern Statement 118:** Commenters recommended a time-of-year restriction on construction activities near the ANST due to the potential for noise and dust during construction during times of heavy recreational use.

**Response 118:** The Forest Service considered a time-of-year restriction for the ANST crossing, but determined that impacts have been minimized by replacing the originally proposed open trench crossing with use of a conventional bore to cross underneath the ANST as described in Section 3.3.13 of the FSEIS. Construction activities would not be visible to hikers due to the approximately 300-foot buffer on either side of the trail. Minor noise impacts would occur over the short-term because the crossing is anticipated to take approximately 10 weeks. Although peak use on the ANST occurs during warmer months, the trail is used year-round. Once the crossing is complete, restoration activities would commence.

**Concern Statement 119:** Commenters sought an after-action review specific to the development and oversight of the pipeline route that would determine ways to prevent the need to amend the forest plan in this way in the future. Commenters asked to be party to that after-action review and that it be shared among AT forests.

**Response 119:** The Forest Service would continue to oversee project-related development on NFS lands. Any future changes to Forest Service policies or plans would be made publicly available.
Concern Statement 120: Commenters expressed concern that the project would bisect the Blue Ridge Parkway, a resource of global importance.

Response 120: The Blue Ridge Parkway is outside of the JNF and its crossing has already been constructed. Analysis of the crossing was provided in the FERC FEIS.

Concern Statement 121: Commenters expressed concern regarding adverse impacts to hiking opportunities and experiences. Commenters also expressed concern that recreation patterns on the landscape would be altered and that other dispersed recreation experiences would be permanently degraded, including camping on Bent Mountain, hiking on Peters Mountain, and other nearby activities and their associated experiences.

Commenters suggest that the DSEIS fails to describe state-designated uses for streams and rivers; given that recreation, including fishing, swimming, and aesthetic enjoyment of waterbodies is amongst the highest uses of streams on the National Forest, it is essential that the potential of impairing these uses be included in a DSEIS.

Response 121: Implementation of the proposed action is not expected to alter the geographic distribution of recreation because it would not result in changes to trail or road access, would not affect developed recreation sites, and would not preclude the public from engaging in developed or dispersed recreational activities except for the temporary impacts described in Section 3.3.13 of the FSEIS and the FERC FEIS (Section 4.8.2.4). The temporary impacts to recreation disclosed in these two documents include visual aesthetics and dispersed recreation activities (e.g., hunting, camping, hiking, etc.).

Concern Statement 122: Commenters said that the DSEIS and the FERC FEIS neglected to identify that Little Stony Creek and Big Stony Creek are recommended in the LRMP as eligible for designation as “recreational rivers” and to disclose the adverse effects that compromise their reasonably foreseeable congressional designation as Recreational Rivers.

Response 122: As stated in the JNF Forest Plan, Little Stony Creek and Stony Creek were found to be eligible for consideration as potential Wild and Scenic Rivers with a Recreational Classification. Forest Standard FW-182 directs the JNF to protect the outstandingly remarkable values and free-flowing condition of the eligible Wild and Scenic River segments. No work would occur in either stream on NFS lands and public access to the streams would not be restricted due to activities occurring on NFS lands. Section 3.3.13 in the FSEIS discloses impacts on waterways and the time-of-year restriction on dry-ditch open cut stream crossings to minimize impacts on recreational fishing. The proposed action would not impede the public's ability to enjoy river-oriented recreation opportunities and would not preclude these streams from being eligible for inclusion in the National Wild and Scenic River System. For the same reasons, implementation of the proposed action would not impede protection of state-designated uses on these streams.

Concern Statement 123: Commenters said that the developers damaged the ANST on Symm’s Gap when driving their wheeled vehicles on the trail. These vehicles and those from law enforcement agencies also created unnecessary damage to Pocahontas and Mystery Ridge roads.

Response 123: The FSEIS (Section 3.3.14) describes how Pocahontas Road was used to access the ROW with motorized vehicles prior to the stop work order. The ANST is collocated with this section of Pocahontas Road. The FSEIS (Section 3.4.1.1) also discloses the effects of motorized travel on Pocahontas and Mystery Ridge roads, both from project-related travel and other

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administrative and law enforcement travel. Since 2018, the Forest Service has been monitoring and inspecting the JNF corridor, including Pocahontas and Mystery Ridge roads, on a daily basis and identified measures needed to minimize erosion. Damage on Symm’s Gap was not associated with project activities and has been repaired by the Forest Service.

Scenery

**Concern Statement 124:** Commenters noted that the amendment to 4A-028 acknowledges that the project would have adverse impacts, but incorrectly minimizes the severity of those impacts on these scenic resources.

Commenters expressed concern that the project would permanently degrade the viewshed, including the view from landmarks such as the ANST, Kelly's Knob, and Symm's Gap, as well as nearby roads. The pipeline presents a significant impact on the scenic viewshed, contrary to the DSEIS's conclusions. A key purpose of having national forests is to maintain scenic integrity for current and future generations of citizens, and having several miles degraded by a pipeline corridor is a substantial adverse impact, as evidenced by floodplain destruction wrought by trenchless technology across Franklin County at Wades Gap and Green Creek.

Commenters expressed concern that the DSEIS, in analyzing the amendment for the ANST and SIOs, makes the false assumption that the project is inevitable, and that mitigation is the only available option. Five years to achieve SIOs is too long: Within that timeframe, the project may be abandoned, and mitigation of damage from the crossing may not occur, as Mountain Valley is a limited liability company. There is no stated plan for assuring that Mountain Valley attain the existing SIOs within five years and no mechanism to request to review that plan as part of the draft document. Its omission prohibits public review. Further, there is no discussion of how the Forest Service would ensure compliance with SIOs and determine whether SIOs are met within five years. This is especially concerning because the DSEIS acknowledges that the project area already fails to meet SIOs.

**Response 124:** Based on Forest Service comments about the ANST crossing, the FERC FEIS discussed increasing the boring length under the ANST to 600 feet so that there is an approximate 300-foot forested buffer on each side of the trail. The FERC FEIS (Section 4.8.1.10) identified that the photographic simulations contained in the Visual Impact Assessment (VIA) (see Appendix S), prepared for multiple key observation points (KOPs) at this crossing, indicate that the vegetative buffer at this location would be sufficient to block the views from the ANST. Pursuant to Management Prescription standard 4A-028, the location of the pipeline crossing the ANST at Peters Mountain occurs where no other major impacts already exist. In addressing the § 219.10(b)(1)(vi) requirement, as a part of the mitigation for crossing the ANST, the project design specifies that the pipeline would use a conventional auger bore machine to bore underneath the ANST. Should the conventional bore under the ANST fail, Mountain Valley would utilize the methods described in the Contingency Plan for the Proposed Crossing of the Appalachian National Scenic Trail (POD Appendix E) that does not include an open trench crossing of the ANST.

The Forest Plan contains a range of SIOs that allow for varying degrees of change in scenic condition. The proposed ROW traverses NFS lands with SIOs of High, Moderate, and Low as described and analyzed in the FERC FEIS (pp. 4-294 to 4-296). The project-specific amendment for Standard FW-184 indicates that the “MVP shall attain the existing SIOs within five years after completion of the construction phase of the project, to allow for vegetation growth.” Five years is a standard time period to permit existing native seed bank and installed plant material to establish and begin to develop a successional regime. Given the mitigation and revegetation design
referred in the FERC FEIS, project conformance with the SIOs referenced in Table 4.8.1-11 of the FERC FEIS is attainable. No changes in circumstances have occurred that would suggest that conformance with these SIOs within a 5-year time frame following construction could not be achieved.

For all JNF project locations (except where Mountain Valley would bore under the ANST and roads), trees have been cleared along the pipeline ROW for a 125-foot width during construction. The FERC FEIS and FSEIS recognize that this conversion from forested landscape to a cleared work zone would create contrasts in the scenery by changing the texture and color, introducing lines, and changing forms. Mountain Valley recognizes that minimizing these visual effects is critical for reducing long-term impacts of the permanent ROW. Therefore, per conversations between the FERC and the Forest Service, as outlined in the FERC FEIS, the permanent ROW width could be maintained consistent with Mountain Valley’s Procedures, for the length of the entire ROW on the NFS lands. Forest Service-prescribed recommendations include requiring the company to reduce its mowing to a 10-foot-wide strip centered over the pipeline and reducing its trimming or selective cutting of trees to a 30-foot-wide strip centered over pipeline. Further, outside the 10-foot-wide strip, the remainder of the construction and permanent ROW would be revegetated through the use of acceptable seed mixes, pollinator plants, shrubs and trees in accordance with the FERC Plan, Mountain Valley’s procedures, and as described in the POD. Particularly along the edge of this herbaceous linear opening, a variety of sizes and species of vegetation would be planted in a manner that breaks up the straight, parallel edges of the corridor and reduces the hard shadow line that can draw the viewer’s attention. The measures identified in the FERC FEIS should substantially ameliorate the long-term impacts resulting from initial construction.

Comment 125: Commenters state that the DSEIS fails to take into account the recently proposed H.R. 7878 – Scenic Trail Viewshed Protection Act.

Response 125: Document H.R. 7878, introduced July 30, 2020, has not been taken up for further action; making any assumption about proposed future of the legislation would be speculative and outside the scope of this analysis. Therefore, additional scenery analysis is not needed. Given that a timeline for legislative action on H.R. 7878 is unknown and may well occur beyond the period of time that Mountain Valley is required to meet SIOs through enhanced restoration measures following construction, an additional cumulative analysis for scenery is not required.

Heritage Resources

Concern Statement 126: Commenters were concerned about the historic and cultural landscape of the local region, including the JNF itself, which has anthropological importance for Southwest Virginia, and especially Peters Mountain which is an important cultural landscape. Local farms, historic sites, historic Appalachian communities, marginalized populations, cultural attachment to the land, indigenous lands and rights, and mental health would be harmed by the project. Further, commenters said that ACHP was not meaningfully involved in Section 106 consultation including review of historic impacts, nor was the local community meaningfully engaged.

Response 126: As described in Section 3.3.3 of the FSEIS, Phase II archaeological evaluations of all archaeological sites at least partially within the Area of Potential Effect have been completed. One site was determined to be eligible for the NRHP. FERC, as the lead agency for NHPA, in consultation with the cooperating agencies, West Virginia and Virginia SHPOs, the Advisory Council on Historic Preservation, and other consulting parties, executed a PA (FERC 2017b), under 36 CFR § 800.14(b)(3), which sets forth the steps for compliance with the requirements of
NHPA Section 106. The PA contains stipulations to satisfy all responsibilities under NHPA Section 106 for the involved regulatory agencies, including consideration of effects of the undertaking on historic properties, and resolution of adverse effects of the undertaking on NRHP eligible historic properties, including a Treatment Plan for the mitigation of adverse effects to site 44GS0241.

The FERC prepared The Proposed Mountain Valley Pipeline Jefferson National Forest Segment Cultural Attachment Report (2016) and discussed cultural attachment in the FERC FEIS (Sections 4.10.1, 4.10.9 and 4.10.9.1) as well as in the response to comments. The study investigated the concept of cultural attachment for local residents along the proposed pipeline ROW where it crossed the JNF. The study:

- Investigated the concept of cultural attachment within the field of cultural anthropology;
- Identified resource studies that focus on cultural attachment;
- Provided a discussion of the concept of cultural attachment, particularly as it pertains to NEPA-based anthropological studies;
- Identified and documented previously recorded traditional values of identified cultural groups, as well as places of cultural and religious importance within the JNF Study Area;
- Identified and interviewed long-term residents from the cultural groups that may have cultural attachment to the JNF Study Area and Peters Mountain and surrounding vicinity; resource managers; and others who have knowledge of the nature of the cultural attachment and previous studies about cultural attachment.

The Forest Service reviewed the FERC FEIS cultural attachment analysis and effects assessment related to the JNF and found them adequate. The United States Court of Appeals for the District of Columbia Circuit found that the FERC FEIS adequately considered impacts on Peters Mountain residents’ cultural attachment to the land.

Concern Statement 127: Commenters suggest that the FERC never meaningfully consulted with the Monacan Nation, did not add them to the PA, and did not complete a proper review of sacred Monacan sites. Section 106 consultation was also flawed because the Forest Service did not engage local communities in robust public engagement during the Section 106 consultation process. Further, ACHP was not meaningfully involved in Section 106 consultation including review of historic impacts.

Response 127: On June 24, 2019, a letter from George Washington and Jefferson Forest Supervisor Joby Timm was sent to the Monacan Indian Nation concerning opening dialogue and making available any services the forest might provide involving any projects, activities, etc., taking place upon the forest. On July 8, 2020, a letter was sent to the Monacan Indian Nation concerning the DSEIS, outlining the FERC’s involvement as the lead federal agency, and inviting said tribal authorities to bring questions or queries to the Forest Supervisor as Project Manager of the supplemental analysis. No response from the Monacan Nation has been received as of this time, barring the November 9, 2020 letter from Cultural Heritage Partners (counsel to the Monacan Indian Nation). The ACHP, Virginia SHPO, and West Virginia SHPO performed a full review of cultural resources impacts and executed the document. These impacts are reviewed under NRHP Section 106 and are not a part of the FSEIS. All forms of consultation, including public engagement, are respectively within the purviewance of the lead federal agency, FERC.
Concern Statement 128: The Monacan Indian Nation requests that the FERC, BLM, and Forest Service, pursuant to Section 106 of the National Historic Preservation Act, amend the MVP Programmatic Agreement to include the Nation as a consulting party. Since the 2017 FERC FEIS, the Nation has been become a federally recognized tribe.

Response 128: A response would be required from the FERC as the FERC is the lead agency and consulting party.

Socioeconomics

Concern Statement 129: Commenters expressed that supplemental analysis is needed because economic conditions locally have changed since 2017 due to the pandemic and associated job losses, and the increased importance of tourism to the local economy.

Commenters suggest that the project would improve the economy directly and indirectly by creating jobs, tax revenue, and reducing federal debt. Conversely, commenters said that the project would also degrade property values and reduce tourism demand and expenditures (e.g., fewer visitors to the JNF, ANST, and Blue Ridge Parkway). The assumption of benefits to local employment is false; construction jobs would not be filled by local people, the pipeline would paid for by customers via increased rates, and it would negatively affect the economic value of the JNF for tourism and other uses. Likewise, there was no benefit from TSs; the timber is not merchantable anymore.

Response 129: Socioeconomic effects are described in Section 3.3.5 of the SEIS. In summary, the FERC FEIS (p. 4-380) described socioeconomic conditions on the JNF, including local county unemployment rates, primary industries, per capita income, Payment in Lieu of Taxes for local counties, and income-generating activities on NFS lands. The FERC FEIS (pp. 4-400 to 4-402) also disclosed the effects of constructing the pipeline across NFS lands. Overall, the effects of implementing the No Action Alternative and Proposed Action in the FSEIS are consistent with those described in the FERC FEIS.

There was concern that in 2020, due to impact of Covid-19, some changes to socioeconomic conditions in and near the JNF have occurred. Access to the JNF has changed as in early 2020, camping and recreational areas were closed to reduce the potential spread of Covid-19 and this had a negative impact on nearby tourism-related businesses. Limitations and restrictions have been modified to allow increased access and use of the JNF. Initially, tourism in the JNF area had been reduced but recreational use of the JNF by local and regional visitors has increased in areas of the JNF.

The FERC FEIS (Section 4.9.1.6) addressed the topic of property value, and revealed little evidence to support the connection between lowering of property values and MVP, and that the presence of a natural gas pipeline would not significantly reduce property values in general (pp. 4-363 to 4-369).

With regard to construction jobs, the FERC FEIS analyzed local employment rate and potential impacts to the regional economy. The analysis disclosed that given the low percentage of local populations that would work on the MVP, and the short duration of construction (anticipated to be just over 2 years), any increase in local employment rates from construction of the project in West Virginia would be temporary and minor, and the project is unlikely to affect local unemployment rates (p.4-383).
Concern Statement 130: Commenters expressed concern that the project would increase costs for energy customers in an area that is already economically disadvantaged. It would limit access to clean water, especially in poorer, vulnerable populations. The externality costs would be borne by the citizens.

Response 130: The FERC FEIS disclosed socioeconomic impacts in Section 4.9.1.8 through 4.9.2.8. The Forest Service reviewed this information and found that the analysis considered socioeconomic concerns for the broader project area and that there is no new information which would affect the socioeconomic impacts on the JNF.

Public Health and Safety

Concern Statement 131: Commenters said that the pipeline would improve national security and energy self-sufficiency. Conversely, other commenters were concerned that the pipeline would also put lives at risk due to the possibility of it bursting. Commenters claimed publicly available data shows how dangerous pipelines are and their poor safety track record. Other commenters expressed concern that: construction crews would spread COVID-19 in local communities; the pipeline contains highly pressurized gas that might leak, rupture, or explode; pipeline leaks might start forest fires; and the risk of oil spills could affect wildlife and forest health. There was further concern that the effects of radon, lead, and polonium were not analyzed: they could impact people and also ecosystems by entering karst systems.

Commenters expressed disagreement with the DSEIS statement that the likelihood of a gas release is low. There was concern that PHMSA regulations requiring patrols and leak detection inspections once every 15 months is insufficient for detecting and responding to leaks in a timely manner.

Commenters asked that MVP establish “early warning” mechanisms that would allow the Forest Service to effectively close access to the forest prior to an impending rupture/explosion of the pipeline, stating that the FERC requested this in the form of LiDAR detection for the Landslide Mitigation Plan.

Response 131: Public health and safety concerns pertaining to pipeline safety are covered in the 2017 FERC FEIS. Section 4.11.1.4 of the 2017 FERC FEIS discusses radon exposure. The FSEIS was updated to incorporate Mountain Valley Pipeline’s COVID-19 Preparedness and Response Plan summary (MVP 2020j). These COVID-19 safety measures would be implemented to protect the public health and safety of construction crews and local communities. Lead was analyzed as part of the air analysis under the Clean Air Act. The analysis of effects from radon and polonium is not warranted, as these substances would not be used or handled as part of the project.

The FERC FEIS analyzed direct, indirect, and cumulative impacts of the public health and safety in accordance with the NEPA guidelines and federal safety standards. The likelihood of a gas release has not substantially changed from the conditions evaluated in the FERC FEIS in 2017. The FERC FEIS states that a data acquisition system would be installed to monitor pipeline flows and pressures along the system and “the data acquisition systems would be monitored by gas control technicians who are on duty 24 hours a day, 365 days a year” (FERC 2017a). As such, the change in conditions do not differ substantially enough from originally analyzed in the 2017 FERC FEIS to warrant additional analysis of public health and safety impacts. Therefore, a detailed discussion in the FSEIS would not be warranted. The significance of the change analyzed in the FSEIS with respect to public health and safety and therefore, incorporation of the original analysis from the 2017 FERC FEIS is adequate.

The FERC FEIS recommended Mountain Valley adopt a LiDAR monitoring program to detect subsidence along the MVP pipeline route during operation. The Landslide Mitigation Plan (POD Appendix F) includes monitoring and an early warning detection of subtle ground movement that
may indicate incipient slope failure, along with the use of LiDAR surveys to monitor changes in topography and mitigation measures. Furthermore, six additional areas were investigated at the request of JNF and Site-Specific Design of Stabilization Measures in Selected High-Hazard Portions of the Route of the Proposed MVP in the JNF were developed as a part of Appendix G of the POD.

As discussed in the FSEIS and the FERC FEIS, Mountain Valley developed a Karst Mitigation Plan and has developed a monitoring plan to provide safe operation of the pipeline over its lifetime in addition to the development of a LiDAR monitoring program to detect subsidence along the MVP pipeline route during operation. Karst resources are addressed through the FERC FEIS and POD, as appropriate.

**Concern Statement 132**: Commenters said the pipe is corroding and has been exposed to ultraviolet light beyond the recommended exposure by the manufacturer, saying that the National Association of Pipeline Coating Applicators advises that pipes coated with fusion bonded epoxy coating be stored for no more than six months in the sunlight without UV protective actions.

**Response 132**: The safety and integrity of construction and operation of natural gas pipes and pipelines in general is regulated by the U.S. DOT, PHMSA. The Forest Service has no legal or regulatory authority to mandate pipe and pipeline safety. That responsibility rests with the PHMSA. Per the 2020 POD (Section 6.4), a third-party inspector selected by, managed by, and reporting solely to FERC to provide monitoring services.

**Concern Statement 133**: Commenters sought consideration of radiation threats and effects from compressor stations, valve stations, and other equipment associated with the pipeline.

**Response 133**: The FERC FEIS addressed radon exposure as a non-significant issue outside the scope of the FEIS (Section 4.11.1.4). This FSEIS does not address radiation threats from the pipeline, compressor station, valve stations, and other equipment associated with the pipeline. The FSEIS focused on the significant issues and radiation is not known to be a significant issue with proposed activities on NFS lands. The Agency (Forest Service) recognizes that radiation may be a concern at specific well sites and associated pipeline structures. Those sites and structures do not occur on the JNF, and therefore this analysis is focused on the direct, indirect, and cumulative impacts associated with activities on NFS lands.

**Concern Statement 134**: Commenter expressed concern that the FERC FEIS and the DSEIS used only Mountain Valley-generated and industry-sponsored data.

**Response 134**: The FSEIS considers a multitude of information sources, including independent third-party monitoring reports; the hydrologic analyses described throughout the FSEIS; approved erosion and sediment control plans; field visits and personal observation (including observation in similar areas); scientific literature; communication with professional contacts; and opposing views, data, and information described in public comments on the DSEIS.
Appendix D – Agency Correspondence
Agency Correspondence

Per FSH 1909.15, Sec. 25.1, the Forest Service is required to “include in an appendix of a final EIS copies of all comments received on the draft EIS from Federal, State, and local agencies and elected officials.” This will satisfy the requirement in Section 102 (c) of NEPA, which states, “…comments and views of the appropriate Federal, State and local agencies, which are authorized to develop and enforce environmental standards, shall be made available to the President, the Council on Environmental Quality and to the public…”

The following tribal nations; federal and state agencies; and local governments provided comments on the DSEIS:

1. Monacan Indian Nation
2. U.S. Environmental Protection Agency, Region III
3. Virginia Department of Environmental Quality
4. County of Craig, Virginia
November 9, 2020

Jim Hubbard, Under Secretary, U.S. Department of Agriculture

c/o Jefferson National Forest MVP Project
5162 Valleypointe Parkway
Roanoke, VA 24019

Re: Comments in Opposition to Mountain Valley Pipeline and Equitrans Expansion Project Draft Supplemental EIS #50036

Dear Under Secretary Hubbard:

We write on behalf of our client the Monacan Indian Nation (“Nation”) in response to request for comments on the Mountain Valley Pipeline and Equitrans Expansion Project Draft Supplemental EIS (“Draft SEIS”). We strongly object to the Draft SEIS’s inappropriate reliance on FERC’s Programmatic Agreement (“PA”), which failed to include the Nation as a consulting party. Draft SEIS at 43, Sec. 3.3.3.

By way of background, we requested on February 28, 2019, in a letter to the U.S. Forest Service, U.S. Bureau of Land Management, and FERC that FERC, as the lead federal agency responsible for consultation for the Mountain Valley Pipeline project, amend the PA to include the Nation as a consulting party. The Nation made this request pursuant to Section 106 of the National Historic Preservation Act (“NHPA”) (54 U.S.C. § 306108, 36 C.F.R. § 800.2(c)(2)); the Executive Order on Consultation and Coordination with Indian Tribal Governments (EO 13175); and the federal government’s trust responsibility to Indian tribes.

However, notwithstanding our request, FERC never amended the PA, nor did FERC ever consult meaningfully with the Nation. Therefore, the Draft SEIS fails to take a “hard look” at historic and cultural resources as required by the National Environmental Policy Act (“NEPA”). The Draft SEIS’s statement on page 43, Section 3.3.3 (Heritage Resources), that “no supplemental analysis of heritage resources is needed,” could not be further from the truth. For this reason, the Draft SEIS is fundamentally flawed and we object to its conclusions. See, e.g., Greater Bos. Television Corp. v. FCC, 444 F.2d 841, 851 (D.C. Cir. 1970) (courts must examine the methodology and substance of agency decisions to ensure that they have adequate factual support). The “hard look” doctrine could never be satisfied where information needed to analyze environmental effects is not complete. See id.

In conclusion, by relying on a flawed PA that failed to include the Nation as a consulting party, the Forest Service is creating unnecessary risk for the future viability of the Mountain Valley Pipeline and Equitrans Expansion Project. Please let me know when you or a Forest Service official will be available to discuss our clients’ concerns and how the Forest Service plans to consult with our clients in a meaningful way as required by federal law.
Respectfully submitted,

William J. Cook, Special Counsel cc: The Honorable Tim Kaine
   The Honorable Mark Warner Secretary Kimberly Bose, FERC
   Julie Langan, Virginia Department of Historic Resources
   Susan Pierce, West Virginia Department of Arts, Culture & History
Jim Hubbard, Under Secretary
U.S. Department of Agriculture
c/o Jefferson National Forest
MVP Project
5162 Valleypointe Parkway
Roanoke, VA 24019

RE: Mountain Valley Pipeline and Equitrans Expansion Project, Draft Supplemental Environmental Impact Statement, Monroe County, WV and Giles and Montgomery Counties, VA (CEQ # 20200188)

Dear Mr. Hubbard:

In accordance with the National Environmental Policy Act of 1969 (NEPA), Section 309 of the Clean Air Act and the Council on Environmental Quality regulations implementing NEPA (40 CFR 1500-1508), the U.S. Environmental Protection Agency (EPA) has reviewed the U.S. Department of Agriculture (USDA) U.S. Forest Service’s Mountain Valley Pipeline (MVP) and Equitrans Expansion Project (EEP) Draft Supplemental Environmental Impact Statement (DSEIS). The Bureau of Land Management (BLM) is a cooperating agency in development of the supplemental study. The DSEIS supplements the June 2017 Federal Energy Regulatory Commission (FERC) Final Environmental Impact Statement (FEIS). EPA provided comments for the FERC EIS in letters dated December 20, 2016 and July 31, 2017.

The study involves a proposal from Mountain Valley Pipeline, LLC to seek approval to construct and operate a buried 42-inch natural gas pipeline across approximately 3.5 miles of the Jefferson National Forest (JNF) located in Monroe County, WV, and Giles and Montgomery Counties, VA. Potential impacts of the entire 300-mile Mountain Valley Pipeline (MVP) project were studied in 2016-17 through a FERC EIS. The DSEIS is in response to a July 27, 2018 United States Court of Appeals for the Fourth Circuit decision that vacated and remanded the Forest Service’s decision approving the JNF’s plan amendment based on violations of the National Forest Management Act (NFMA) and NEPA. The Court also vacated the BLM Right-of-way (ROW) decision and the ROW grant and temporary use permit across National Forest System (NFS) Lands based on violations of the Mineral Leasing Act (MLA). Currently, all tree felling on NFS lands has already occurred and timber has been removed from the ROW except in the Peters Mountain area. Construction was halted upon issuance of the FERC’s stop work order.
The Forest Service’s purpose and need is to address inconsistencies between the proposed project and several forest plan standards and, at a minimum, demonstrate that an independent review of the sedimentation analysis was conducted. The BLM’s purpose and need is to ensure that Mountain Valley Pipeline, LLC’s ROW application is consistent with the MLA. BLM requires utilization of ROW in common (co-locate with existing utilities) to the extent practical. The DSEIS evaluates the No Action alternative and the Proposed Alternative. The study presents rationale for dismissal of several alternatives.

Thank you for providing EPA with the opportunity to review the supplemental study. EPA has only minor comments on the DSEIS. Please consider suggestions for the final SEIS, included in the attached detailed comments, to clarify how the proposed alternative addresses BLM’s purpose and need and other minor refinements. We welcome the opportunity to discuss any of our comments further. If you have any questions, please feel free to contact Joy Gillespie at 215-814-2793 or gillespie.joy@epa.gov.

Sincerely,

STEPAN
NEVSHEHIRLIAN

Stepan Nevshehirlian
Environmental Assessment Branch Chief
Office of Communities, Tribes and Environmental Assessment

Enclosure
EPA has the following recommendations for consideration in the development of the final SEIS:

- It is not clear if the BLM evaluated ROW in common to the extent practical. Co-locating with other established utilities was examined under the evaluation of off-NFS lands alternatives (2.3.1) but appears to be disqualified because the alternative does not eliminate routes on NFS lands. It is not clear why this would be a disqualifying factor since co-locating would reduce impacts on NFS lands. Please consider providing more detail in the study on BLM’s effort to evaluate ROW in common to the extent possible.

- Changed circumstance and new information that warrant supplemental study are addressed on Page 11. Included is “Potential change in soil productivity as a result of topsoil segregation and storage.” The study would benefit from an explanation of topsoil segregation and soil productivity, why there might be a potential change in soil productivity, and any steps to limit productivity loss.

- Starting on Page 20, Table 2, the JNF Forest Plan Standards and Proposed Modifications Specific to the MVP are shown. The modified language for six standards relating to soil and riparian resources, states, “applicable mitigation measures in the approved plan of development (POD) and MVP project design requirements must be implemented.” No specifics are given. EPA recommends including in the table, the language in the POD and/or project design that relates to a standard or placing a citation in the table to assist with locating the mitigation measure language in the POD and/or design plan.

- On Page 23, it is stated that compliance monitors will be present on a full-time basis to inspect construction procedures and mitigation measures and provide regular feedback on compliance issues to FERC, the Forest Service and BLM. Please clarify what is meant by “regular”. We believe it would benefit all agencies involved to set up standard operating procedures (SOPs) on how, and how often, the compliance monitor will inform the agencies. We also recommend including in the SOP, how noncompliance and the resolution of the noncompliance will be documented and the how the documentation will be managed. We recommend dates, times and conditions be included. If SOPs are already established for compliance monitoring, please include a more specific description in the study.

- On page 23, there is discussion regarding four streams that will be crossed, and the potential methods used: conventional boring versus open cut. We believe, at this point in the text, it would be helpful to include the size and type of streams to be crossed, even if it is discussed in other sections of the study. EPA supports methods that avoid and minimize impacts to aquatic resources.

- EPA recommends, due to the potential for noise and dust creation during construction, that a time-of-year restriction on construction activities near the Appalachian National Scenic Trail be considered. Please consider limiting construction to the months when hiking activity is at its lowest. Our suggestion may coincide with time-of-year restrictions in place for other resources.

- Readers may benefit from a definition of basal area. In general, a glossary of terms used might be useful.

Jefferson National Forest
Dear Mr. Hubbard:

The Commonwealth of Virginia has completed its review of the draft supplemental environmental impact statement (DSEIS) for the portions of the Mountain Valley Pipeline (MVP) within Jefferson National Forest in Virginia. The Virginia Department of Environmental Quality (DEQ) is responsible for coordinating Virginia’s review of federal environmental documents prepared pursuant to the National Environmental Policy Act and responding to appropriate federal officials on behalf of the Commonwealth. This letter, including attachments, is the Commonwealth of Virginia’s response. Comments from reviewers primarily focus on recommending measures to mitigate potential environmental impacts.

As part of the Commonwealth’s review, DEQ requested comments from state agencies, localities and the planning district commission. DEQ notified reviewers of the availability of the DSEIS and files suitable for use in Geographic Information System software of the route that were provided by MVP, LLC. The comments that were submitted as part of this review are attached and organized as follows.
Thank you for the opportunity to comment. If you have questions, please do not hesitate to contact me at bettina.rayfield@deq.virginia.gov or (804) 698-4204.

Sincerely,

Bettina Rayfield, Manager
Environmental Impact Review and Long Range Priorities Program

Enclosures

ecc: Ernie Aschenbach, DWR
Keith Tignor, VDACS
Robbie Rhur, DCR
Arlene Warren, VDH
Roger Kirchen, DHR
David Spears, DMME
Terry Lasher, DOF
Randy Owen, VMRC
Heather Williams, VDOT
Scott Denny, DOAV
Martha Little, VOF
Chris McIlraine, Giles County
Craig Meadows, Montgomery County
Kevin Byrd, New River Valley Regional Commission
ATTACHMENT A: COMMENTS AND RECOMMENDATIONS

The Commonwealth of Virginia encourages the U.S. Forest Service (USFS) and the Bureau of Land Management (BLM) to incorporate the following recommendations into appropriate sections of the final supplemental environmental impact statement.

1) Wetlands and Streams

a) Requirements

- The Final Water Quality Certification 17-001 (12-8-2017) for MVP relied in part on the MVP Final Environmental Impact Statement (FEIS) (6-23-2017). The Virginia Department of Environmental Quality (DEQ) states that the terms and conditions of the certification remain in full force and effect and should be reflected, as applicable, in any terms, conditions, or stipulations related to this action. Additionally, Title 62.1 of the Code of Virginia applies to proposed activities in state waters.

b) Comments

- The DEQ Virginia Water Protection (VWP) Permit Program does not have further comments regarding potential terms, conditions, or stipulations for incorporation into a right-of-way grant.
- The VWP Permit Program does not support consideration of any route alternatives that would increase impacts to sensitive resources including streams and wetlands (water resources), and/or increase the number of waterbody crossings, in Virginia.
2) Erosion and Sediment Controls

a) Requirements

The DEQ Virginia Erosion and Sediment Control and Stormwater Management Program has the following requirements:

- Adhere to the DEQ-approved annual standards and specifications for erosion and sediment control and post-construction stormwater management.
- Implement the DEQ-approved erosion and sediment control plan for the land-disturbing activity.
- Implement the DEQ-approved post-construction stormwater management plan for the land-disturbing activity.

3) Ground Water Supplies

a) Comments

- The DSEIS states that while geological units known to be associated with karst formation exist within the Jefferson National Forest (JNF) proclamation boundary, none of them actually underlie National Forest System (NFS) lands administered by the JNF, and those that do are unlikely to have karst features.

While the above statement appears to be true in the Brush Mountain area of the NFS lands, the DEQ Office of Water Supply (OWS) states that there are limestone units underlying sections of NFS land on Peters Mountain where trees have reportedly been felled but no other land disturbing activities have yet to occur. Several small sections of Tonoloway limestone were noted in the right-of-way from milepost 196.8 to 198.4 (that appear to be on NFS lands) by the MVP consultant in appendix L (not G as stated in DSEIS) of the FEIS.

While these limestone units may be thin, discontinuous, and not known for significant karst features in the immediate area, they do present the chance of subsurface routing of overland flow and enhanced erosion controls devices should be utilized in this section.

Additionally, although the NFS land does not quite extend downslope on Peter's Mountain to the main karst forming Knox Group carbonate units (although the Jefferson National Forest boundary does at approximately...
199.5), any storm flow and sediment generated from NFS land that overwhelms erosion control devices in this region will likely flow downhill onto and into these karst units known to have substantial and rapid subsurface flow paths in Giles County.

No significantly elevated impact to groundwater resources is expected in the Brush Mountain section of NFS land where four proposed stream crossings were changed from dry ditch to subsurface boring methods. The borings will need temporary access pits that may need continuous dewatering for a period of time. The pits (approximately 10-15 feet deep) will be in shale bedrock and pumping of groundwater from them will have very limited effect to the local aquifer and minimal communication with surface water is expected.

b) Recommendations

- MVP is highly encouraged to err on the side of overbuilding erosion control devices in this steep region (as reference above) to prevent short term surface water and ground water impacts that could be caused by the type of intense storms that plagued its earlier work and resulted in impacts to groundwater.

4) Water Quality Standards Review

a) Comments

- The DEQ Office of Water Quality Standards has the following comments:

<table>
<thead>
<tr>
<th>HUC-10 Watershed</th>
<th>HUC-10 Code</th>
<th>WQS comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>East River-New River</td>
<td>0505000206</td>
<td>Class IV, special standard u (The maximum temperature shall be 27°C (81°F) unless caused by natural conditions; the maximum rise above natural temperatures shall not exceed 2.8°C (5°F).)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No Exceptional State Waters (ESW) designation</td>
</tr>
<tr>
<td>Upper Craig Creek-Sinking</td>
<td>0208020110</td>
<td>Class V</td>
</tr>
</tbody>
</table>
Creek | Sinking Creek-New River | 0505000203 | Class IV, special standard u (The maximum temperature shall be 27°C (81°F) unless caused by natural conditions; the maximum rise above natural temperatures shall not exceed 2.8°C (5°F).) Class V (Sinking Creek between Rt. 686 and Rt. 778) No ESW designation

5) Wildlife Resources

a) Recommendations

- Coordinate directly with the Virginia Department of Wildlife Resources (DWR) on any stream crossing variance requests.
- Conduct preliminary geophysical testing to determine whether or not conditions at proposed crossings are suitable for boring beneath streams.
- Coordinate with the Virginia Department of Conservation and Recreation (DCR) regarding potential karst.
- Develop a frac-out response plan where stream crossings will be bored.
- Continue to coordinate with DWR to address stream crossings and potential relief from time-of-year restrictions for instream work.

6) Planning and Recreational Resources

a) Comments

- DCR states that the route through Giles County will cross the Appalachian Trail and scenic byways 635 and 42N. Additionally the route will cross two potentially scenic rivers, Little Stoney River and Sinking Creek. In all crossings, the route appears to cross in a parallel fashion and minimizes impacts to the resources.
7) Natural Heritage Resources

a) Comments

- DCR reiterates its previous comments for the proposed project.

- **Peter Mountain Slopes-Laurel Branch Slopes Conservation Site:**

  According to the information currently in DCR’s files, the Peter Mountain Slopes-Laurel Branch Slopes Conservation Site is documented within the proposed project area. The site has been given a biodiversity significance ranking of B2, which represents a site of very good significance. The natural heritage resources of concern associated with this conservation site are:

  * **Aneura sharpia**, A liverwort, G1G2/S1/NL/NL
  * **Corallorhiza bentleyi**, Bentley’s coralroot, G2/S2/LE/NL
  * **Myotis lucifugus**, Little Brown Bat, G3/S1S3/LE/NL

  The Eastern small-footed myotis is a bat species known from southern Canada and New England, south through the Appalachians and Ohio Valley (NatureServe, 2009). This species has been recorded in Virginia most frequently in association with cavernous limestone (karst) areas and sandstone ridges in the western portion of the state. It roosts in rock crevices, rock shelters, caves, mines, human habitations, and trees in mountainous areas with deciduous or evergreen forest. Threats to the Eastern small-footed myotis include alteration or destruction of its roosting or hibernation habitats including rock outcrops, bridges, trees, and caves.

  The Little brown bat is a small brown insect eating bat, which uses a wide range of habitats including caves and human-made structures (NatureServe, 2015). Since 2008 there has been a significant decline in population numbers (greater than 90%) for bat species due to white nose syndrome. The Little brown bat is state listed as endangered on April 1, 2016 by DWR.

- **Plant and Bryophyte Survey Data:** A DCR botanist reviewed the plant and bryophyte survey data included in the DSEIS for the proposed project. According to the survey, the only species found within the project footprint was the Rock skullcap (*Scutellaria saxatilis*), a USFS Regional Forester Sensitive Species, which is not tracked by the Virginia Natural Heritage Program.
• **Karst**: The Western part, on the southeastern slope of Peters Mountain, consists mostly of a long access road on Devonian-Silurian bedrock that contains a very small percentage of limestone. Because of this, it is included in the new DCR statewide karst screen. However, only very locally are any significant karst features developed. In the project area, there are no caves or sinkholes documented in the unit. Downslope (east) of the project area, streams cross onto the significant karst. Some are likely to sink while others may not. No documented significant cave resources are at risk from activities associated with the construction of the MVP on the southeast slope of Peters Mountain.

• **Invasive Species**: The DSEIS states, “Four exotic invasive species have been observed scattered throughout the ROW: multiflora rose (Rosa multiflora), Japanese honeysuckle (Lonicera japonica), garlic mustard (Alliaria petiolata), and mile-a-minute vine (Persicaria perfoliata) (Transcon 2018-2020).”

• **Forest Fragmentation**: According to the DSEIS and U.S. Fish and Wildlife Service (FWS) revised biological opinion, the majority of the tree removal has been conducted for the project “except for tree removal activities associated with future slip repairs, existing slip remediation and variance requests remains”. The previous tree removal associated with the project, fragmented C1 and C2 Ecological Cores as well as other ecological cores as identified in the Virginia Natural Landscape Assessment (https://www.dcr.virginia.gov/natural-heritage/vaconvisynia), one of a suite of tools in Virginia ConservationVision that identify and prioritize lands for conservation and protection.

Fragmentation occurs when a large, contiguous block of natural cover is dissected by development, and other forms of permanent conversion, into one or more smaller patches. Habitat fragmentation results in biogeographic changes that disrupt species interactions and ecosystem processes, reducing biodiversity and habitat quality due to limited recolonization, increased predation and egg parasitism, and increased invasion by weedy species.

To date, the MVP project has resulted in clearing of trees in all of the cores ranked C1 (outstanding ecological integrity) or C2 (very high ecological integrity) along the limits of disturbance identified for the FEIS. The forest fragmentation impacts and recommended mitigation for these impacts, as well as impacts to other cores and non-core forests, on and outside National Forest lands, were calculated for the FEIS and to inform the December 2017, "Memorandum of Agreement for Comprehensive Mitigation of Virginia
Resource Impacts of Mountain Valley Pipeline” to address these impacts.

- **State-listed Plants or Insects:** The current activity will not affect any documented state-listed plants or insects, according to DCR.

- **State Natural Area Preserves:** There are no State Natural Area Preserves under DCR’s jurisdiction in the project vicinity, according to DCR.

**b) Recommendations**

**Bats:**

- Threats to the Eastern small-footed myotis include alteration or destruction of its roosting or hibernation habitats including rock outcrops, bridges, trees, and caves. DCR recommends avoiding impacts to those types of roost habitats during the summer or winter months.
- DCR supports prudent measures, terms and conditions, and monitoring and compliance-reporting requirements included in the September 4, 2020 revised FWS revised biological opinion for MVP to avoid, minimize impacts to the Indiana bat and Northern-long eared bat.

**Water Quality and Aquatic Resources:**

- To minimize adverse impacts to the aquatic ecosystem and associated rare species including the Candy darter (*Etheostoma osburni*, G3/S1/LE/NL) and the Hellbender (*Cryptobranchus alleganiensis*, G3/S2/NL/NL) as a result of the proposed activities, DCR recommends the implementation of and strict adherence to applicable state and local erosion and sediment control/storm water management regulations.
- In addition, DCR supports FWS’s revised biological opinion measures that are protective of water quality.
- DCR recommends adherence to erosion and sediment control measures as required by the USFS, Federal Energy Regulatory Commission, and DEQ to protect downstream karst resources.

**Native and Invasive Species:**

- DCR continues to recommend the development and implementation of an invasive species plan to be included as part of the maintenance practices for the right-of-way. The invasive species plan should include an invasive species inventory for the project area based on the current DCR Invasive

- DCR recommends that the right-of-way restoration and maintenance practices planned include appropriate revegetation using native species in a mix of grasses and forbs, robust monitoring and an adaptive management plan to provide guidance if initial revegetation efforts are unsuccessful or if invasive species outbreaks occur.

Update Request:

- Re-submit project information and a map to DCR for an update on this natural heritage information if the scope of the project changes and/or six months has passed before it is utilized.

8) Floodplain Management

a) Comment

- DCR states that projects conducted by federal agencies within the Special Flood Hazard Area (SFHA) must comply with federal Executive Order 11988: Floodplain Management.

b) Recommendation

- For federal projects, DCR recommends that the applicant/developer contact the local floodplain administrator and comply with the community’s local floodplain ordinance.

9) Public Water Supplies

a) Comments

The Virginia Department of Health (VDH) Office of Drinking Water (ODW) provided the following comments. The following public groundwater wells are located within a 1-mile radius of the project site:

<table>
<thead>
<tr>
<th>PWS ID Number</th>
<th>City/County</th>
<th>System Name</th>
<th>Facility Name</th>
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<tbody>
<tr>
<td>1071568</td>
<td>GILES</td>
<td>LHOIST NORTH AMERICA OF VIRGINIA</td>
<td>SPRING</td>
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<td>1121751</td>
<td>MONTGOMERY</td>
<td>CAMP TUK-A-WAY</td>
<td>DRILLED WELL</td>
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</table>
There are no surface water intakes located within a 5-mile radius of the project site.

The project is within the watershed of the following public surface water sources:

<table>
<thead>
<tr>
<th>PWS ID Number</th>
<th>System Name</th>
<th>Facility Name</th>
</tr>
</thead>
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<tr>
<td>4087125</td>
<td>HENRICO COUNTY WATER SYSTEM</td>
<td>HENRICO RAW WATER INTAKE</td>
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<td>4075735</td>
<td>JAMES RIVER CORRECTIONAL CTR</td>
<td>JAMES RIVER INTAKE</td>
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<td>JAMES RIVER-COLLEGE HILL</td>
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<tr>
<td>3670800</td>
<td>VIRGINIA-AMERICAN WATER CO</td>
<td>APPOMATTOX RIVER</td>
</tr>
</tbody>
</table>

b) Recommendations

- Implement best management practices, including erosion and sedimentation controls and spill prevention controls and countermeasures, on the project site.
- Manage materials while on site and during transport to prevent impacts to nearby surface water.

10) Geological Resources

a) Comments

- The Department of Mines, Minerals and Energy (DMME) states that the DSEIS includes the following information in Section 3.3.11: “While geological units known to be associated with karst formation exist within the JNF proclamation boundary, none of them actually underlie NFS lands administered by the JNF, and those that do are unlikely to have karst features.” DMME observes, however, that the proposed route from milepost 217.2-217.8 is underlain by a geologic formation (“DS” Lower Devonian rocks, undivided of Prince, 2019) that may contain a considerable percentage of limestone and is known to generate karst features.

- According to DMME, the DSEIS also states in Section 3.3.11: “Two outside documents related to landslide risk and the pipeline were released following
release of the FERC FEIS. One document is a draft topographic quadrangle map released by the Virginia Division of Geology and Mineral Resources (Prince 2019).” DMME notes, however, that the Prince (2019) map is a geologic map, not a topographic map. Although the applicant states that this map “does not provide any new information requiring further analysis in the SEIS,” the map depicts a debris fan deposit between route miles 217.7 to 218.0, which may require special engineering in pipeline construction.

11) Historic Resources

a) Recommendation

- Continue to coordinate with the Virginia Department of Historic Resources pursuant to Section 106 of the National Historic Preservation Act.

12) Aviation

a) Comment

- The Virginia Department of Aviation states that it does not appear as though any portion of the project within Virginia will occur within 20,000 linear feet of a public use airport.

13) Transportation Impacts

a) Comments

- The Virginia Department of Transportation (VDOT) states that areas of potential impact include roads adjacent to or being crossed by construction as well as pedestrian, bicycle and transit operations near the construction sites.

b) Recommendations

- All circumstances where the proposed project may impact transportation operations should be coordinated with VDOT prior to any construction.
- Activities requiring detours or other modifications to transportation operations should be conducted at times during which impacts will be minimized.
- Road signs should be provided to alert drivers, bicyclists and pedestrians of utility work ahead, and any detours necessary to navigate around the work.
14) Regional Comments

a) Comments

- The New River Valley Regional Commission Board has concern about the overall environmental impact of the proposed project. The board prefers, Option 1, no action, thereby not altering the U.S. Forest Service Standards to accommodate the project.

b) Recommendations

Should the reviewing agency recommend Option 2, the board recommends the following based on its October 22, 2020 meeting:

- Confirm that previous violations, and their underlying impacts, cited by DEQ have been addressed and remedied prior to issuing a permit for any new construction activity.
- Require water quality monitoring upstream and downstream of water body crossings up to two months before and one year after constructing the crossings.
- Provide certified professional engineer construction drawings for all stream crossings prior to construction as opposed to allowing stream crossing design decisions to be made in the field during construction.
- Recommend that DEQ staff be present onsite to oversee stream crossing construction as a proactive approach as opposed to reactive site visits, which necessitate remediation that may have been avoided.
- For wilderness areas such as the Brush Mountain Wilderness Area, confirm whether restrictions for the wilderness area extend beyond the boundaries established for the area, including sound and visual impacts to the wilderness area in close proximity.
ATTACHMENT B: DETAILED COMMENTS FROM REVIEWERS

Detailed comments submitted by reviewers are included in this attachment.
Virginia Erosion and Sediment Control (ESC) and Stormwater Management (SWM) Programs

1. Adhere to the DEQ-approved annual standards and specifications for Erosion and Sediment Control and post-construction Stormwater Management.
2. Implement the DEQ-approved Erosion and Sediment Control plan for the land-disturbing activity.
From DEQ Office of Water Supply:

Sections of the SEIS related to geology, hydrology, soils and a referenced geologic map produced externally by VDGMR for the Newport quadrangle published since the first EIS were reviewed by OWS staff.

Statement on page 47 of the SEIS:
"While geologic units known to be associated with karst formation exist within the JNF proclamation boundary, none of them actually underlie NFS lands administered by the JNF, and those that do are unlikely to have karst features".

While the above statement appears to be true in the Brush Mountain area of the NFS lands, there are limestone units underlying sections of NFS land on Peters Mtn where trees have reportedly been felled but no other land disturbing activities have yet occurred. Several small sections of Tonoloway limestone were noted in the ROW from MM 196.8 - 198.4 (that appear to be on NFS lands) by their consultant in appendix L (not G as stated in SEIS) of the original FEIS package.

While these limestone units may be thin, discontinuous, and not known for significant karst features in the immediate area, they do present the chance of subsurface routing of overland flow and enhanced ECDs should be utilized in this section.

Additionally, although the NFS land doesn't quite extend downslope on Peter's Mtn to the main karst forming Knox Group carbonate units (although the JNF boundary does ~MM 199.5), any storm flow and sediment generated from NFS land that overwhelms ECDs in this region will likely flow downhill onto / into these karst units known to have substantial and rapid subsurface flow paths in Giles County. MVP should be highly encouraged to err on the side of overbuilding ECDs in this steep region to prevent short term SW/GW impacts that could be caused by the type of intense storms that plagued their earlier work and resulted in impacts to groundwater.

No significantly elevated impact to groundwater resources is expected in the Brush Mtn section of NFS land where 4 proposed stream crossings were changed from dry ditch to subsurface boring methods. The borings will need temporary access pits that may need continuous dewatering for a period of time. The pits (~10-15 ft deep) will be in shale bedrock and pumping of groundwater from them will have very limited effect to the local aquifer and minimal communication with surface water is expected.
Virginia Water Protection Permit Program (OWSP)

1. The Final Water Quality Certification 17-001 (12-8-2017) relied in part on the MVP Final EIS (6-23-2017). The terms and conditions of the certification remain in full force and effect and should be reflected, as applicable, in any terms, conditions, or stipulations related to this action. Additionally, Title 62.1 of the Code of Virginia applies to proposed activities in state waters.
2. The Virginia Water Protection Permit Program does not have further comments regarding potential terms, conditions, or stipulations for incorporation into a right-of-way grant.
3. The Virginia Water Protection Permit Program defers to the DEQ Stormwater Management Program regarding erosion and sediment controls.
4. The Virginia Water Protection Permit Program does not support consideration of any route alternatives that would increase impacts to sensitive resources including streams and wetlands (water resources), and/or increase the number of waterbody crossings, in Virginia.
<table>
<thead>
<tr>
<th>HUC-10 Watershed</th>
<th>HUC-10 Code</th>
<th>WQS comments</th>
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<td>East River-New River</td>
<td>0505000206</td>
<td>Class IV, special standard u (The maximum temperature shall be 27°C (81°F) unless caused by natural conditions; the maximum rise above natural temperatures shall not exceed 2.8°C (5°F).)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No ESW designation</td>
</tr>
<tr>
<td>Upper Craig Creek-Sinking Creek</td>
<td>0208020110</td>
<td>Class V</td>
</tr>
<tr>
<td>Sinking Creek-New River</td>
<td>0505000203</td>
<td>Class IV, special standard u (The maximum temperature shall be 27°C (81°F) unless caused by natural conditions; the maximum rise above natural temperatures shall not exceed 2.8°C (5°F).)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Class V (Sinking Creek between Rt. 686 and Rt. 778)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No ESW designation</td>
</tr>
</tbody>
</table>
MEMORANDUM

DATE: October 26, 2020

TO: Julia Wellman, DEQ

FROM: Roberta Rjur, Environmental Impact Review Coordinator

SUBJECT: DEQ 20-136F, MVP REVISION

Division of Planning and Recreation Resources

The Department of Conservation and Recreation (DCR), Division of Planning and Recreational Resources (PRR), develops the Virginia Outdoors Plan and coordinates a broad range of recreational and environmental programs throughout Virginia. These include the Virginia Scenic Rivers program; Trails, Greenways, and Blueways; Virginia State Park Master Planning and State Park Design and Construction.

This route revision through the Giles County will cross the AT, scenic byways 635 and 42N. Additionally the route will cross two potentially scenic rivers, Little Stoney River and Sinking Creek. In all crossings, the route appears to cross in a parallel fashion and minimizes impacts to the resources.

Division of Natural Heritage

The Department of Conservation and Recreation’s Division of Natural Heritage (DCR) has searched its Biotics Data System for occurrences of natural heritage resources from the area identified by the shapefile provided for the project. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

DCR reiterates its previous comments for the proposed project. In addition, DCR provides the following comments for the September 2020 Mountain Valley Pipeline Draft Supplemental Environmental Impact Statement (DSEIS) for the Jefferson National Forest.

According to the information currently in our files, the Peter Mountain Slopes-Laurel Branch Slopes Conservation Site is documented within the proposed project area. Conservation sites are tools for representing key areas of the landscape that warrant further review for possible conservation action because of the natural heritage resources and habitat they support. Conservation sites are polygons built around one or more rare plant, animal, or natural community designed to include the element and, where possible, its associated habitat, and buffer or other adjacent land thought necessary for the element’s conservation. Conservation sites are given a biodiversity significance ranking based on the rarity, quality, and number of element occurrences they contain; on a scale of 1-5, 1 being most significant. The Peter Mountain Slopes-Laurel Branch Slopes has been given a biodiversity significance ranking of B2, which represents a site of very good significance. The natural heritage resources of concern associated with this conservation site are:

- Aneura sharpitii - A liverwort
- Corallorhiza bentleyi - Bentley’s coralroot
- G1G2/S1/NL/NL
- G2/S2/LE/NL
The Eastern small-footed myotis is a bat species known from southern Canada and New England, south through the Appalachians and Ohio Valley (NatureServe, 2009). This species has been recorded in Virginia most frequently in association with cavernous limestone (karst) areas and sandstone ridges in the western portion of the state. It roosts in rock crevices, rock shelters, caves, mines, human habitations, and trees in mountainous areas with deciduous or evergreen forest.

Threats to the Eastern small-footed myotis include alteration or destruction of its roosting or hibernation habitats including rock outcrops, bridges, trees, and caves. DCR recommends avoiding impacts to those types of roost habitats during the summer or winter months.

The Little brown bat is a small brown insect eating bat, which uses a wide range of habitats including caves and human-made structures (NatureServe, 2015). Since 2008 there has been a significant decline in population numbers (greater than 90%) for bat species due to white nose syndrome. The Little brown bat is state listed as "endangered" on April 1, 2016 by the Virginia Department of Wildlife Resources.

Due to the legal status of the Little brown bat, DCR recommends coordination with the VDWR, Virginia’s regulatory authority for the management and protection of this species to ensure compliance with the Virginia Endangered Species Act (VA ST §§ 29.1-563 - 570). DCR supports prudent measures, terms and conditions, and monitoring and compliance-reporting requirements included in the September 4, 2020 revised United States Fish and Wildlife (USFWS) revised biological opinion for the Mountain Valley Pipeline to avoid, minimize impacts to the Indiana bat and Northern-long eared bat.

To minimize adverse impacts to the aquatic ecosystem and associated rare species including the Candy darter (Etheostoma osburni, G3/S1/LE/NL) and the Hellbender (Cryptobranchus alleganiensis, G3/S2/NL/NL) as a result of the proposed activities, DCR recommends the implementation of and strict adherence to applicable state and local erosion and sediment control/storm water management regulations. In addition, DCR supports USFWS’s revised biological opinion that measures protective of water quality.

A DCR botanist reviewed the plant and bryophyte survey data included in the DSEIS for the proposed project. According to the survey, the only species found within the project footprint was the Rock skullcap (Scutellaria saxatilis), a USFS Regional Forester Sensitive Species, which is not tracked by the Virginia Natural Heritage Program.

The Western part, on the southeastern slope of Peters Mountain, consists mostly of a long access road on Devonian-Silurian bedrock that contains a very small percentage of limestone. Because of this, it is included in our new statewide karst screen. However, only very locally are any significant karst features developed. In the project area, there are no caves or sinkholes documented in the unit. Downstream (east) of the project area, streams cross the significant karst. Some are likely to sink while others may not. DCR recommends adherence to erosion and sediment control measures as required by the US Forest Service, FERC, and DEQ under the DSEIS protective of the downstream, karst resources. No documented significant cave resources are at risk from activities associated with the construction of the Mountain Valley Pipeline on the southeast slope of Peters Mountain.

The DSEIS stated “Four exotic invasive species have been observed scattered throughout the ROW: multiflora rose (Rosa multiflora), Japanese honeysuckle (Lonicera japonica), garlic mustard (Alliaria petiolata), and mile-a-minute vine (Persicaria perfoliata) (Transcon 2018-2020).” Therefore, DCR continues to recommend the development and implementation of an invasive species plan to be included as part of the maintenance practices for the right-of-way (ROW). The invasive species plan should include an invasive species inventory for the project area based on the current DCR Invasive Species List (http://www.dcr.virginia.gov/natural-heritage/document/nh-invasive-plant-list-2014.pdf) and methods for treating the invasives. DCR also recommends the ROW restoration and maintenance practices planned include appropriate revegetation using native species in a mix of grasses and forbs, robust monitoring and an adaptive
management plan to provide guidance if initial revegetation efforts are unsuccessful or if invasive species outbreaks occur.

According to the DSEIS and USFWS revised biological opinion, the majority of the tree removal has been conducted for the project “except for tree removal activities associated with future slip repairs, existing slip remediation and variance requests”. The previous tree removal associated with the project, fragmented C1 and C2 Ecological Cores as well as other ecological cores as identified in the Virginia Natural Landscape Assessment (https://www.dcr.virginia.gov/natural-heritage/vaconvisynla), one of a suite of tools in Virginia ConservationVision that identify and prioritize lands for conservation and protection.

Ecological Cores are areas of unfragmented natural cover with at least 100 acres of interior that provide habitat for a wide range of species, from interior-dependent forest species to habitat generalists, as well as species that utilize marsh, dune, and beach habitats. Cores also provide benefits in terms of open space, recreation, water quality (including drinking water protection and erosion prevention), and air quality (including carbon sequestration and oxygen production), along with the many associated economic benefits of these functions. The cores are ranked from C1 to C5 (C5 being the least ecologically relevant) using many prioritization criteria, such as the proportions of sensitive habitats of natural heritage resources they contain.

Fragmentation occurs when a large, contiguous block of natural cover is dissected by development, and other forms of permanent conversion, into one or more smaller patches. Habitat fragmentation results in biogeographic changes that disrupt species interactions and ecosystem processes, reducing biodiversity and habitat quality due to limited recolonization, increased predation and egg parasitism, and increased invasion by weedy species.

To date, the MVP project has resulted in clearing of trees in all of the cores ranked C1 (outstanding ecological integrity) or C2 (very high ecological integrity) along the limits of disturbance identified for the final EIS. The forest fragmentation impacts and recommended mitigation for these impacts, as well as impacts to other cores and non-core forests, on and outside National Forest lands, were calculated for the final EIS and to inform the December 2017, “Memorandum of Agreement for Comprehensive Mitigation of Virginia Resource Impacts of Mountain Valley Pipeline”. Estimating the specific impacts to these cores in the National Forest would require additional analysis by the Virginia DCR Natural Heritage Program, and the current mitigation agreement taken into account, fragmentation of the three C1 cores intersecting USFS lands.

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the DCR, DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.

There are no State Natural Area Preserves under DCR’s jurisdiction in the project vicinity.

New and updated information is continually added to Biotics. Please re-submit project information and map for an update on this natural heritage information if the scope of the project changes and/or six months has passed before it is utilized.

The VDWR maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not documented in this letter. Their database may be accessed from http://vafwis.org/fwis/ or contact Ernie Aschenbach at 804-367-2733 or Ernie.Aschenbach@dcr.virginia.gov. According to the information in our files, Craig Creek has been designated as a “T & E Water” by VDWR for the James spinymussel. Due to the legal status of the James spinymussel, DCR recommends coordination with the USFWS and Virginia’s regulatory authority for the management and protection of this species, the VDWR, to ensure compliance with the Virginia Endangered Species Act (VA ST §§ 29.1-563 – 570).

Jefferson National Forest

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Division of Dam Safety and Floodplain Management

Floodplain Management Program:
The National Flood Insurance Program (NFIP) is administered by the Federal Emergency Management Agency (FEMA), and communities who elect to participate in this voluntary program manage and enforce the program on the local level through that community’s local floodplain ordinance. Each local floodplain ordinance must comply with the minimum standards of the NFIP, outlined in 44 CFR 60.3; however, local communities may adopt more restrictive requirements in their local floodplain ordinance, such as regulating the 0.2% annual chance flood zone (Shaded X Zone).

All development within a Special Flood Hazard Area (SFHA), as shown on the locality’s Flood Insurance Rate Map (FIRM), must be permitted and comply with the requirements of the local floodplain ordinance.

State Agency Projects Only:
Executive Order 45, signed by Governor Northam and effective on November 15, 2019, establishes mandatory standards for development of state-owned properties in Flood-Prone Areas, which include Special Flood Hazard Areas, Shaded X Zones, and the Sea Level Rise Inundation Area. These standards shall apply to all state agencies.

1. Development in Special Flood Hazard Areas and Shaded X Zones
   A. All development, including buildings, on state-owned property shall comply with the locally-adopted floodplain management ordinance of the community in which the state-owned property is located and any flood-related standards identified in the Virginia Uniform Statewide Building Code.
   B. If any state-owned property is located in a community that does not participate in the NFIP, all development, including buildings, on such state-owned property shall comply with the NFIP requirements as defined in 44 CFR §§ 60.3, 60.4, and 60.5 and any flood-related standards identified in the Virginia Uniform Statewide Building Code.
      (1) These projects shall be submitted to the Department of General Services (DGS), for review and approval.
      (2) DGS shall not approve any project until the State NFIP Coordinator has reviewed and approved the application for NFIP compliance.
      (3) DGS shall provide a written determination on project requests to the applicant and the State NFIP Coordinator. The State NFIP Coordinator shall maintain all documentation associated with the project in perpetuity.
   C. No new state-owned buildings, or buildings constructed on state-owned property, shall be constructed, reconstructed, purchased, or acquired by the Commonwealth within a Special Flood Hazard Area or Shaded X Zone in any community unless a variance is granted by the Director of DGS, as outlined in this Order.

The following definitions are from Executive Order 45:

Development for NFIP purposes is defined in 44 CFR § 59.1 as “any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations or storage of equipment or materials.”

The Special Flood Hazard Area may also be referred to as the 1% annual chance floodplain or the 100-year floodplain, as identified on the effective Flood Insurance Rate Map and Flood Insurance Study. This includes the following flood zones: A, AO, AH, AE, A99, AR, AR/AE, AR/AO, AR/AH, AR/A, V0, VE, or V.

The Shaded X Zone may also be referred to as the 0.2% annual chance floodplain or the 500-year floodplain, as identified on the effective Flood Insurance Rate Map and Flood Insurance Study.

The Sea Level Rise Inundation Area referenced in this Order shall be mapped based on the National Oceanic and Atmospheric Administration Intermediate-High scenario curve for 2100, last updated in 2017, and is intended to denote the maximum inland boundary of anticipated sea level rise.
Literature Cited


Hello!

In response to DEQ-OEIR's request to review the Supplemental EIS (SEIS for the portion of MVP in Jefferson National Forest), we offer the following response. As described in SEIS Section 1.2:

"...construction on NFS lands has been partially completed. The ROW on NFS lands was cleared of trees between February and April 2018. On Sinking Creek and Brush Mountain NFS lands, the trees have been felled and removed, and the ROW has been graded. On Peters Mountain, the trees have been felled but not removed from the ROW (approximately 26.2 acres). Grading activities on Sinking Creek and Brush Mountain include the stockpiling of topsoil. No trenching has occurred on NFS lands. ECDs have been installed along the entire ROW on NFS lands. Stockpiled topsoil and disturbed areas of the ROW have been stabilized with temporary vegetation to decrease erosion and sedimentation. In 2018, annual grasses and native perennial forbs/grasses were planted. In 2019, the areas were reseeded with a mix that included annual grasses, two or more native, perennial grasses, and partridge pea (a perennial forb). Sections of pipe have been delivered to the ROW and are being stored aboveground..." (pp. 39-40).

The remaining issue to be addressed is stream crossing methodology. According to the SEIS (pp. 23-24), as an alternative to dry-ditch open cut stream crossings...if the four streams on NFS lands are crossed using a conventional bore method, the procedures in the Water Crossing Plans (POD Appendix K, MVP 2020v) and the stream crossing method variance request (MVP 2020u) would be implemented.

According to DEQ-OEIR, the stream crossing variance request for this portion of the project is not currently available. MVP says that it is still working through the details with FERC and the USFS on it. Once available, the document will be filed to the FERC docket and publicly accessible. MVP also offered to email us (DEQ-OEIR) a copy of the variance...but a timetable for when this document may be available was not provided.

We reiterate that we would appreciate DEQ-OEIR forwarding the variance request to us, as soon as it becomes available. We will review and respond as appropriate. In general, we recommend that preliminary geophysical testing be performed to determine whether or not conditions at proposed crossings are suitable for boring beneath streams. We recommend coordinating with DCR regarding potential karst. We recommend the applicant develop a frac-out response plan where stream crossings will be bored.

We are currently working with the applicant to address stream crossings and potential relief from Time of Year Restrictions (TOYR) for instream work. We will continue to coordinate with the applicant to address this topic as appropriate.

Thank you for the opportunity to review the SEIS and provide comments.

**Please note as of July 1, 2020 DQIF will become the Department of Wildlife Resources (DWR). Our new email addresses will end in @dwr.virginia.gov***
DHR has been in direct consultation with the FERC and the USFS regarding the Mountain Valley Pipeline & Equitrans Expansion Project. We request that the FERC and USFS continue consultation with our office pursuant Section 106 of the National Historic Preservation Act which requires federal agencies to consider the impacts of their projects on historic properties.

---

Roger W. Kirchen, Director
Review and Compliance Division
Department of Historic Resources
2801 Kensington Avenue
Richmond, VA 23221
phone: 804-482-6091
www.dhr.virginia.gov

Please take DHR's brief on-line survey to provide your ideas and opinions about the current and future state of historic preservation in the Commonwealth of Virginia.

On Tue, Oct 20, 2020 at 2:34 PM Wellman, Julia <julia.wellman@deq.virginia.gov> wrote:

Good afternoon,

Please note that comments were due yesterday regarding the above-referenced project. If you have comments, please email them to me.

Regards, Julia

On Tue, Sep 29, 2020 at 3:15 PM Fulcher, Valerie <valerie.fulcher@deq.virginia.gov> wrote:

Good afternoon - this is a new OEIR review request/project:

Document Type: Supplemental Draft Environmental Impact Statement
Project Sponsor: U.S. Department of Agriculture/U.S. Forest Service
Project Title: Mountain Valley Pipeline & Equitrans Expansion Project
Location: Giles and Montgomery Counties
Project Number: DEQ #20-136F

The document is available at www.deq.virginia.gov/fileshare/oeir in the USDA folder.

The due date for comments is OCTOBER 19, 2020. You can send your comments either directly to JULIA WELLMAN by email (Julia.Wellman@deq.virginia.gov), or you can send your comments by regular interagency/U.S. mail to the Department of Environmental Quality, Office of Environmental Impact Review, P.O. Box 1105, Richmond, VA 23218.

NOTE: This DSEIS is for the portion of MVP in Jefferson National Forest.

If you cannot meet the deadline, please notify the project coordinator prior to the comment due date. Arrangements may be made to extend the deadline for comments if possible. An agency will be considered to have no concerns if comments are not received (or contact is made) within the
Julia Wellman  
Environmental Impact Review Coordinator  
Department of Environmental Quality  
Environmental Impact Review and Long Range Priorities Program  
1111 E Main Street, Suite 1400  
Richmond, VA 23219  

Re: Mountain Valley Pipeline & Equitrans Expansion, DEQ #20-136F  

Dear Julia,  

The Department of Mines, Minerals and Energy has reviewed the Supplemental Draft Environmental Impact Statement for the subject project and offers the following comments.  

The SDEIS states, in Section 3.3.11, “While geological units known to be associated with karst formation exist within the JNF proclamation boundary, none of them actually underlie NFS lands administered by the JNF, and those that do are unlikely to have karst features.” We observe, however, that the proposed route from milepost 217.2-217.8 is underlain by a geologic formation (“DS” Lower Devonian rocks, undivided of Prince, 2019) that may contain a considerable percentage of limestone and is known to generate karst features.  

The SDEIS also states, in Section 3.3.11, “Two outside documents related to landslide risk and the pipeline were released following release of the FERC FEIS. One document is a draft topographic quadrangle map released by the Virginia Division of Geology and Mineral Resources (Prince 2019).” We note, however, that the Prince (2019) map is a geologic map, not a topographic map. Although the applicant states that this map “does not provide any new information requiring further analysis in the SEIS,” the map depicts a debris fan deposit between
route miles 217.7 to 218.0, which may require special engineering in pipeline construction.

Sincerely,

David B. Spears
State Geologist
Commonwealth of Virginia

Mountain Valley Pipeline & Equitran Expansion, DEQ project # 20-136F
1 message

Scott Denny <scott.denny@doav.virginia.gov>  
To: Julia Wellman <julia.wellman@deq.virginia.gov>  

Wed, Oct 7, 2020 at 1:46 PM

Ms. Wellman:

Based on the information in the links you provided in the October 2, 2020 e-mail it does not appear as though any portion of this project within Virginia will occur within 20,000 linear feet of a public use airport. Therefore, the Virginia Department of Aviation has no comments pertaining to this project.

Please note that this email will serve as the official response unless a copy is requested on Department letterhead.

Please feel free to contact me if you have any questions regarding this matter.

Sincerely,

S. Scott Denny  
Senior Aviation Planner  
Virginia Department of Aviation

--

S. Scott Denny  
Senior Aviation Planner  
Virginia Department of Aviation  
804-236-3638  
scott.denny@doav.virginia.gov
October 26, 2020

MEMORANDUM

TO: Valerie Fulcher, Environmental Program Specialist

FROM: Kevin R. Byrd, Executive Director

SUBJECT: Regional Clearinghouse Review of:

RE: Mountain Valley Pipeline & Equitrans Expansion Project DEQ #20-136F

The New River Valley Regional Commission board has concern about the overall environmental impact of the proposed project. The board prefers Option 1, no action, thereby not altering the US Forest Service Standards to accommodate the project. Should the reviewing agency recommend Option 2, comments from the Regional Commission board meeting on October 22, 2020 are below.

1) Confirm previous violations, and their underlying impacts, cited by the Virginia Department of Environmental Quality have been addressed and remedied prior to issuing a permit for any new construction activity.

2) Require water quality monitoring upstream and downstream of water body crossings up to two months before and one year after constructing the crossings.

3) Provide certified Professional Engineer (PE) construction drawings for all stream crossings prior to construction opposed to allowing stream crossing design decisions to be made in the field during construction.

4) Recommend Virginia Department of Environmental Quality staff be present on-site to oversee stream crossing construction as a proactive approach opposed to reactive site visits which necessitate remediation that may have been avoided.

5) For Wilderness Areas such as the Brush Mountain Wilderness Area, confirm whether restrictions for the wilderness area extend beyond the boundaries established for the wilderness area, ie-sound or visual impacts to the wilderness area in close proximity.

Should you have questions concerning the status of this review, please do not hesitate to contact us.

KRB/jp

Jefferson National Forest

300
Re: NEW PROJECT USDA/USFS Mountain Valley Pipeline & Equitrans Expansion, DEQ #20-136F

Project Name: Mountain Valley Pipeline & Equitrans Expansion Project
Project #: 20-136 F
UPC #: N/A
Location: Giles & Montgomery Cos.

VDH – Office of Drinking Water has reviewed the above project. Below are our comments as they relate to proximity to public drinking water sources (groundwater wells, springs and surface water intakes). Potential impacts to public water distribution systems or sanitary sewage collection systems must be verified by the local utility.

The following public groundwater wells are located within a 1 mile radius of the project site:

<table>
<thead>
<tr>
<th>PWS ID Number</th>
<th>City/County</th>
<th>System Name</th>
<th>Facility Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1071568</td>
<td>GILES</td>
<td>LHOIST NORTH AMERICA OF VIRGINIA</td>
<td>SPRING</td>
</tr>
<tr>
<td>1121751</td>
<td>MONTGOMERY</td>
<td>CAMP TUK-A-WAY</td>
<td>DRILLED WELL</td>
</tr>
</tbody>
</table>

There are no surface water intakes located within a 5-mile radius of the project site.

The project is within the watershed of the following public surface water sources:

<table>
<thead>
<tr>
<th>PWS ID Number</th>
<th>System Name</th>
<th>Facility Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>4087125</td>
<td>HENRICO COUNTY WATER SYSTEM</td>
<td>HENRICO RAW WATER INTAKE</td>
</tr>
<tr>
<td>4075735</td>
<td>JAMES RIVER CORRECTIONAL CTR</td>
<td>JAMES RIVER INTAKE</td>
</tr>
<tr>
<td>5680200</td>
<td>LYNCHBURG, CITY OF</td>
<td>JAMES RIVER-COLLEGE HILL</td>
</tr>
<tr>
<td>5680200</td>
<td>LYNCHBURG, CITY OF</td>
<td>JAMES RIVER-ABERT</td>
</tr>
<tr>
<td>4760100</td>
<td>RICHMOND, CITY OF</td>
<td>RAW WATER INTAKE</td>
</tr>
<tr>
<td>3670800</td>
<td>VIRGINIA-AMERICAN WATER CO</td>
<td>APPOMATTOX RIVER</td>
</tr>
</tbody>
</table>

Best Management Practices should be employed, including Erosion & Sedimentation Controls and Spill Prevention Controls & Countermeasures on the project site.

Materials should be managed while on site and during transport to prevent impacts to nearby surface water.

The Virginia Department of Health – Office of Drinking Water appreciates the opportunity to provide comments. If you have any questions, please let me know.

Best Regards,

Arlene Fields Warren

GIS Program Support Technician
On Tue, Sep 29, 2020 at 3:15 PM Fulcher, Valerie <valerie.fulcher@deq.virginia.gov> wrote:

Good afternoon - this is a new OEIR review request/project:

Document Type: Supplemental Draft Environmental Impact Statement
Project Sponsor: U.S. Department of Agriculture/U.S. Forest Service
Project Title: Mountain Valley Pipeline & Equitrans Expansion Project
Location: Giles and Montgomery Counties
Project Number: DEQ #20-136F

The document is available at www.deq.virginia.gov/fileshare/oeir in the USDA folder.

The due date for comments is OCTOBER 19, 2020. You can send your comments either directly to JULIA WELLMAN by email (Julia.Wellman@deq.virginia.gov), or you can send your comments by regular interagency/U.S. mail to the Department of Environmental Quality, Office of Environmental Impact Review, P.O. Box 1105, Richmond, VA 23218.

NOTE: This DSEIS is for the portion of MVP in Jefferson National Forest.

If you cannot meet the deadline, please notify the project coordinator prior to the comment due date. Arrangements may be made to extend the deadline for comments if possible. An agency will be considered to have no concerns if comments are not received (or contact is made) within the review period. However, it is important that agencies consistently participate in accordance with Virginia Code Section 10.1-1192.

REVIEW INSTRUCTIONS:

A. Please review the document carefully. If the proposal has been previously reviewed (e.g. as a draft EIS or a Part 1 EIR), please consider whether your earlier comments have been adequately addressed.

B. Prepare your agency’s comments in a form which would be acceptable for responding directly to a project proponent agency (agency stationary or email) and include the project number on all correspondence.

If you have any questions, please email Julia.

Thanks!

Valerie
October 15, 2020

To: Julia Wellman  
Virginia Department of Environmental Quality

From: Carol J.L. Moneymaker, Planning Specialist  
VDOT Salem District Planning

Subject: RE: NEW PROJECT USDA/USFS Mountain Valley Pipeline & Equitrans Expansion, DEQ #20-136F

VDOT received a request to review transportation impacts of the above referenced project. The portions of the Mountain Valley Pipeline Project which are subject to this study is limited to the Jefferson National Forest in Giles and Montgomery Counties. The proposal seeks approval to construct and operate a buried 42-inch natural gas pipeline across approximately 3.5 miles of the Jefferson National Forest (see attached). The proposed alignment crosses no VDOT-maintained roads; however, some portions of the site may be accessed using entrances to VDOT-maintained roads.

Comments:

- The areas of potential impact include roads adjacent to or being crossed by construction as well as pedestrian, bicycle, and transit operations near the construction sites.
- All circumstances where the proposed project may impact transportation operations should be coordinated with VDOT prior to any construction.
- Activities requiring detours or other modifications to transportation operations should be conducted at times during which impacts will be minimized.
- Road signs should be provided to alert drivers, bicyclists, and pedestrians of utility work ahead, and any detours necessary to navigate around the work.

If you have questions or need additional information, please contact me at (540) 520-3515.

cc: Michael Gray – Salem District Planner  
David Clarke – Christiansburg Resident Engineer  
Jesse Miller – Asst. Christiansburg Resident Engineer  
Stephen Phillips – Area Land Use Engineer  
Donald DeBerry – Salem District Environmental Manager  
EIR Coordination Listserv

Attachment (1)
November 9, 2020
Jim Hubbard, Under Secretary
U.S. Department of Agriculture
c/o Jefferson National Forest, MVP Project 5162
Valleypointe Parkway
Roanoke, VA 24019

Via online comment:
https://cara.ecosystem-management.org/Public/CommentInput?Project=50036

RE: Mountain Valley Pipeline and Equitrans Expansion Project Draft
Supplemental EIS #50036

Dear Mr. Hubbard:

Thank you for this opportunity to comment on the proposed amendments to the Jefferson National Forest Land Resource Management Plan (LRMP) and the Draft Supplemental Environmental Impact Statement (SEIS) for the Mountain Valley Pipeline (MVP). I am writing on behalf of the Craig County Board of Supervisors (CCBoS). Craig County has a long and deep tradition of working in cooperation with the Forest Service to achieve both the County and the nation’s goals in the management of the Jefferson National Forest.

However, the CCBoS objects to the proposed changes to the LRMP and opposes the construction and operation of the proposed MVP Pipeline across the Jefferson National Forest. The objections we raised in our letter to the Forest Service dated August 6, 2017 continue to be valid and have not been adequately addressed in these new proposals. A copy of that letter is attached for your records.

Craig County is within the ridge and valley geography at the southern end of the Allegheny Mountains. The County's landscape is dominated by the Jefferson National Forest, with more than half of the county being National Forest. 100% of our communities' drinking water comes from the forested mountains, and the complex karst geology makes our water resources highly sensitive to land disturbance. This makes the protection and care of the land and our relationship with the Forest Service essential to

Jefferson National Forest
our agriculture- and recreation-based economies, and the water supplies on which all of our citizens depend.

The management of the Jefferson National Forest is a vital responsibility that directly impact Craig County communities' water supplies, economies, and quality of life. Water resource protection was a driving force in the creation of the Jefferson National Forest under the Weeks Act. Therefore, the Craig County Board of Supervisors feels quite strongly that the primary duty of the Forest Service is to assure that our water resources are protected from harm.

Considering that Craig County's most significant feature are the National Forest and the Appalachian Trail, and given that local livelihoods and quality of life are inextricably linked to what happens in the National Forest, the Craig County Board of Supervisors consider the following to be critical factors for you to consider as you make your decision:

1. Craig County’s Comprehensive Plan relies on the continuing protection of the Forest for destination-based recreation as a primary part of the economy.
2. Cultural Attachment to the land is an important feature of our community and must be recognized and respected.
3. Together, we are responsible to steward the precious water resources, including creeks, springs, wells, and underground reserves that are sourced from the Jefferson National Forest and upon which all of us rely.
4. The natural beauty and view sheds of the area, the steep slopes, karst geology, unique biodiversity, and fragile water systems must be preserved and protected from development.
5. We are deeply committed to the founding principles of our National Forest. We believe that the Forest Service has performed an inadequate analysis of the proposal to route the MVP through the Jefferson National Forest.

Although a new hydrologic analysis has been prepared, the modeling is based on theoretical data. It omits the well-documented and reported record of failure of the erosion and sediment control measures that MVP has attempted to deploy since construction started in early 2018. This reliance on a predictive model to assess impacts is inadequate.

We specifically oppose the proposal to amend the LRMP in order to allow for the harmful impacts that the MVP may cause. We believe this concept of conforming the LRMP to the project undermines the purpose for having a Forest Plan.

In order to make the project lawful, you propose to waive standards that protect water and soil resources or substitute the standards with mitigation measures. We do not believe that the Forest Service can waive forest management standards and still achieve the goals and objectives of the LRMP. The Forest Service is required to impose riparian standards on project implementation; but this proposal eliminates those standards for this project. This waiver of mandatory riparian standards may in fact be unlawful. We are concerned that it harms the interests of Craig County.
The proposal to waive forest management standards to allow the construction of a 42-inch, high-pressure gas pipeline is a troubling precedent. We are extremely concerned about the potential for serial amendment of the LRMP to accommodate further industrial development on the Jefferson National Forest. The LRMP could be diminished by amendments that collectively may render meaningless the concept of a planning document. Craig County’s Board of Supervisors has never contemplated changing the County’s comprehensive plan to accommodate an incompatible land use, and neither has the Forest Service until now.

The Craig County Board of Supervisors asks that you select Alternative 1, for “No Action,” and reject the 11 proposed amendments to prevent unprecedented damage to not only the Jefferson National Forest but also to its Forest Plan.
WHEREAS, the proposed Mountain Valley Pipeline (MVP) project is a natural gas pipeline system that spans approximately 300 miles from north-western West Virginia to southern Virginia — and, as an interstate pipeline, must be regulated and permitted by the Federal Energy Regulatory Commission (FERC). The MVP project, if permitted, would be constructed and owned by Mountain Valley Pipeline, LLC. The MVP project would impact six Virginia Counties, including Craig County and;

WHEREAS, the Craig County Board of Supervisors (CCBoS) has repeatedly questioned the transparency, and accuracy of the process conducted by FERC for the MVP DEIS and the MVP permit application in general, and:

WHEREAS, a project with the complexity and scope of construction work to install necessary proposed construction elements will have significant impact on the environment and restriction on many types of activities near the proposed route, and:

WHEREAS, many miles of the proposed MVP project would traverse highly erodible soils with very steep slopes in Craig County and the surrounding region, and sedimentation caused by accelerated erosion from lands disturbed during construction and operation of such a project will be a significant contributor to pollution of the surface waters of Virginia and the United States; and

WHEREAS, the required amount of land-disturbance associated with the MVP excavation is significantly larger than the total area of all land disturbing activities in a typical year for Craig County and has the potential to cause severe erosion in the County’s steep mountainous terrain; and

WHEREAS, the citizens of Craig County rely on untreated groundwater from wells or springs for 100% of their domestic water supplies; and
WHEREAS, due to its karst topography, sinkholes and underground channels capable of carrying sediment and other pollutants are widespread in some portions of the County where the pipeline's construction has been proposed to occur; and

WHEREAS, even with careful engineering and construction oversight, erosion and sediment from the construction of the proposed Mountain Valley Pipeline is likely to have severe negative consequences for the County’s natural waterways as well as its domestic, agricultural, and business water supplies; and

WHEREAS, neither MVP nor the FERC has offered any credible proof that planned erosion-control measures for MVP construction have EVER successfully prevented erosion problems and sedimentation damage to waterways in such steep terrain; and

WHEREAS, the Virginia Department of Environmental Quality (DEQ), is charged with protecting our state’s water quality, to diligently oversee MVP permitting and construction to prevent degradation of our public resources and due to limited resources may be challenged to successfully inspect and monitor MVP’s very large scope project; and

WHEREAS, the outdoor beauty and unspoiled nature of our mountain streams and rivers is integral to the County’s and the region’s ability to attract tourism to the Virginia’s Mountain Region, and

WHEREAS, the United States Forest Service (USFS) has proposed many amendments to the Land and Resource Management Plan (LRMP) for the Jefferson National Forest (JNF) to exempt MVP construction from widely accepted construction standards designed to protect environmental quality in the JNF and surrounding private lands; and

WHEREAS, USFS has also proposed reclassification of some JNF lands to create a 500-foot-wide Designated Utility Corridor, which would further degrade environmental quality of our area and environmental services on which our Citizens rely, and would make the JNF a logical target for even further utility-project development that will severely degrade the quality of life in our county and the surrounding region; and

WHEREAS, the Appalachian Trail Conservancy strongly opposes the construction of the MVP Pipeline project and urge their members, the Appalachian Trail hiking community, outdoor lovers and the citizens of Virginia and West Virginia to support the Conservancy’s opposition;

NOW THEREFORE, BE IT RESOLVED, the Craig County Board of Supervisors does hereby provide the following comments regarding the MVP DEIS for Project CP-16-10-000.

Comment 1 - Process

The entire process for review and comment on the MVP proposal has been a disappointment designed to meet the letter of the law regarding public participation without offering the public any significant chance to have their opinions truly considered. FERC has taken every step possible to devalue public notification, information, and comment. Before the DEIS was released, FERC conducted public hearings which were scheduled and held in very small facilities in only a few scattered and sometimes remote locations to discourage citizen involvement. Comment periods were unreasonably limited and the FERC staff threatened throughout one public hearing to stop the hearing. At the recent FERC DEIS “comment meeting” in Roanoke, Virginia, citizens wishing to provide comment were required to meet individually with stenographers in secluded spaces overseen
by FERC representatives. The closed format public comment session did not provide joint, open, and free exchange of comments before the public.

The DEIS Findings and Conclusions Regarding Certain Impacts of the Proposed Project are not based on substantial evidence in the Record. FERC has declared that there will be no significant impacts BEFORE the route for the pipeline is even finalized, much less before all of the required surveys and studies are complete. This action has completely destroyed any public faith that this process is impartial, and that the results have not been predetermined before the process even plays out.

The DEIS fails to properly study the Applicant’s submittals. FERC has provided virtually no meaningful analysis of the materials submitted by the applicant, they have simply repackaged the submission as their own DEIS. They have accepted at face value almost all “statements of fact” made by the applicant, most of which are supported by no credible scientific evidence. FERC’s “assessment” of the applicant’s submittals, and the issuance of the FERC DEIS based on these baseless and unsupported submissions, amounts to nothing more than a rubber stamp for FERC to facilitate the rapid approval of the application while trying to create an aura of “official review.”

The FERC DEIS does not rise to the level of “reason or basis” for FERC's findings. Any substantial and credible evidence is lacking throughout the DEIS, which does not comply with the Natural Gas Act section 19(b).

The DEIS does not adequately consider alternative routes or alternative mitigation measures that would better mitigate or avoid the environmental impacts of the Projects.

NEPA states that when an agency is preparing an EIS, it must include evaluation of alternative routes and mitigation measures (not already included in the proposed action or alternatives) among the alternatives compared in the EIS. Each EIS must contain a section analyzing the environmental consequences of the proposed action and its alternatives, including means to mitigate the environmental impacts of the project.

The CCBos is requesting that the DEIS follow the United States Administrative Procurement Act, Code § Section 706. – Scope of review

To the extent necessary to decision and when presented, the reviewing court shall decide all relevant questions of law, interpret constitutional and statutory provisions, and determine the meaning or applicability of the terms of an agency action. The reviewing court shall –

(1) compel agency action unlawfully withheld or unreasonably delayed; and

(2) hold unlawful and set aside agency action, findings, and conclusions found to be –

(A) arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law;

The CCBos also requests a revised DEIS pursuant to 40 C.F.R. section 1502.9(a) which provides:

(a) Draft environmental impact statements shall be prepared in accordance with the scope decided upon in the scoping process. The lead agency shall work with the cooperating agencies and shall obtain comments as required in part 1503 of this chapter. The draft statement must fulfill and satisfy to the fullest extent possible the requirements established for
final statements in section 102(2)(C) of the Act. If a draft statement is so inadequate as to
preclude meaningful analysis, the agency shall prepare and circulate a revised draft of the
appropriate portion. The agency shall make every effort to disclose and discuss at appropriate
points in the draft statement all major points of view on the environmental impacts of the
alternatives including the proposed action.

Comment 2 – A Comprehensive, Indexed Project Application is Needed

Craig County is on record asking FERC to instruct MVP to produce a comprehensive amended MVP
EIS application to no avail or response. MVP’s responses and filings are disjointed and blatantly
dissimissive of any questions or changes to their filings. MVP’s attorney has continued to file
documents updating and adding to the DEIS. Whereas these documents are reported by FERC,
MVP’s continued data updates are difficult to review and comprehend by the general public.

The original application has been amended and revised so many times that it is impossible for a
cconcerned citizen to understand the interactions between all of the scattered and inconsistent parts of
the application. Many parts are unlabeled or mislabeled. FERC has done a major disservice to the
public by allowing this situation to develop, and again this makes the public suspect that FERC feels
that they have no obligation to keep the public sufficiently and clearly informed.

Comment 3 – Water Quality Issues Remain Unanswered

As this project has developed, the County has repeatedly voiced its concerns regarding inadequate
consideration of water quality protection. The FERC DEIS claims that the only significant
environmental impact will be to forests. This is a contention that illustrates the total inadequacy of the
DEIS document that was prepared by the FERC. One of our County’s (and the region’s) main
concern is permitting any construction in steep mountain terrain which will result in significant erosion
and then sedimentation to local waterways.

Craig County is a rural County with an estimated population of 5,200 citizens. It consists of 330
square miles. All County citizens rely on surface waters or groundwater as their sole source of
potable and non-potable water. The County is at the headwaters of two major river tributaries – the
New River and the James Rivers. Negative impacts to these headwaters will not only impact Craig
County, but impact these two major river tributaries.

An independent hydrology analysis has shown that MVP construction on steep slopes will result in
many tons of sediment finding their way into local streams and then into hydroelectric and flood-
control structures downstream, thereby damaging their function. Some of this sediment will even find
its way out to the Chesapeake Bay, a nationally treasured and protected resource. In clear violation
of NEPA requirements, FERC not only fails to evaluate these effects, but it egregiously fails to even
acknowledge their existence.

MVP has proposed to monitor the quality of private water supplies within 150 feet of the construction
workspace, and 500-feet in karst areas, with the supposed intention of mitigating any construction-
related damage noted. In truth, FERC has allowed landowners to go completely unprotected on this
issue, as it will be up to MVP to both determine if they caused the damage and, if so, what is an
“acceptable settlement.” What would constitute acceptable “repair or replacement” of a landowner’s
damaged water supply? Drilling a well is not necessarily a suitable replacement for what had been a
reliable spring and will entail landowner operational costs in perpetuity. In karst areas, damage could
certainly be evident at distances much larger than 500-feet. And landowners elsewhere have been
denied damages when they cannot “prove” that an energy project undeniably caused such damage. FERC’s “protection” of landowners’ critical water supplies are totally inadequate, and by this document we file our strongest objections to FERC allowing this danger to landowners to remain unresolved.

Comment 4 - Jefferson Forest as an Economic Asset to Craig County

Craig County has repeatedly filed comments regarding potential MVP impacts to the Jefferson National Forest (JNF), which is a highly critical piece of economic infrastructure for our County. Both letters clearly show the County’s concerns for the JNF. The USFS owns approximately 54% of all acres in Craig County. The County relies heavily on Ecotourism and the JNF as our economic development opportunities. The pristine JNF is the most critical piece of our economic infrastructure. Any negative impacts to the JNF in Craig County or the surrounding region can and do seriously impact the County’s Ecotourism efforts.

In its 2013 Comprehensive Plan, the Craig County Board of Supervisors determined that Ecotourism possessed “significant economic development potential for the County.” Therefore, environmentally-sound tourism is a priority area for near-term and long-term economic growth for the County. It fits directly into the current ecological and cultural strengths of the County, and it provides a tangible path for sustainable future economic enhancement. Marketing efforts have been launched to highlight Craig’s ecotourism potential, and the County is building brand-awareness as a regional ecotourism destination.

The MVP project threatens to damage the County’s current and future ecotourism efforts. Craig’s investments in this area are both local (in the County) and as part of larger regional branding efforts. Jobs in the County and visitors to the County are of obvious importance; of equal importance are regional jobs that offer employment for our County residents, as there are few job opportunities within Craig County. FERC was specifically asked to evaluate the following:

Specific Evaluation Requests

- The adverse impact of the MVP project on future ecotourism job creation in the County and the region.
- The adverse impact of the MVP project on future creation of secondary (corollary)/supporting jobs tied to eco-tourists visiting the County and the region.
- The potential loss of local and regional jobs in current businesses ventures that cater to eco-tourists in the region.
- The loss of jobs in currently existing businesses that provides secondary/supporting service to eco-tourists.
- The negative impact on net worth of current businesses that cater to eco-tourists.
- The negative impact upon Craig County’s market position as the “Gateway to Virginia’s Western Highlands”, which is the Virginia Tourism Commission’s assignation of Craig as integral part of Virginia Mountains district, etc.
The County's loss of potential tax revenue generated through ecotourism (both primary and secondary/supporting retail businesses).

The deleterious impact on quality of life to those who visit Craig based on a damaged reputation as an environmentally-sound tourist destination.

Adverse environmental impact on hunting ecosystem.

Adverse environmental impact on fishing streams.

Impact of revenue-loss generated by reduced sales of hunting licenses and associated activities.

Impact of lost revenue owing to reduced sales of fishing licenses and associated activities.

Loss of jobs and revenue in businesses that cater to hunters and fishermen who visit Craig County.

The DEIS does not adequately respond to these concerns and further study must be conducted before the DEIS process can proceed. The CCBoS is asking for quantitative, not just qualitative, evaluation of the various socioeconomic impacts listed above.

Comment 5 - Proposed Amendments to the JNF Plan

The Bureau of Land Management (BLM) has requested comments on the right of way (ROW) grant that would permit the pipeline to be constructed on federal lands managed by the United States Forest Service (USFS) and the United States Army Corps of Engineers (USACE). USFS has proposed five amendments to their Forest Management Plan for the JNF, and the CCBoS wishes to go on record opposing all five amendments.

Proposed Amendment 1- This would create a Designated Utility Corridor to accommodate special uses which serve a public benefit by providing a reliable supply of utilities to local, regional and national economies. This proposed amendment will create a 500 foot wide utility corridor, likely attracting other utilities to this region (e.g., other future FERC-licensed pipelines and other utility improvements). Creating such a corridor will place environmental and economic burdens on a region of Virginia that will gain very little benefit. Craig County will not be able to connect to the MVP or other pipelines due to connection cost and inadequate service demand. A multitude of environmental impacts will fall on this region, when the burden to provide regional and national utility corridors should be shared with the entire Country and not just this region.

Proposed Amendment 2 - The LRMP (Forest Management Plan) would be amended to allow construction of the MVP pipeline to violate standard restrictions on soil conditions and riparian corridor conditions as described in LRMP standards FW-5, FE-9, FW-13, FW-14 and 111-017, subject to MVP's implementation of unspecified mitigation measures agreed upon by the USFS as needed.

Due to the steep slopes and potential for severe erosion along such slopes during construction, proposed "restoration" efforts involving the planting of grasses are pure folly. MVP claims to be following guidelines promulgated by the Wildlife Habitat Council, but planting grasses on such steep slopes is not within their standard recommendations. MVP has not offered, and FERC has not
demanded, any credible evidence that MVP’s habitat restoration plans will be successful (or even appropriate). Their claim that disturbed lands will be restored to their previous condition is either mistaken or greatly exaggerated. The result of their feeble restoration attempts will be only severe erosion and sedimentation impacts, and these deleterious conditions will remain for the life of the pipeline and beyond.

Proposed Amendment 3 - The LRMP would be amended to allow the removal of old growth trees within the construction corridor of the MVP pipeline. Removal of the tree canopy, especially old growth trees should be prohibited. These trees constitute a rare and dwindling ecosystem in the JNF. Their removal for the MVP project should not be allowed.

Proposed Amendment 4 - The LRMP would be amended to allow the MVP pipeline to cross the Appalachian National Scenic Trail (ANST). This trail is one of the ecotourism gems that make our region truly unique in the entire country. To damage the scenic value of the ANST is to damage both a national treasure and a critical economic resource for our region.

The CCBoS opposes these four amendments in total due to the current and potential future impact to the JNF in Craig County and the surrounding JNF in the region. The 500-foot utility corridor is a very bad idea because it will allow for multiple disruptions of steep slopes for each new pipeline, and multiple severe negative impacts on view-shed for Craig County and the region.

Comment 6 – Appalachian Trail Conservancy

The Appalachian Trail Conservancy stated publicly their opposition to the MVP Pipeline project because they believe the project will detract significantly from the scenic landscape of the Appalachian Trail (AT), produce irreversible damage to local ecosystems and potentially lead to millions of dollars in lost revenue for communities that rely on outdoor recreation-based tourism.

The CCBoS shares these same concerns and wants to go on record with FERC and the Forest Service supporting the Appalachian Trail Conservancy concerns as follows:

- The location of the proposed crossing is a scenic and unbroken forested landscape with an immediately adjacent federally designated Wilderness area. The proposed project would significantly degrade the views visible from up to 100 miles of the Appalachian Trail, including some of Virginia’s most iconic vistas – Angels Rest, Rice Fields and potentially McAfee Knob.

- The pipeline will travel through a designated seismic zone and over terrain that is considered extremely unstable. As the pipeline will run over multiple fragile natural resources – including multiple fresh water sources and protected forest areas – and near several communities, this presents a completely unnecessary and avoidable safety risk to people and the environment.

- In order to accommodate the visual and environmental damage that would be caused by the Mountain Valley Pipeline, the US Forest Service agreed to lower the Jefferson National Forest Management Plan standards for water quality, visual impacts, the removal of old-growth forest, and the number of simultaneous projects passing through the borders of federally protected land. This unprecedented change is extremely reckless, as it would open the gates for future infrastructure projects to cause similar destruction.

- This project could have significant economic impacts on nearby communities, decreasing property values and depriving businesses of tourism dollars generated by Appalachian Trail
hikers and visitors, who seek sections of the Trail unmarred by the impacts of energy infrastructure and other signs of construction. This is a major concern to CCBoS as stated in **Comment 4 - Jefferson Forest as an Economic Asset to Craig County.** The AT Conservancy’s concerns and opposition to the MVP Pipeline project further supports the County’s concerns.

**BE IT FURTHER RESOLVED,** the CCBoS adopts these comments as presented and authorizes the County Administrator to add/delete to the Resolution as needed to insure that the County’s opposition to the DEIS is properly recorded. The County Administrator is authorized to continue to edit in the spirit of the CCBoS prior actions on this matter to insure that all appropriate and applicable information is submitted to FERC in time before the DEIS comment closing period.

**BE IT FURTHERMORE RESOLVED,** that the Board of Supervisors of the County of Craig, Virginia hereby directs the County Administrator to transmit this resolution to the Federal Energy Regulatory Commission (FERC) for inclusion in Docket Number CP-16-10-000, and the County’s federal and state elected delegations, and to the Forest Supervisor for the George Washington and Jefferson National Forests.

The Board of Supervisors of Craig County passed and adopted this resolution on the 1st day of December, 2016.