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U.S. DEPARTMENT OF AGRICULTURE

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Mountain Valley Pipeline and Equitrans Expansion Project

Draft Supplemental Environmental Impact Statement

Forest Service

Bureau of Land Management

Cover photo: Mountain Valley Pipeline corridor on NFS lands. Photo credit: Transcon Environmental.

Mountain Valley Pipeline and Equitrans Expansion Project
Draft Supplemental Environmental Impact Statement

Jefferson National Forest; Monroe County, West Virginia; Giles and Montgomery Counties, Virginia

Lead Agency:	**USDA Forest Service**
Cooperating Agency	**Department of Interior Bureau of Land Management**
Responsible Official:	**Dr. Homer Wilkes, Under Secretary U.S. Department of Agriculture Natural Resources and Environment Washington D.C.**
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Abstract: The Mountain Valley Pipeline (MVP) and Equitrans Expansion Project (EEP) Draft Supplemental Environmental Impact Statement (DSEIS) supplements the June 2017 Federal Energy Regulatory Commission (FERC) Final Environmental Impact Statement (FEIS) and the United States Department of Agriculture (USDA) Forest Service 2020 Final Supplemental Environmental Impact Statement (FSEIS). The 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 2020 FSEIS, and this SEIS.

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) and 60 feet of land managed by the U.S. Army Corps of Engineers. To approve the proposal, a project-specific Forest Plan amendment is required. 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, which would include terms and conditions provided by the Forest Service. The BLM will not issue a ROW grant and permit until the Forest Service concurs (43 CFR § 2884.26).

This DSEIS responds to the January 25, 2022 United States Court of Appeals for the Fourth Circuit decision that vacated and remanded the Forest Service's January 11, 2021 decision approving the JNF's plan amendment. The Court also vacated the BLM's January 14, 2021 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 DSEIS evaluates the no action and the proposed action alternative.

This decision will not be subject to either the 36 CFR Part 218 Subparts A and B 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)).

The 45-day comment period would begin following the publication of the Environmental Protection Agency's Notice of Availability for the DSEIS in the *Federal Register*. It is important that reviewers provide their comments at such times and in such a way that they are useful to the Agency's preparation of the Final Supplemental Environmental Impact Statement. Therefore, comments should be provided in writing prior to the close of the comment period and should clearly articulate the reviewer's concerns. The submission of timely and specific written comments can affect a reviewer's ability to participate in subsequent judicial review. Comments received in response to this solicitation, including names and addresses of those who comment, would be part of the public record for this proposed action. Comments submitted anonymously would be accepted and considered; however, anonymous comments would not provide the respondent with standing to participate in subsequent judicial reviews.

Send Written Comments to:	**Dr. Homer Wilkes, Under Secretary** **U.S. Department of Agriculture** **c/o Jefferson National Forest** **MVP Project** **5162 Valleypointe Parkway** **Roanoke, VA 24019**
Send Electronic Comments to:	https://cara.fs2c.usda.gov/Public/CommentInput?Project=50036
Comments Must Be Received:	**45 days following the date of publication of the Notice of Availability in the Federal Register**

Summary

The United States Department of Agriculture Forest Service, and United States Bureau of Land Management (BLM) as a cooperating agency, prepared this draft supplemental environmental impact statement (DSEIS) in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations[1], and in response to the United States Court of Appeals for the Fourth Circuit (Fourth Circuit or the Court) January 25, 2022 decision that vacated and remanded the Forest Service's January 11, 2021 decision approving the Jefferson National Forest (JNF) plan amendment and the BLM's January 14, 2021 right-of-way (ROW) decision and ROW grant. According to Title 40 of the Code of Federal Regulations (CFR) § 1502.9(c)(1), 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 DSEIS supplements the June 2017 Federal Energy Regulatory Commission's (FERC) Mountain Valley Project and Equitrans Expansion Project Final Environmental Impact Statement (FERC FEIS) and the Forest Service 2020 Final Supplemental Environmental Impact Statement (2020 FSEIS).

Background

The Mountain Valley Pipeline (MVP) is a proposed 303.5-mile interstate natural gas pipeline that is proposed to cross about 3.5 miles[2] of the 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 (ROD) 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 (Forest Service 2017). 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 for the project.

Project implementation on National Forest System (NFS) lands began in March 2018 and continued until July 27, 2018[3] when the Fourth Circuit 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 Mineral

[1] On April 20, 2022, the Council of Environmental Quality published its final rule amending certain provisions of its regulations for implementing the NEPA (see 87 FR 23453, pages 23453 to 23470) in the *Federal Register* (FR). The effective date for the revised regulations was May 20, 2022. Because this project was initiated in 2017, the Forest Service has elected to continue using the previous NEPA regulations, issued in 1978, as amended in 1986 and 2005.

[2] 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.

[3] As of December 2021, approximately 271.9 miles of the 303.5 miles of pipe has been installed and backfilled and 169.3 miles of land along the pipeline ROW is in final restoration.

Leasing Act (MLA) ROW decision for the portion through NFS lands based on a violation of the MLA.

In response to the July 2018 Fourth Circuit opinion, the Forest Service prepared a DSEIS in September 2020 and an FSEIS in December 2020. On January 11, 2021, the Forest Service issued a ROD, and on January 14, 2021, the BLM issued a ROD granting a 30-year pipeline ROW in the JNF. Both the Forest Service's and BLM's RODs were challenged and on January 25, 2022, the Fourth Circuit again vacated and remanded both the Forest Service's and BLM's RODs. The Fourth Circuit found that the Forest Service and BLM 1) inadequately considered the actual sedimentation and erosion impacts of the pipeline; 2) prematurely authorized the use of the conventional bore method to construct stream crossings; and 3) the Forest Service failed to comply with the Forest Service's 2012 Planning Rule.

On March 28, 2022, Mountain Valley Pipeline, LLC (Mountain Valley) filed an amended MLA ROW application with the BLM, amending its prior application accepted as complete on May 1, 2020. On August 5, 2022, the BLM deemed Mountain Valley's amended application complete.

Purpose and Need

The Forest Service's purpose and need for the proposed 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 decision is needed because the project as proposed is inconsistent with several Forest Plan standards without a project-specific amendment to the JNF Forest Plan.

The BLM's purpose and need is to respond to Mountain Valley's amended MLA ROW application for the MVP project to construct and operate a natural gas pipeline across NFS lands consistent with the MLA, 30 United States Code (U.S.C.) § 185 and BLM's implementing regulations, 43 CFR Part 2880. Under the MLA, the BLM has responsibility for reviewing Mountain Valley's ROW application and issuing 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: identification of terms and conditions, to be provided by the Forest Service to the BLM to protect resources and the public interest consistent with the MLA; issuance of a ROW; construction, operation, and maintenance of a pipeline; and project-specific amendment of the 2004 Forest 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 includes any terms and conditions (including stipulations) that are required for protection of resources 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.

Eleven Forest Plan standards are proposed to be modified to allow the project to be consistent with the Forest Plan, which would allow the BLM to grant a ROW. Standards include:

- 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)
- FW-184 (scenic integrity objectives).
- FW-248 (utility corridors)
- 4A-028 (Appalachian National Scenic Trail [ANST] and utility corridors)
- 6C-007 (tree clearing)
- 6C-026 (utility corridors in the old growth management area)
- 11-003 (exposed soil within the riparian corridor)

Key Issues

This DSEIS 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 or 2020 FSEIS.

Key issues that are the focus of this DSEIS analysis, including those identified by the Court, are: (1) consideration of sedimentation and erosion real-world data related to the project; (2) compliance with the 2012 Planning Rule (36 CFR Part 219); and (3) review of the conventional bore method to construct stream crossings.

Decision to be Made

The Forest Service responsible official will review the proposed action including the 2022 POD, alternatives, the terms and conditions, the environmental consequences that would be applicable to NFS lands, public comments, and the project record that has been supplemented since 2017 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) Should the Forest Service approve a Forest Plan amendment, determine what terms and conditions should be included with the Forest Service concurrence for the project; (3) Whether to adopt all or portions of the FERC FEIS that is relevant to NFS lands in this DSEIS; and (4) Whether to concur with the grant of a ROW.

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 ROW application, the FERC FEIS, and this SEIS to determine whether to approve, approve with modifications, or deny the MLA ROW application and temporary use authorization through the NFS lands. 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 for the BLM by including any terms and conditions that are deemed necessary to protect resources and otherwise protect the public interest consistent with 30 U.S.C. § 185(h); 43 CFR § 2885.11.

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 and operation of the MVP. The current Forest Plan would continue to guide management of NFS lands in the project area.

The Forest Service would require Mountain Valley to remove pipes and associated staging materials and restore the JNF project area to as close to the pre-project condition as practicable or possible.

Alternative 2 – The Proposed Action

Under the proposed action, the Forest Service would amend the Forest Plan as necessary to allow for the MVP to cross the JNF and would concur in a decision by the BLM to grant a ROW and a temporary use permit (TUP) under the MLA. Changes to the Proposed Action since publication of the 2020 FSEIS include using a conventional bore method for crossing the four streams on NFS lands (the potential use of dry-ditch open trench methods is no longer under consideration). The ROW grant and TUP would incorporate relevant portions of the expected 2023 United States Fish and Wildlife Service (FWS) Biological Opinion (for example, portions related to species [e.g., listed bats] which have the potential to be affected by activities on NFS lands).

Consistent with the Forest Service's plan amendment, the Forest Service would provide concurrence and 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 and conditions, or stipulations, to protect resources and the public interest consistent with the MLA, 30 U.S.C. § 185(h). The construction and operation and maintenance actions that need terms and conditions 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-wide authorized ROW to operate the pipeline.
- Installation of surface pipeline markers to advise the public of pipeline presence and cathodic pipeline protection test stations that are required by Department of Transportation.

Implementation of the Proposed Action is contingent upon adhering to the Forest Service-approved POD and FERC's general construction, restoration, and operational mitigation measures as outlined in FERC's Upland Erosion Control Revegetation and Maintenance Plan (FERC 2013a), Wetland and Waterbody Construction and Mitigation Procedures (FERC 2013b), and other Federal and State regulatory agency requirements.

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

Water Resources

Effects would be as described in the 2020 FSEIS: While the project area would be restored to as close to the pre-project condition as practicable or possible, and Erosion Control Devices (ECDs) would continue to be maintained and monitored, minor adverse short-term and long-term impacts on water resources would occur.

Threatened, Endangered, and Sensitive Species

Effects would be as described in the 2020 FSEIS: 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.

National Forest Management Act

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

Alternative 2 – The Proposed Action

Water Resources

Short-term effects would be minor, which is consistent with the conclusions in the FERC FEIS and 2020 FSEIS. The use of a conventional bore method would reduce effects on the four streams on NFS lands. Effects on water resources would be minimized through implementation of measures in the POD, such as best management practices (BMPs) and the use of ECDs as modeled in Revised Universal Soil Loss Equation, Version 2 (RUSLE2). 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 and 2020 FSEIS. The United States Geological Survey (USGS) data and other relevant information considered in this DSEIS do not indicate that the modeling used in the 2020 FSEIS is inconsistent with data about the actual impacts of the pipeline and its construction.

Threatened, Endangered, and Sensitive Species

A total of five Endangered Species Act (ESA) listed species, one species proposed for ESA-listing, and three Regional Forester Sensitive Species (RFSS) are analyzed in this DSEIS and could be affected by the MVP in the JNF. The Forest Service determined that the MVP may affect or is likely to adversely affect four species: candy darter, Roanoke logperch, Indiana bat, and northern long-eared bat. Formal consultation with the FWS would determine appropriate mitigation measures for potential effects to Federally listed species. 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 on Threatened, Endangered, and Sensitive (TES) species.

National Forest Management Act

The JNF Plan would be amended. Eleven plan standards are proposed to be amended and are analyzed in this DSEIS in Section 3.3.4.

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

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

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

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

Scenery Integrity Objectives (FW-184). The project would result in degradation of scenic quality inconsistent with the JNF Forest Plan Scenic Integrity Objectives (SIOs). Although this is an adverse effect to scenery, it is not a substantial adverse effect due to the limited extent of the project crossing the JNF (FERC FEIS p. 4-347), because SIOs should be met within five years, the project's proposed mitigation measures that would apply to temporary workspace, and the temporary and authorized ROW that are found in the updated POD (Section 7.9).

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Acronyms and Abbreviations

Acronym or Abbreviation	Description
ANST	Appalachian National Scenic Trail
BA	Biological Assessment
BASI	Best Available Scientific Information
BLM	Bureau of Land Management
BMP	Best Management Practice
BE	Biological Evaluation
BO	Biological Opinion
Certificate	Order Issuing Certificates and Granting Abandonment Authority
CEQ	White House Council on Environmental Quality
CFR	Code of Federal Regulations
CFS	Compost Filter Sock
DOT	Department of Transportation
DSEIS	Draft Supplemental Environmental Impact Statement
ECD	Erosion Control Device
EA	Environmental Assessment
EIS	Environmental Impact Statement
ERFO	Emergency Relief for Federally Owned Roads Program
ESA	Endangered Species Act
FEIS	Final Environmental Impact Statement
FERC	Federal Energy Regulatory Commission
FERC Plan	FERC's Upland Erosion Control Revegetation and Maintenance Plan
FERC Procedures	FERC's Wetland and Waterbody Construction and Mitigation Procedures
FNU	Formazin Nephelometric Units
Forest Plan	2004 Jefferson National Forest Revised Land and Resource Management Plan
Forest Service	USDA Forest Service
Fourth Circuit	United States Court of Appeals for the Fourth Circuit
FR	Federal Register
FSEIS	Final Supplemental Environmental Impact Statement
FW	Forest-wide
FWS	United States Fish and Wildlife Service
GWJ	George Washington and Jefferson (National Forests)
HUC	Hydrologic Unit Code
JNF	Jefferson National Forest
LOD	Limit of Disturbance
MLA	Mineral Leasing Act
Mountain Valley	Mountain Valley Pipeline, LLC
MP	Milepost
MVP	Mountain Valley Pipeline
NEPA	National Environmental Policy Act

Acronym or Abbreviation	Description
NFMA	National Forest Management Act
NFS	National Forest System
NGA	Natural Gas Act
NHPA	National Historic Preservation Act
NOI	Notice of Intent
NRCS	Natural Resources Conservation Service
NTU	Nephelometric Turbidity Units
PA	Programmatic Agreement
Planning Rule	Forest Service's 2012 Planning Rule
POD	Plan of Development
RFSS	Regional Forester Sensitive Species
ROD	Record of Decision
ROW	Right-of-way
RUSLE	Revised Universal Soil Loss Equation
RUSLE2	Revised Universal Soil Loss Equation, Version 2
SBA	Supplement to the Biological Assessment
SBE	Supplemental Biological Evaluation
SEIS	Supplemental Environmental Impact Statement
SIO	Scenic Integrity Objective
SSC	Suspended Sediment Concentration
TES	Threatened, Endangered, or Sensitive
The Court	United States Court of Appeals for the Fourth Circuit
TS	Timber Sale
TUP	Temporary Use Permit
U.S.	United States
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USGS	United States Geological Survey
U.S.C.	United States Code
VDWR	Virginia Department of Wildlife Resources
VDEQ	Virginia Department of Environmental Quality
WVDEP	West Virginia Department of Environmental Protection

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1 Purpose of and Need for Action

1.1 Introduction

The United States Department of Agriculture (USDA) Forest Service, and the United States (U.S.) Bureau of Land Management (BLM) as a cooperating agency, prepared this draft supplemental environmental impact statement (DSEIS) in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations[4], and in response to the United States Court of Appeals for the Fourth Circuit's (Fourth Circuit or the Court) January 25, 2022 decision that vacated and remanded the Forest Service's January 11, 2021 decision approving the Jefferson National Forest's (JNF's) plan amendment and the BLM's January 14, 2021 right-of-way (ROW) decision and ROW grant. According to Title 40 of the Code of Federal Regulations (CFR) § 1502.9(c)(1), 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 DSEIS supplements the June 2017 Federal Energy Regulatory Commission's (FERC) Mountain Valley Project and Equitrans Expansion Project Final Environmental Impact Statement (FERC FEIS; FERC 2017a) and the Forest Service 2020 Final Supplemental Environmental Impact Statement (2020 FSEIS; Forest Service 2020a).

1.2 Background

The Mountain Valley Pipeline (MVP) is a proposed 303.5-mile interstate natural gas pipeline that is proposed to cross about 3.5 miles[5] of the 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). The Forest Service Draft Record of Decision was subject to the 36 CFR Part 218 administrative review process, and the Forest Service received and processed multiple objections.

Under the Mineral Leasing Act (30 United States Code [U.S.C.] § 185 et seq.) (MLA) and implementing regulations, the BLM is the Federal agency responsible for issuing ROW grants for natural gas pipelines where the surface of the Federal lands involved is administered by the Secretary of the Interior or two or more Federal agencies. MVP crosses Federal lands administered by the Forest Service and the U.S. Army Corps of Engineers (USACE). The BLM is, therefore, responsible for considering the issuance of a ROW grant for the MVP for pipeline construction and operation across the lands administered by the Forest Service and the USACE[6]

[4] On April 20, 2022, the Council of Environmental Quality published its final rule amending certain provisions of its regulations for implementing the NEPA (see 87 FR 23453, pages 23453 to 23470) in the *Federal Register* (FR). The effective date for the revised regulations was May 20, 2022. Because this project was initiated in 2017, the Forest Service has elected to continue using the previous NEPA regulations, 1978, as amended in 1986 and 2005.

[5] 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.

[6] The BLM's 2017 decision to authorize a ROW across the USACE land was not vacated by the United States Court of Appeals for the Fourth Circuit and remains in place.

after consultation with the agencies. BLM's implementing regulations require the concurrence of Federal agencies administering these lands prior to BLM's issuance of ROWs or permits through the Federal lands involved. In 2017, the BLM received written concurrence for the project from both Federal agencies and on December 20, 2017, issued a Record of Decision (ROD) approving the MLA ROW grant to construct, operate, and maintain the MVP across Federal lands (BLM 2017). The BLM ROD included a temporary use authorization to allow the proponent to use and occupy the land necessary to construct the pipeline.

On December 1, 2017, the Forest Service adopted the FERC FEIS and a ROD was signed by the JNF Forest Supervisor (Forest Service 2017). 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 for the project, should BLM decide to grant a ROW.

Project implementation on National Forest System (NFS) lands began in March 2018 and continued until July 27, 2018[7] when 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 NFS lands based on a violation of the MLA.

The Court 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).

In the 2018 Ruling, the Court also found that the Forest Service, in amending 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 2012 Planning Rule (Planning Rule) requirements were directly related to the amended standards as required under 36 CFR § 219.13(b)(5). The Court found that BLM's decision approving the MLA ROW across the JNF failed to comply with the 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 USACE lands, and that ROW grant 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 response to the July 2018 Fourth Circuit opinion, the Forest Service prepared a Draft SEIS in September 2020 and a Final SEIS in December 2020. On January 11, 2021, the Forest Service issued a ROD, signed by the United States Department of Agriculture (USDA) Undersecretary for Natural Resources and the Environment, amending the Jefferson Forest Plan by modifying 11 plan standards to accommodate the pipeline. On January 14, 2021, the BLM issued a ROD granting a 30-year pipeline ROW in the JNF. Both the Forest Service's and BLM's RODs were challenged and on January 25, 2022, the Fourth Circuit again vacated and remanded both the Forest Service's and BLM's RODs. The Fourth Circuit found that the Forest Service and BLM 1) inadequately considered the actual sedimentation and erosion impacts of the pipeline; 2)

[7] As of December 2021, approximately 271.9 miles of the 303.5 miles of pipe has been installed and backfilled and 169.3 miles of land along the pipeline ROW is in final restoration.

prematurely authorized the use of the conventional bore method to construct stream crossings; and 3) the Forest Service failed to comply with the Planning Rule.

On August 13, 2021, FERC published an Environmental Assessment (EA) analyzing MVP's request to change the crossing method of specific waterbodies and wetlands from open-cut dry crossings to trenchless (i.e., conventional bore, guided conventional bore, or DirectPipe™) methods. The EA addressed 120 crossings in 12 counties in Virginia and West Virginia. On April 8, 2022, after consideration of public comments received on the EA, the FERC issued an order amending MVP's certificate to allow the use of trenchless (conventional bore) waterbody and wetland crossings at 120 locations along the MVP route. The FERC EA did not address the four stream crossings on NFS lands because the FERC had already issued partial approval[8] for conventional bore stream crossings on the JNF (FERC 2020b).

On February 3, 2022, the Fourth Circuit vacated the 2020 U.S. Fish and Wildlife (FWS) Biological Opinion (BO) that covered the entire 303.5-mile-long pipeline, including NFS lands. Specifically, the Fourth Circuit found that the FWS did not "adequately analyze the environmental context for the Roanoke logperch and candy darter" while assessing project impacts. FWS was directed to evaluate the environmental baseline which is the condition of the listed fish species or its critical habitat in the action area as well as the cumulative effects of future State or private activities that are reasonably certain to occur within the action area. While the Fourth Circuit did not specifically address claims concerning the Indiana bat in its decision, the Court recommended that the FWS further explain why it anticipates no effects to the Indiana bat from clearing more than 1,000 acres of suitable but unoccupied summer bat habitat.

On March 28, 2022, Mountain Valley Pipeline, LLC (Mountain Valley) filed an amended MLA ROW application with the BLM, amending its prior application accepted as complete on May 1, 2020 (MVP 2022c). On August 5, 2022, the BLM deemed Mountain Valley's amended application complete (43 CFR § 2884.11). Information on the background and history of the MVP project is available on the project website.

On June 24, 2022, Mountain Valley filed a motion requesting a four-year extension to the FERC Order Issuing Certificates and Granting Abandonment Authority (Certificate) for the MVP project. On August 23, 2022, the FERC granted the request and extended that deadline to October 13, 2026 (FERC 2022). The Certificate for the MVP project was originally issued by the FERC on October 13, 2017 and had been extended by two years in an October 9, 2020 FERC order. The October 13, 2026 deadline for the current four-year extension is to complete construction of the Project and place the Project facilities into service (FERC 2020a).

The FERC is responsible for authorizing interstate natural gas transmission facilities, as specified in Section 311(e)(1) of the Energy Policy Act of 2005 and the Natural Gas Act (NGA). Pursuant to the Energy Policy Act of 2005 Section 313(b)(1), the FERC is the lead federal agency for the coordination of all applicable federal authorizations (FERC 2017 pp. 1-11 to 1-12).

[8] On October 27, 2020, Mountain Valley Pipeline, LLC (Mountain Valley) filed a request to change the crossing technique for NFS streams from an open-cut dry ditch method to conventional bores to reduce potential sedimentation impacts in the JNF. The FERC approved the request to modify the proposed crossing method for streams on NFS lands but did not authorize construction; construction remains contingent on other outstanding federal authorizations.

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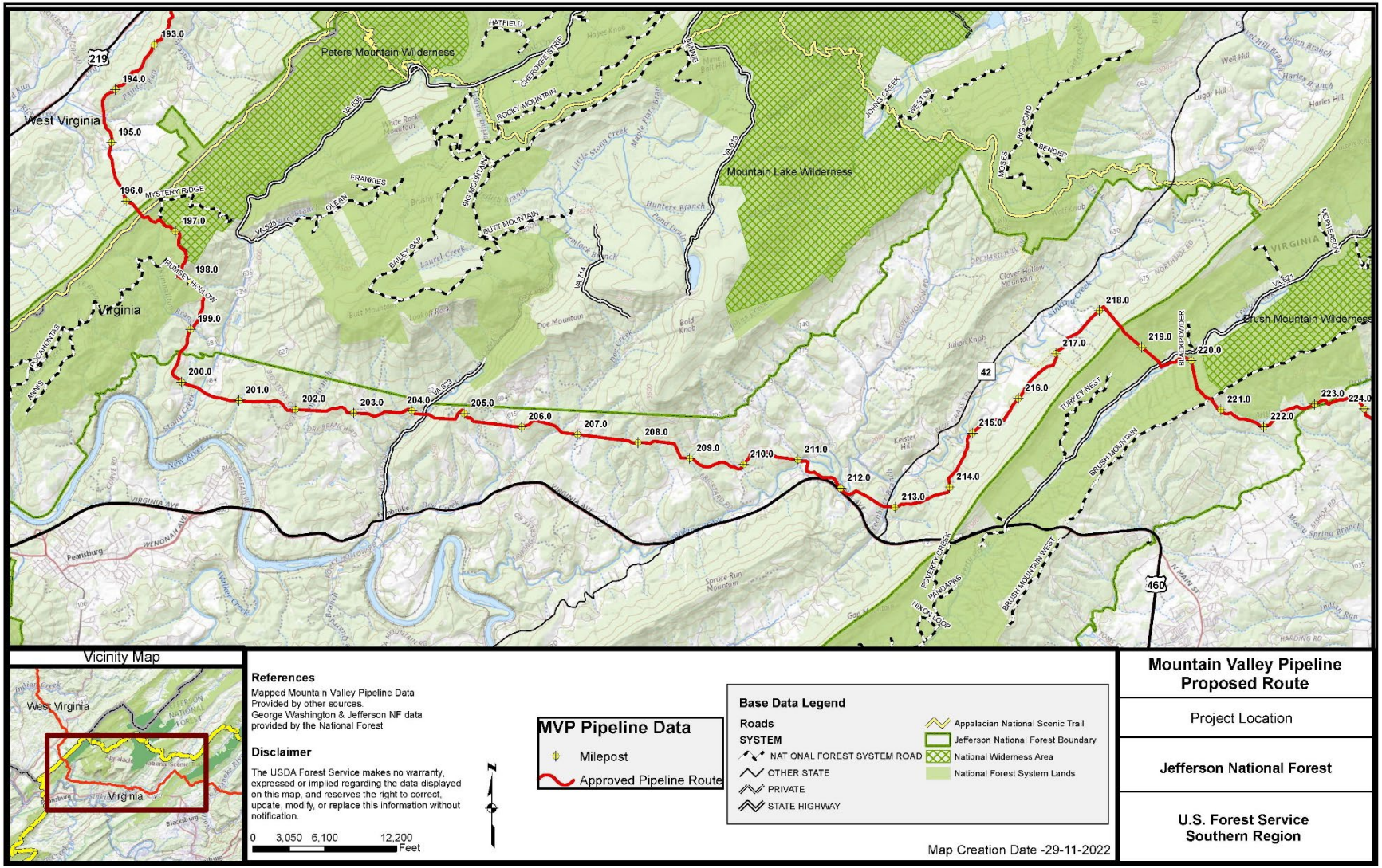

Figure 1. Project Location on the Jefferson National Forest.

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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, pages 1 to 8. Despite the remand of the 2017 and 2021 Forest Service RODs and the BLM's corresponding MLA ROW decisions, the project purpose articulated in the FERC FEIS remains unchanged.

The Forest Service's purpose and need for the proposed 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 decision is needed because the project as proposed is inconsistent with several Forest Plan standards without a project-specific amendment to the JNF Forest Plan. Relatedly, there is a need to determine what terms and conditions, or stipulations, should be provided to the BLM to protect resources and the public interest consistent with the MLA, 30 U.S.C. 185(h). Consistent with the Forest Service's plan amendment, the BLM would grant a ROW and a temporary use permit (TUP) under the MLA, 30 U.S.C. § 185, for the project to cross the JNF.

A supplemental analysis and new decision from the Forest Service are needed because the Fourth Circuit vacated both the 2017 and 2021 Forest Service RODs. In its opinion published on January 25, 2022, the Court identified NFMA and NEPA issues. To resolve the Court's issues, there is a need, at a minimum, to consider information about actual sedimentation and erosion impacts, consider FERC's 2021 EA of the use of trenchless boring for crossing streams, and comply with the Forest Service 2012 Planning Rule soil and riparian resources requirements at 36 CFR § 219.8. Additionally, there is a need to consider new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts since the development of the 2020 FSEIS and the Forest Service ROD that was signed in January 2021.

The BLM's purpose and need 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, 30 U.S.C. § 185 and BLM's implementing regulations, 43 CFR Part 2880. Under the MLA, the BLM has responsibility for reviewing Mountain Valley's ROW application and issuing a decision on whether to approve, approve with modifications, or deny the application. The BLM's review of the ROW application will focus, in part, on the Forest Service supplemental analysis for NFS lands. A decision to approve the application would require the Forest Service's concurrence, and the ROW would include terms provided by the Forest Service to protect resources and the public interest.

1.4 Proposed Action

The Proposed Action includes the following interrelated components:

- Terms and conditions, or stipulations, provided by the Forest Service to the BLM to protect resources and the public interest consistent with the MLA, 30 U.S.C. § 185(h).
- Amendment of the Forest Plan.
- Issuance of a ROW Grant / TUP by the BLM.
- Construction, operation, and maintenance of a 42-inch natural gas pipeline.

1.4.1 Project-Specific Forest Plan Amendment

Eleven Forest Plan standards on the JNF are proposed to be modified 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 (exposed soil); FW14 (residual basal area within the channeled ephemeral zone); 11-003 (exposed soil within the riparian corridor); 6C-007 (tree clearing); 6C-026 (utility corridors in the old growth management area); 4A-028 (Appalachian National Scenic Trail [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 and the Forest Service's current understanding of the proposed project-specific plan amendment, the substantive Planning Rule provisions that are directly related to the amended standards are: § 219.8(a)(1) – Ecosystem integrity; § 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, including lakes, streams, and wetlands; ground water; public water supplies; sole source aquifers; source water protection areas; and other sources of drinking water (including guidance to prevent or mitigate detrimental changes in quantity, quality, and availability) (hereafter referred to as "Water resources"); § 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; § 219.10(a)(3) – Appropriate placement and sustainable management of infrastructure, such as recreational facilities and transportation and utility corridors; § 219.10(b)(1)(i) – Sustainable recreation, including recreation setting, opportunities, access; and scenic character; § 219.10(b)(1)(vi) – Appropriate management of other designated areas or recommended designated areas in the plan area, including research natural areas; and § 219.11(c) – Timber harvest for purposes other than timber production.

1.4.2 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) (43 CFR § 2885.11) that are required for protection of resources 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. An updated POD was provided by MVP in June 2022.

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, if the BLM decides to issue a ROW, the BLM would issue a TUP in association with the ROW authorizing the use of temporary workspace outside of the authorized ROW that is needed for ancillary construction needs on the JNF during the construction phase and other activities associated with implementation. This TUP 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 would be the effects caused by the construction, operation, and maintenance of a pipeline and the implementation of stipulations.

1.4.3 Construction, Operation, and Maintenance of a Pipeline

In response to the purpose and need, the Forest Service would provide terms and conditions for construction, operation, and maintenance 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:

- The use of a 125-foot-wide temporary construction ROW (54 acres) for pipeline installation and trench spoil[9]. Once construction is complete, the MVP would retain an approximately 50-foot-wide[10] authorized ROW (22 acres) to operate the pipeline.
- Construction of a 42-inch diameter pipeline across 3.5 miles of the JNF.
- Installation of surface pipeline markers to advise the public of pipeline presence and cathodic pipeline protection test stations[11] that are required by 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. 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 FERC-approved modifications to FERC Procedures and more details can be found in Section 2.4.1.1 of the 2017 FERC FEIS (FERC 2017a).

[9] A TUP authorizes use of the temporary construction ROW.
[10] The width of the authorized ROW is 53.5 feet (i.e., the width of the pipeline [42 inches] plus 50 feet).
[11] Cathodic protection test stations provide an aboveground access point that allows technicians to monitor the cathodic protection system, which protects the metal pipe from corrosion. A cathodic protection test station consists of electrical cables housed in an approximately 4-inch diameter plastic conduit that extends 3 to 4 feet above the ground. Locations are identified in Appendix A-1 of the POD. The DOT requires test stations to be located approximately every mile, on both sides of water body crossings, on both sides of a paved roadway, and on both sides of a metallic crossing (for example, crossing another pipeline).

An integral part of the proposed action is the POD that guides pipeline construction, operation, and maintenance (30 USC § 185(h)(2)). The POD was developed with and reviewed by Forest Service and BLM resource specialists. The POD was updated in June 2022 and requires the applicant/proponent to provide details about the project they are applying for on Federal lands. The POD describes the project, its location, and dimensions from the initial construction phase through post-construction operations and maintenance. The POD includes resource mitigation for reducing or eliminating effects to resources. It also describes any temporary or short-term use areas needed in conjunction with a ROW. All disturbances must be within the boundary of the approved ROW/TUP.

Upon Project approval, the POD is considered finalized, and any requests made by the company for activities on NFS lands not included in the final 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. If accepted, the variance becomes an amendment to the POD. The amendment must be approved prior to the activity taking place (POD Appendix N).

Prior to issuing a ROD to grant a ROW, the BLM is required to submit a notice to Congress 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 issuing the grant.

The updated (June 2022) POD can be found on the project website.

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 Under Secretary, U.S. Department of Agriculture, Natural Resources and Environment. For the BLM, the responsible official is the Eastern States State Director.

1.5.1 Forest Service

The FERC, as the lead Federal agency for interstate proposals under the NGA, prepared the 2017 FEIS to assess the environmental effects that were predicted to occur from constructing, operating, and maintaining the MVP and issued its decision in the Certificate on October 13, 2017 (FERC 2017d). The Forest Service was a cooperating agency under NEPA to the FERC FEIS. For this DSEIS and its issues specific to NFS land, the role of the Forest Service has changed to the 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" [12] (15 U.S.C. Chapter 15B: Natural Gas).

Given the purpose and need, the Forest Service responsible official will review the proposed action including the 2022 POD, alternatives, the terms and conditions, the environmental consequences that would be applicable to NFS lands, public comments, and the project record that has been supplemented since 2017 in order to make the following decisions: (1) Whether to

[12] Sierra Club Inc., et al. v. United States Forest Serv., 897 F.3d 582, 600 (4th Cir. 2018) (emphasis in original).

approve a Forest Plan amendment that would modify 11 standards in the Forest Plan; (2) Should the Forest Service approve a Forest Plan amendment, determine what terms and conditions should be included with the Forest Service concurrence for the project; (3) Whether to adopt all or portions of the FERC FEIS that is relevant to NFS lands in this DSEIS; and (4) Whether to concur with the grant of a ROW.

1.5.2 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 ROW application, the FERC FEIS, and this DSEIS 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 this DSEIS 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 for the BLM by including any terms and conditions that are deemed necessary to protect resources and otherwise protect the public interest consistent with 30 U.S.C. § 185(h); 43 CFR § 2885.11. 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) and 2020 FSEIS (pp. 24 to 26) document the public involvement that occurred from April 2015 through the FSEIS comment period that ended on November 9, 2020 and are incorporated by reference. In summary, thousands of comments were received during public involvement periods that span the FERC Environmental Impact Statement (EIS) and Forest Service SEIS processes. The topics that generated the most interest and concerns during the FERC EIS process included water quality and aquatic resources, socioeconomics, public health and safety, and geology and soils. Topics commonly raised in comments on the 2020 DSEIS included water quality, aquatic species, soils, public health and safety, and the Forest Plan amendment process.

The Notice of Intent (NOI) for this project was published in the FR on November 17, 2022 (87 FR 68996). The NOI announces the onset of the NEPA process for this project.

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 2017 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)). Written comments relevant to NFS lands were addressed in the 2017 FERC FEIS, particularly in Section 3.4 (Route Alternatives) and Section 4.0 (Environmental Analysis). Accordingly, as identified in the Forest Service 2022 NOI, scoping will not be repeated, and this SEIS will focus on the topics identified by the Court. Additional opportunities for public comment will be provided when the draft SEIS is available.

Additionally, the Forest Service 2022 NOI served as the public notice of the proposed MLA application required by the BLM's MLA implementing regulations at 43 CFR § 2884.20(a).

1.7 Changes Between the 2020 FSEIS and 2022 DSEIS

The Forest Service and the BLM reviewed the 2020 FSEIS and comments received on the 2020 DSEIS to identify any changed circumstances or new information that should be analyzed in this

2023 DSEIS. The majority of the analyses within the 2020 FSEIS are still applicable and relevant, however, there are some portions of the analyses that warrant supplementation because of changed circumstances or new information, including:

- The ROW on NFS lands continues to be monitored and ECDs maintained as needed.
- There has been continued regrowth of early successional vegetation[13] within the MVP ROW on Peters Mountain.
- There have been changes to past, present, and reasonably foreseeable future projects within the watersheds that comprise the cumulative effects analysis spatial boundary.
- Beginning in 2021, MVP conducted sediment monitoring in two watersheds off NFS lands per the terms and conditions of the 2020 FWS BO.
- The FERC issued the Mountain Valley Pipeline Amendment Project EA (2021 FERC Boring EA) in August 2021 assessing effects of conventional boring for waterbody crossings.
- The Fourth Circuit remanded the Forest Service and BLM RODs on January 25, 2022.
- The FWS revised the list and status of several Federally listed species. FWS is anticipated to issue a new BO for the project in early 2023.
    - Endangered Species Act (ESA) Changes:
        - Critical Habitat for the candy darter (*Etheostoma osburni*) was designated on April 7, 2021 and became effective on May 7, 2021 (86 FR 17956).
        - The Atlantic pigtoe (*Fusconaia masoni*) was listed as Threatened under the ESA and Critical Habitat was designated on December 16, 2021.
        - On November 29, 2022, the FWS reclassified the northern long-eared bat (*Myotis septentrionalis*) from Threatened to Endangered under the ESA.
        - On September 13, 2022, the FWS proposed to list the tricolored bat (*Perimyotis subflavus*) as Endangered, and a decision is expected September 2023.
        - Running buffalo clover (*Trifolium stoloniferum*) was delisted from the ESA on August 6, 2021.
- The Forest Service is in the process of revising the list of Region 8 Regional Forester Sensitive Species (RFSS).
    - Draft Updated RFSS Changes:
        - Four species are proposed to be added: Tennessee dace (*Chrosomus tennesseensis*), American bumble bee (*Bombus pensylvanicus*), little brown bat (*Myotis lucifugus*), and American ginseng (*Panax quinquefolius*).

[13] Early successional plant communities develop post-disturbance. With the cessation of a disturbance (e.g., tree clearing), high levels of sunlight reach the ground which initiates an abundance of "pioneer plant species" to germinate and establish.

  - Ten species are proposed to be removed: Sickle darter (*Percina williamsi*), Appalachia bellytooth (*Gastrodonta fonticula*), highland slitmouth (*Stenotrema altispira*), crossed dome (*Ventridens decussatus*), Rafinesque's big-eared bat (*Corynorhinus rafinesquii*), brown supercoil (*Paravitrea septadens*), delicate vertigo (*Vertigo bollesiana*), cupped vertigo (*Vertigo clappi*), Allegheny cave amphipod (*Stygobromus allegheniensis*), and Avernus cave beetle (*Pseudanophthalmus avernus*).

- In October 2022, the Forest Service and BLM conducted a site visit on NFS lands, including a review of all NFS stream crossings to verify existing conditions and Transcon inspection report findings.

1.8 Scope of Analysis

The scope of analysis refers to the proposed action, alternatives to the proposed action, and potential effects that the Forest Service will consider in this DSEIS. This DSEIS supplements the analysis in the FERC 2017 FEIS and the Forest Service 2020 FSEIS. The scope of analysis for this DSEIS seeks to address the deficiencies identified in the Fourth Circuit's January 2022 decision and new circumstances and relevant information since December 2020 (i.e., the date of the Forest Service FSEIS) until present identified by the Forest Service or the BLM that are relevant to the environmental concerns, decision framework, and have a bearing on the proposed action or its effects.

This DSEIS is developed in response to the changed condition of the vacatur of the decisions and other new circumstances and relevant information (40 CFR § 1502.9(d)(1)(ii)). In January 2022, the Fourth Circuit found the Forest Service's January 2021 ROD to be in violation of NEPA and NFMA. This DSEIS responds to the Court-identified deficiencies which were:

- The Forest Service failed to account for real-world data suggesting increased sedimentation along the pipeline route. The Court remanded for the Forest Service "to consider the [U.S. Geological Survey] USGS data and any other relevant information indicating that the modeling used in the EIS may not be consistent with data about the actual impacts of the Pipeline and its construction."
- 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 "properly apply the 2012 Planning Rule's soil and riparian resources requirements to the Pipeline amendments" (36 CFR § 219.8).
- The Forest Service improperly evaluated and approved the use of the conventional bore method for the four streams on the JNF. The Court's remand states, "the Forest Service and the BLM improperly approved the use of the conventional bore method for the four streams in the [JNF] without first considering FERC's analysis."

This DSEIS also contains an independent agency review of new circumstances and relevant information including the 2022 Supplement to the Biological Assessment (SBA).

As stated in the Decision Framework (Section 1.5), the scope of the Forest Service's decision is limited to determining whether to amend the JNF Forest Plan, determine what terms and conditions should be included with the Forest Service concurrence for the project, whether to concur with the grant of a ROW, and whether to adopt all or portions of the FERC FEIS that is

relevant to NFS lands in this DSEIS. The BLM's decision is limited to whether, based on the existing record, to grant a ROW to MVP on the JNF and what terms and conditions should be associated with the ROW if granted. The Forest Service and BLM are not tasked with approving the project as a whole. Thus, the scope of analysis is similarly narrow and limited to the proposed Forest Plan amendment and those effects emanating from the JNF related to the January 2022 Court-identified deficiencies, changed circumstances, or new information. Actions outside of NFS lands are beyond the jurisdiction of the Forest Service. Actions outside of Federally administered lands subject to the MLA are not within the jurisdiction of the BLM and are covered in the FERC FEIS.

1.9 Issues

This DSEIS 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 or 2020 FSEIS.

Key issues that are the focus of this DSEIS analysis, including those identified by the Court, are: (1) consideration of sedimentation and erosion real-world data related to the project; (2) compliance with the 2012 Planning Rule (36 CFR Part 219); and (3) analysis of the conventional bore method to construct stream crossings. The following sections disclose how the Agencies will determine whether each Issue has been adequately addressed in this DSEIS.

1.9.1 Issue 1: Erosion and Sediment Data

The Court ruled that the Forest Service violated NEPA by failing to consider real-world data and information about actual sedimentation and erosion impacts.[14]

This DSEIS contains an independent review of information about actual sedimentation and erosion impacts. See Section 3.3.2 for this review.

1.9.2 Issue 2: Forest Plan Amendment – Purpose and Effect and Consistency with the Planning Rule and the NFMA

The Court ruled that the Forest Service did not "properly apply the 2012 Planning Rule's soil and riparian resources requirements to the Pipeline amendments."

This DSEIS provides a qualitative description of the purpose of the amendment within a scope and scale context, a qualitative and quantitative effects analysis of the plan components' relation to substantive requirements; and a qualitative disclosure of consistency with the Planning Rule (NFMA).

1.9.3 Issue 3: Conventional Boring Stream Crossing Method

The Court ruled that "the Forest Service and the BLM improperly approved the use of the conventional bore method for the four streams in the [JNF] without first considering FERC's analysis."

[14] Specifically, the Court remanded the Forest Service to "consider the USGS data and other relevant information indicating that the modeling used in the EIS may not be consistent with data about the actual impacts of the Pipeline and its construction." Wild Virginia v. United States Forest Serv., 24 F.4th 915, 920 (4th Cir. 2022).

This DSEIS includes an independent agency review of the 2021 FERC Boring EA analysis regarding conventional boring stream crossing methods and its applicability to stream crossings on the JNF.

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).

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 anticipated 2023 FWS BO.

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, which reflects the obligations for compliance with the NHPA (FERC 2017b). 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. The Forest Service and BLM will continue to fulfill their obligations as directed by the PA – see Section 4.2.

1.11 Adoption, Tiering, and Incorporation by Reference

This DSEIS tiers to the 2017 FERC FEIS and the 2020 FSEIS and incorporates by reference the associated project records. In addition, this DSEIS tiers to the FEIS supporting the 2004 JNF Forest Plan and incorporates by reference the Plan. Finally, this DSEIS incorporates by reference the 2021 FERC Boring EA regarding the use of conventional boring methods for stream crossings.

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2 Alternatives, Including the Proposed Action

2.1 Introduction

This chapter describes and compares the alternatives considered for the Forest Service and BLM decisions related to MVP.

The alternatives presented in this DSEIS 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

The No Action Alternative is unchanged from the 2020 FSEIS (p. 33). In summary, 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. The current Forest Plan would continue to guide management of NFS lands in the project area.

The Forest Service would require Mountain Valley to remove pipes[15] and associated staging materials and restore the JNF project area to as close to the pre-project condition as practicable or possible.

2.2.2 Alternative 2 – The Proposed Action

As described in detail in the 2020 FSEIS (pp. 33 to 45), under the proposed action, the Forest Service would amend the Forest Plan as necessary to allow for the MVP to cross the JNF, and concur in a decision by the BLM to grant a ROW and a TUP under the MLA. Changes to the Proposed Action since publication of the 2020 FSEIS include using a conventional bore method for crossing the four streams on NFS lands (the potential use of dry-ditch open trench methods is no longer under consideration). The ROW grant and TUP would incorporate relevant portions of the expected 2023 FWS BO (for example, portions related to species [e.g., listed bats] which have the potential to be affected by activities on NFS lands).

[15] All pipes on NFS lands are currently stored aboveground on wood cribbing; no pipes have been buried on NFS lands.

Consistent with the Forest Service's plan amendment, the Forest Service would provide concurrence and 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 and conditions, or stipulations, to protect resources and the public interest consistent with the MLA, 30 U.S.C. § 185(h). The construction and operation and maintenance actions that would be addressed in these terms and conditions 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-wide authorized ROW to operate the pipeline.
- Installation of surface pipeline markers to advise the public of pipeline presence and cathodic pipeline protection test stations that are required by DOT.

Implementation of the Proposed Action is contingent upon adhering to the Forest Service-approved POD and FERC's general construction, restoration, and operational mitigation measures as outlined in the FERC Plan (FERC 2013a), FERC Procedures (FERC 2013b), and other Federal and State regulatory agency requirements.

Table 1 displays the acres and miles of NFS lands that would be required for the construction, operation, and maintenance of the MVP.

Table 1. NFS Lands Required for MVP Construction, Operation, and Maintenance

Area	Units Impacted*
NFS lands crossed	3.5 miles
125-foot-wide temporary construction ROW	54 acres[2]
50-foot-wide[1] authorized ROW	22 acres

* Rounded to the nearest tenth of a mile (source: MVP 2022a) or nearest whole acre

[1] The width of the authorized ROW is 53.5 feet (i.e., the width of the pipeline [42 inches] plus 50 feet)

[2] Includes authorized ROW acreage

Upon termination of the Grant, all facilities on Federal lands would be decommissioned in accordance with an abandonment plan that would be reviewed and approved by the BLM, Forest Service, and FERC. At this time, additional NEPA review may be necessary. Any aboveground pipeline facilities or markers would be completely removed, and the associated location would be restored to as close to the pre-project condition as practicable or possible. The underground pipe would be purged of gas, cleaned, isolated from interconnections with other pipelines, sealed, and left in place.

2.2.2.1 Forest Plan Amendment

The MVP project as proposed would be inconsistent with 11 standards in the Forest Plan. The Forest Service proposes a project-specific amendment to modify the 11 standards to meet the requirement that the MVP project is consistent with the Forest Plan. The proposed amendment would exempt the MVP project from complying with the 11 amended standards and would apply to the 54 acres of the construction zone (i.e., temporary construction ROW) and ultimately the 22

acres of the ROW grant. Standards denoted with an "FW" are Forest-wide standards. Standards that begin with a numeral (e.g., 11-003) apply to a specific management prescription or area as identified in the Forest Plan. For example, "11-003" is a Plan standard that applies to management prescription 11 (Riparian Corridors). The following standards are proposed to be modified:

FW-248 (utility corridors) - 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 5B or 5C. (JNF Forest Plan, p. 2-60).

FW-248 would be modified to the following: 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 MVP construction zone and right-of-way.*

FW-5 (revegetation) - 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 Forest Plan, p. 2-7).

FW-5 would be modified to the following: 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 MVP construction zone and right-of-way, for which the applicable mitigation measures identified in the approved Plan of Development (POD) (e.g., Appendix C-1 to C-3, Erosion and Sediment Control Plan; Appendix E, ANST Contingency Plan; Appendix H, Restoration Plan) and MVP Project design requirements must be implemented*.

FW-8 (soil compaction in water saturated areas) - 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 Forest Plan, p. 2-7).

FW-8 would be modified to the following: 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 MVP construction zone and right-of-way, for which applicable mitigation measures identified in the approved POD (e.g., Appendix C-1 to C-3, Erosion and Sediment Control Plan; Appendix E, ANST Contingency Plan; Appendix H, Restoration Plan) 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.

FW-9 (soil effects from heavy equipment use) - 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 Forest Plan, p. 2-7).

FW-9 would be modified to the following: 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 MVP construction zone and right-of-way, for which applicable mitigation measures identified in the approved POD (e.g., Appendix C-1 to C-3, Erosion and Sediment Control Plan; Appendix E, ANST Contingency Plan; Appendix H, Restoration Plan) and MVP Project design requirements must be implemented.*

FW-13 (exposed soil) - Management activities expose no more than 10% mineral soil in the channeled ephemeral zone (JNF Forest Plan, p. 2-8).

FW-13 would be modified to the following: Management activities expose no more than 10% mineral soil in the channeled ephemeral zone, *with the exception of the MVP construction zone and right-of-way, for which applicable mitigation measures identified in the approved POD (e.g., Appendix C-1 to C-3, Erosion and Sediment Control Plan) and MVP Project design requirements must be implemented*.

FW-14 (residual basal area within the channeled ephemeral zone) - 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 Forest Plan, p. 2-8).

FW-14 would be modified to the following: 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 MVP construction zone and right-of- way, for which applicable mitigation measures identified in the approved POD (e.g., Appendix C-1 to C-3, Erosion and Sediment Control Plan) and MVP Project design requirements must be implemented*.

FW-184 (scenic integrity objectives) - 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 Forest Plan, p. 2-48).

FW-184 would be modified to the following: The Forest Scenic Integrity Objectives (SIOs) Maps govern all new projects (including special uses), *with the exception of the MVP 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, in accordance with the POD (e.g., Appendix H, Restoration Plan)*. Assigned SIOs are consistent with Recreation Opportunity Spectrum management direction. Existing conditions may not currently meet the assigned SIO.

11-003 (exposed soil within the riparian corridor) - Management activities expose no more than 10 percent mineral soil within the project area riparian corridor (JNF Forest Plan, p. 3-182).

11-003 would be modified to the following: Management activities expose no more than 10 percent mineral soil within the project area riparian corridor, *with the exception of the MVP construction zone and right-of-way, for which applicable mitigation measures identified in the approved POD (e.g., Appendix C-1 to C-3, Erosion and Sediment Control Plan, Appendix M, Winter Construction Plan) and MVP Project design requirements must be implemented*.

6C-007 (tree clearing in the old growth management area) - 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 Forest Plan, pp. 3-82 to 3-83).

6C-007 would be modified to the following: 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 MVP construction zone; and maintain the MVP right-of-way in accordance with the approved POD.*

6C-026 (utility corridors in the old growth management area) - These areas are unsuitable for designation of new utility corridors, utility rights-of- way, or communication sites. Existing uses are allowed to continue (JNF Forest Plan, p. 3-84).

6C-026 would be modified to the following: These areas are unsuitable for designation of new utility corridors, utility rights-of-way, or communication sites, *with the exception of the MVP right-of-way*. Existing uses are allowed to continue.

4A-028 (Appalachian National Scenic Trail [ANST] and utility corridors) - 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 Forest Plan, p. 3-23).

4A-028 would be modified to the following: 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 right-of-way in accordance with the POD (e.g., Appendix E, ANST Contingency Plan)*. Limit linear utilities and rights- of-way to a single crossing of the prescription area, per project.

2.2.2.2 Mitigation and Compliance Monitoring

The 2022 POD contains mitigation, detailed project design features, best management practices (BMPs), and compliance monitoring requirements that are an integral part of the Proposed Action regarding the construction, operation, and maintenance of the MVP project on Federal lands.

As described in the 2020 FSEIS (pp. 43 to 44), the conventional bore stream crossing method would follow the procedures and engineering drawings in the Water Crossing Plans (POD Appendix K) and measures in the stream crossing method variance request (MVP 2020a) to minimize adverse effects. More information on stream crossings is presented in Chapter 3.

The ROW grant and TUP would incorporate reasonably prudent measures, terms and conditions, and monitoring and compliance reporting requirements that apply to actions on NFS lands. Appendix V (Plant and Wildlife Conservation Measures Plan) in the 2022 POD contains conservation measures and BMPs for plants and wildlife. The measures in Appendix V are summarized below.

- Design temporary workspace to avoid streams, wetlands, and other sensitive wildlife habitat.
- Implement the Project-specific Erosion and Sediment Control Plan (see POD Appendices C-1 to C-3).
- Maintain surface and ground water quality using appropriate erosion control practices and best management practices.

- Comply with the FERC's Upland Erosion Control, Revegetation, and Maintenance Plan (May 2013).
- Install erosion control measures prior to earth disturbance activities.
- Develop and implement a Project-specific Spill Prevention, Control, and Countermeasure Plan (see POD Appendix D).
- Commit to tree-clearing activity outside of June-July to minimize impacts to non-volant, juvenile bats.
- Provide information to individuals involved in project construction on how to avoid and minimize potential effects to Threatened and Endangered species.

Per Section 6.4.3 of the POD, the Forest Service would designate an Authorized Officer to oversee the Project within the JNF. The Authorized Officer is responsible for administering and enforcing stipulations and mitigation measures during Project construction, operation, and maintenance.

2.2.2.3 Permits, Approvals, and Regulatory Requirements

As disclosed in the 2020 FSEIS, 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. For example, the FWS would issue project requirements as part of the anticipated 2023 Supplemental Biological Opinion, Virginia and West Virginia would issue State permits related to stormwater discharges and the Clean Water Act, the USACE would issue permits for impacts to jurisdictional waters, and the FERC would continue coordinating Section 106 NHPA compliance requirements.

2.3 Comparison of Alternatives

This section provides a summary of the effects of implementing each alternative. Information in Table 2 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 2. Comparison of Alternatives

	Alternative 1 – No Action	Alternative 2 – Proposed Action
Water Resources	Effects would be as described in the 2020 FSEIS: While the project area would be restored to as close to the pre-project condition as practicable or possible, and Erosion Control Devices (ECDs) would continue to be maintained and monitored, minor adverse short-term and long-term impacts on water resources would occur.	Short-term effects would be minor, which is consistent with the conclusions in the FERC FEIS and 2020 FSEIS. The use of a conventional bore method would reduce effects on the four streams on NFS lands. Effects on water resources would be minimized through implementation of measures in the POD, such as BMPs and the use of ECDs as modeled in Revised Universal Soil Loss Equation, Version 2 (RUSLE2). 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 and 2020 FSEIS. The USGS data and other relevant information considered in this DSEIS do not indicate that the modeling used in the 2020 FSEIS is inconsistent with data about the actual impacts of the pipeline and its construction.
Threatened, Endangered, and Sensitive Species	Effects would be as described in the 2020 FSEIS: 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.	A total of five ESA-listed species, one species proposed for ESA-listing, and three RFSS are analyzed in this DSEIS and could be affected by the MVP in the JNF. The Forest Service determined that the MVP may affect or is likely to adversely affect four species: candy darter, Roanoke logperch, Indiana bat, and northern long-eared bat. Formal consultation with the FWS would determine appropriate mitigation measures for potential effects to Federally listed species. 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 on Threatened, Endangered, and Sensitive species.

Table 2 (continued). Comparison of Alternatives

	Alternative 1 – No Action	Alternative 2 – Proposed Action
National Forest Management Act	As disclosed in the 2020 FSEIS, there would be no effects.	Utility Corridors. Short- and long-term minor beneficial effect to the local and regional economy from increased employment and demand for services during construction and an increased tax base. Soil and Riparian. Minor adverse effects of vegetation removal, erosion and sedimentation, soil compaction, soil porosity, runoff potential, soil fertility, revegetation potential, and soil carbon budget. Old Growth Management Area. The project would result in the clearing of about two acres of old growth within areas designated as 6C (FERC FEIS, Sec. 5.1.8, p. 5-9). Although this is an adverse impact to old growth ecosystems, it is not a substantial adverse impact due to the limited extent of the impact (about 2 out of 30,200 acres of old growth acres forest-wide). Appalachian National Scenic Trail. Temporary, minor adverse effects to trail users would occur from noise, dust, and visual intrusions from crossing the pipeline underneath the ANST via a 600-foot-long bore. The long-term effects would be minor due to an approximate 300-foot buffer on either side of the trail and vegetative screening of the bore holes. There are about 30,700 acres of the JNF allocated to management prescription 4A (Appalachian National Scenic Trail); approximately 2.5 acres of the ROW are within 4A, which is less than 0.01% of all 4A acres on the JNF. Scenery Integrity Objectives. The project would result in 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 should be met within five years, the project's proposed mitigation measures that would apply to temporary workspace, and the temporary and authorized ROW that are found in the updated POD (Section 7.9).

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). The analysis is limited to providing the background information necessary for understanding how the DSEIS alternatives may affect the resource compared to that which is disclosed in the 2017 FERC FEIS and 2020 FSEIS.

This DSEIS supplements the information provided in the 2017 FERC FEIS and 2020 FSEIS to reflect current conditions and focuses on the potential effects that could occur from implementation of this Proposed Action and the No Action Alternative.

As described in Section 1.2, construction on NFS lands has been partially implemented. Portions of the ROW on NFS lands were 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 early successional vegetation is occurring on the Peters Mountain portion of the ROW (Figure 2). Grading activities on Sinking Creek and Brush Mountain include the stockpiling of topsoil. The ROW on Sinking Creek and Brush Mountain has been reseeded and maintained with herbaceous cover. No trenching has occurred on NFS lands. ECDs have been installed along the entire ROW on NFS lands.

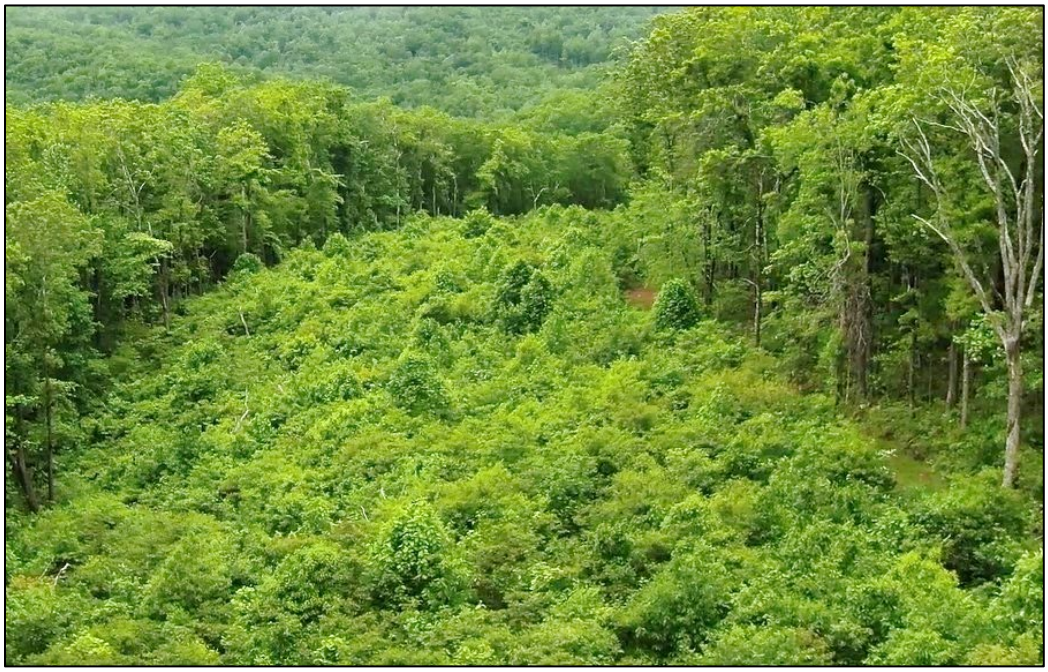

Figure 2. Continued Vegetation Regrowth on Peters Mountain (June 2022).

Since 2018, stabilization efforts implemented on the ROW include stockpiling topsoil and stabilizing disturbed areas of the ROW 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). In 2019 and 2022, hydroseeding was applied to ensure continued herbaceous cover along the ROW on Brush Mountain and Sinking Creek Mountain. Sections of pipe have been delivered to the ROW and are being stored and anchored aboveground. Wooden cribbing used to support the sections of pipe on Brush Mountain is repaired/maintained as needed. Figure 3 displays a representative segment of ROW on NFS lands.

Figure 3. Representative Photo of ROW and ECDs on Brush Mountain (October 2022).

ROW conditions, including ECDs, are monitored multiple days per week. Review of monitoring reports and on-site Forest Service review continue to show that the ROW on NFS lands is stable and ECDs are functioning as intended (Transcon 2018-2022). Enhanced ECDs were incorporated where appropriate as part of the monitoring program. Since construction commenced in 2018, enhanced measures have been implemented in response to high precipitation events and other site-specific conditions identified during monitoring. These include the following:

- Hydraulically applied or pelletized mulch/tackifier upgraded from a less protective stabilization measure.
- Site-specific seed mix was spread to help stabilize the ROW in a temporary state.
- Waterbar end treatments upgraded from single compost filter sock (CFS) to triple stack CFS and increased length of CFS for better filtration of runoff.
- 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 drainpipes installed to convey waterbar discharge across fill slopes where the ROW is benched, among other enhancements (FWS 2020).
- Rock lined channels were utilized for control of runoff.
- Additional sumps were installed to aid with sediment retention.
- Temporary slope breakers were adjusted to better control stormwater runoff.

3.2 Resources Not Brought Forward for Detailed Analysis

The Forest Service and the BLM reviewed the 2017 FERC FEIS, 2020 FSEIS, comments received on the 2020 DSEIS, 2021 FERC Boring EA, and the list of changes in Section 1.7 of this DSEIS to identify if there are new circumstances or information relevant to concerns and bearing on the Proposed Action or its effects (40 CFR § 1502.9). For the resources listed below, the analyses in the 2017 FERC FEIS and 2020 FSEIS are still applicable and relevant, and the terms and conditions incorporated into the 2017 FERC FEIS analyses remain adequate. Each section below contains an analysis of the 2021 FERC Boring EA as it relates to each resource. Citations for more detailed analysis are provided in each section.

3.2.1 Air Quality, Climate, and Noise

Air quality, climate, and noise were analyzed in the 2017 FERC FEIS (Section 4.13.2.7; p. 4-514; Table 4.11.1-5; pp. 4-532, 4-539, and 4-551) and 2020 FSEIS (pp. 68 to 69). In summary, the 2017 FERC FEIS and 2020 FSEIS found that, 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); that 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; and that noise effects on NFS lands under either alternative in this FSEIS would be similar, or less than, those described in the FERC FEIS.

The 2021 FERC Boring EA (pp. 67 to 88) analyzed the effects of conventional boring stream crossings on air quality, climate, and noise. In summary, the FERC found that conventional bore methods would lead to a temporary and short-term increase in construction emissions and construction noise. The Forest Service performed an independent agency review of the 2021 FERC Boring EA and determined that its effects analysis is consistent with effects anticipated on NFS lands because the nature and type of stream crossings on NFS lands would be similar to those analyzed in the 2021 FERC Boring EA for the MVP as a whole. Noise effects on NFS lands would be less than those elsewhere along the pipeline route because there are fewer sensitive noise receptors (e.g., residences, schools, hospitals, churches) on NFS lands than on private lands (including residential areas as discussed on p. 55 of the 2021 FERC Boring EA). Under the No Action Alternative, the pipeline would not cross streams and there would be no adverse effects.

3.2.2 Public Health and Safety

Effects on public health and safety within the project area would be similar to those analyzed in the 2017 FERC FEIS (Section 4.12; pp. 4-567, 4-568, and 4-571 to 4-574) and the 2020 FSEIS (pp. 69 to 70): 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 2017 FERC FEIS but would occur over a shorter period of time and in fewer locations. The 2017 FERC FEIS and 2020 FSEIS 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 described in the FERC FEIS (p. 4-566), the installation of cathodic test stations and line markers, entirely contained within the operational ROW as required by the DOT, would help prevent encroachment and excavation-related damage to

pipelines after construction is complete. Wood cribbing holding pipeline segments has been monitored and repaired as needed.

2021 FERC Boring EA (p. 89) concluded that effects on public health and safety from the use of conventional bore stream crossing methods would not differ from the originally proposed dry-ditch open cut crossing method. The Forest Service agrees with this conclusion because the MVP must be designed, constructed, operated, and maintained in accordance with the DOT Minimum Federal Safety Standards in 49 CFR Part 192 and other applicable Federal and State regulations. Under the No Action Alternative, the pipeline would not cross streams and there would be no adverse effects.

3.2.3 Heritage Resources

Effects on heritage resources were analyzed in the 2017 FERC FEIS (pp. 4-468 to 469) and the 2020 FSEIS (p. 70). The 2020 FSEIS concluded that "all responsibilities under NHPA Section 106 for the involved regulatory agencies" were addressed in a PA and associated Treatment Plan for the mitigation of adverse effects to site 44GS0241. This assessment remains accurate, and no further analysis is required.

The 2021 FERC Boring EA (pp. 57 to 67) analyzed the effects of conventional boring stream crossing methods on heritage resources, concluding that no changes to the PA are required and that Mountain Valley would adhere to its Discovery Plan for unanticipated discoveries. The Forest Service has determined that effects associated with conventional boring to cross streams on NFS lands would be the same as for dry-ditch open cut methods because both methods would be subject to the PA and its associated requirements for mitigating adverse effects. Under the No Action Alternative, the pipeline would not cross streams and there would be no adverse effects.

3.2.4 Mineral Resources

Effects on mineral resources were analyzed in the 2017 FERC FEIS (pp. 4-65 to 4-66) and 2020 FSEIS (pp. 70 to 71). The analysis concluded that the MVP would not affect future oil and gas exploration or production.

The 2021 FERC Boring EA (p. 22) concluded that the effects of conventional bore stream crossing methods on mineral resources would be the same as for dry-ditch open cut methods and that no further analysis was needed. The Forest Service has determined that this conclusion is accurate for NFS lands because there are no reasonably foreseeable future oil and gas wells within the MVP ROW. Under the No Action Alternative, the pipeline would not cross streams and there would be no adverse effects.

3.2.5 Socioeconomics

Effects on socioeconomics and environmental justice were analyzed in the 2017 FERC FEIS (p. 4-280) and 2020 FSEIS (p. 71). In summary, there would be fewer socioeconomic benefits under the No Action Alternative because restoration would not require as many employees as construction (Proposed Action). The 2017 FERC FEIS also found that no census tracts or blocks that would be crossed have minority populations exceeding 50 percent, and effects on low-income communities would be minimized through short-term employment, spending, and generation of tax revenues that would stimulate the local economy. Mountain Valley identified in their application an increased demand for natural gas, as new environmental regulations result in coal-fired generation plants being converted or replaced by natural gas-fired generation plants (MVP 2022c).

The 2021 FERC Boring EA (p. 22, p. 57) concluded that the effects of conventional bore stream crossing methods on socioeconomics and environmental justice would be the same as for dry-ditch open cut methods and that no further analysis was needed. The Forest Service determined that this conclusion is accurate for NFS lands because there would be no measurable difference in employment, taxes, or other

indicators. Under the No Action Alternative, the pipeline would not cross streams and there would be no adverse effects.

3.2.6 Scenery

Since publication of the 2020 FSEIS, Giles County has implemented a Virginia Tourism Corporation Grant to promote the New River as a water trail. (The New River is not located on NFS lands.) Attracting visitors to enjoy recreating on the New River is an economic driver for the County. As a result, additional assessment of potential impacts of views from developed boat ramps and points along the New River was conducted to determine if the MVP on NFS lands may be visible from the New River corridor. Using Google Earth Pro© viewshed and ground view simulation features, the Forest Service assessed whether the MVP on NFS lands is visible from the New River. The digital elevation model calculated the pipeline corridor might be seen by a user on the New River at several locations. However, the model assumes the viewshed is not affected by forests or other vegetation that screen views; it assumes a bare earth land cover. This viewshed assessment found that a small portion of the MVP on NFS lands on Peters Mountain with a Moderate SIO may be visible from the New River. Within a Moderate SIO, projects may be noticeable to the casual viewer but should not begin to dominate the characteristic landscape. If visible to viewers, the inferior aspect of the viewer (below the Project) and the angle of the corridor's orientation to the viewer which allows retention trees on the near side of the corridor to partially screen it from view, will result in a diminished appearance of the project. Other similar appearing utilities on Peters Mountain contribute to the existing landscape character. Therefore, the Project may be visible, but if noticeable to the casual observer recreating on the river, it would not begin to dominate the landscape character. The project will meet the Moderate SIO as viewed from potentially visible areas along the New River water trail. The conclusions in the 2020 FSEIS remain accurate, and no further assessment is needed.

The 2021 FERC Boring EA (p. 55) concluded that impacts on scenery would be similar to those discussed in the 2017 FERC FEIS. The Forest Service determined that there would be fewer short-term effects on NFS lands because conventional boring methods would result in less surface disturbance. Long-term effects would be similar to those associated with a dry-ditch open cut crossing because the project area would be restored to as close to the pre-project condition as practicable or possible. Under the No Action Alternative, the pipeline would not cross streams and there would be no adverse effects.

3.2.7 Vegetation

Since publication of the 2020 FSEIS, the Forest Service silviculturist has identified tree of heaven (*Ailanthus altissima*) and princess tree (*Paulownia tomentosa*) growing within the ROW on Peters Mountain. These non-native species and those disclosed in the 2020 FSEIS have previously and would continue to be removed as described in the POD Appendix S, Exotic and Invasive Species Control Plan. The effects of these removal methods would be consistent with those described in the 2017 FERC FEIS and 2020 FSEIS. As such, a supplemental analysis is not needed.

The 2021 FERC Boring EA (pp. 43 to 44) concluded that conventional bore stream crossing methods would result in fewer impacts on vegetation because there would be less surface disturbance. The Forest Service determined that this conclusion is consistent with effects on NFS lands because vegetation has already been cleared and conventional boring would avoid impacts to vegetation between the boring pits. Under the No Action Alternative, the pipeline would not cross streams and there would be no adverse effects.

3.2.8 Silviculture

Since publication of the 2020 FSEIS, tree regrowth has continued within the ROW on Peters Mountain (milepost [MP] 196.2 -198.6). The regenerating forest vegetation on Peters Mountain will have to be cleared for a second time under the Proposed Action (approximately 26.2 acres). (As described in the

2020 FSEIS, the original trees cleared from the ROW on Peters Mountain were left in place due to the stop work order.) As was done in 2018, the second round of tree clearing would be conducted in accordance with the POD Timber Removal Plan. The 2017 FERC FEIS analyzed the Proposed Action including tree felling. The effects of additional tree clearing are expected to remain within the scope and scale of those described in the 2017 FERC FEIS and 2020 FSEIS. In summary, implementation of the Proposed Action would result in minor effects within the Limit of Disturbance (LOD) and a reduced benefit because the felled trees left on Peters Mountain are no longer merchantable. Under the No Action Alternative, regeneration and restoration would occur on both the temporary and authorized ROWs, resulting in a minor long-term benefit to silviculture.

The 2021 FERC Boring EA (p. 19) discloses that trees have already been cut along the entire 303.5-mile pipeline. None of the four stream crossings on NFS lands are in areas where trees would need to be cut; therefore, there are no adverse effects associated with conventional bore stream crossings. Boring under the ANST on Peters Mountain would require a second round of tree clearing as described above. The effects of this tree clearing are consistent with those described in the 2017 FERC FEIS and 2020 FSEIS. Under the No Action Alternative, the pipeline would not cross streams and there would be no adverse effects.

3.2.9 Terrestrial Wildlife

Effects on terrestrial wildlife were analyzed in the 2017 FERC FEIS (p. 4-210 to 211) and the 2020 FSEIS (p. 73). In summary, effects under the No Action Alternative include benefits associated with restoration of the temporary ROW to its pre-project condition, while effects under the Proposed Action include completion of construction and the long-term conversion of the authorized ROW from forest to herbaceous cover and the natural regeneration of temporary workspace from mature forest to an early successional condition. Effects on Threatened, Endangered, and Sensitive (TES) species are disclosed in Section 3.3.3.

The 2021 FERC Boring EA (pp. 45 to 48) concluded that the effects of conventional bore crossing methods would be similar to those disclosed in the 2017 FERC FEIS because work would be confined to previously authorized workspaces. The Forest Service determined that effects on NFS lands would be consistent with the FERC's analysis for the same reason. Under the No Action Alternative, the pipeline would not cross streams and there would be no adverse effects.

3.2.10 Aquatic Species

Effects on aquatic species were analyzed in the 2017 FERC FEIS (pp. 4-139 and 4-220 to 4-223) and the 2020 FSEIS (pp. 73 to 74). In summary, 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. This conclusion is consistent with the 2021 FERC Boring EA (pp. 41 to 45) which found that conventional boring (compared to the dry-ditch open cut method) would avoid direct impacts associated with working directly within the aquatic resource, would result in reduced in-stream sedimentation, and would allow for uninterrupted existing streamflow and undisturbed wetland soils and scrub-shrub and herbaceous vegetation. Under the No Action Alternative, the pipeline would not cross streams and there would be no adverse effects. See Section 3.3.2 "Water Resources" and Section 3.3.3 "Threatened and Endangered Species" for additional analysis on aquatic species and their habitat.

3.2.11 Soils

Effects on soils were analyzed in the 2017 FERC FEIS (pp. 4-87 to 4-88) and the 2020 FSEIS (pp. 81 to 89). In summary, under the No Action Alternative, adverse effects on soil resources would be minor and would occur during the restoration period. Under the Proposed Action, there would be minor to moderate adverse effects associated with construction and minor long-term effects associated with post-construction

restoration and operation. Since publication of the 2020 FSEIS, there have been no changes to soil resource conditions. Continued monitoring and maintenance of ECDs does not demonstrate a changed condition of the resource. In conclusion, the 2017 FERC FEIS and 2020 FSEIS disclose the soil resource and anticipated effects; a supplemental analysis is not needed. The installation of cathodic test stations and line markers, entirely contained within the operational ROW as required by the DOT, would have no adverse effect on soils because they would not require soil removal or result in bare earth cover.

The 2021 FERC Boring EA (pp. 22 to 26, p. 42) found that effects on soils from conventional boring would generally be similar to those described in the 2017 FERC FEIS and would allow for undisturbed wetland soils. Effects would be minimized by adherence to the POD, including Erosion and Sediment Control Plans to enhance stockpile stability and protect environmental resources downstream of bore pits and stockpiles. The Forest Service determined that effects on soils on NFS lands would be less than those associated with dry-ditch open cut crossings because conventional boring would result in less overall area of soil disturbance (including avoiding soils in stream channels) and would use Reinforced Filtration Devices (e.g., Priority 1 Silt Fence, Triple Stacked CFS, or Super Silt Fence) as specified in the 2020 Variance Request (MVP 2020a) to minimize the potential for sediment movement. Under the No Action Alternative, the pipeline would not cross streams and there would be no adverse effects.

3.2.12 Geology

Effects on geology were analyzed in the 2017 FERC FEIS (pp. 4-45 to 4-46) and the 2020 FSEIS (pp. 74 to 78). In summary, 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. Under the Proposed Action, the POD incorporated additional industry BMPs as requested by the FERC to minimize the risk of landslides during boring. These conclusions remain accurate, and no further assessment is needed.

The 2021 FERC Boring EA (pp. 22 to 26) analyzed effects of conventional boring on geological resources and concluded that effects would be minimized by using appropriate conventional bore tooling and technology. The Forest Service determined that the 2021 FERC Boring EA analysis is consistent with conclusions in the 2020 FSEIS. Under the No Action Alternative, the pipeline would not cross streams and there would be no adverse effects.

3.2.13 Land Use

Effects on land use on NFS lands were analyzed in the 2017 FERC FEIS (p. 4-325) and the 2020 FSEIS (p. 79). In summary, effects would be consistent with those disclosed in the 2017 FERC FEIS: operation of the MVP would not impact potential future timber operations and would not isolate currently manageable timber tracts. Effects of the Forest Plan amendment are discussed in Section 3.3.4 of this DSEIS.

The 2021 FERC Boring EA (pp. 54 to 55) found that there may be impacts on residential areas from some conventional bore stream crossings for the pipeline as a whole. The Forest Service determined that there would be negligible impacts on land use on NFS lands because there are fewer sensitive receptors near the proposed crossings on NFS lands. Effects of the Forest Plan amendment are discussed in Section 3.3.4 of this DSEIS. Under the No Action Alternative, the pipeline would not cross streams and there would be no adverse effects.

3.2.14 Recreation and Special Uses

Effects on recreation and special uses were analyzed in the 2017 FERC FEIS (pp. 4-311 to 4-315) and the 2020 FSEIS (pp. 79 to 80). In summary, partial implementation of the project on NFS lands has not

resulted in changes to recreation or special interest areas; there would be minor and temporary effects on recreation users from boring under the ANST; and there would be no adverse effects on recreational fishing from conventional bore stream crossings. The establishment of the New River Water Trail as discussed in Section 3.2.6 is not directly related to the project on NFS lands.

The 2021 FERC Boring EA (p. 55) analyzed effects on recreation from conventional bore stream crossings and concluded that "with the exception of the possible exclusion of recreation in the immediate vicinity of construction, no impacts on waterbodies used as recreational resources is expected." The Forest Service determined that this analysis is consistent with findings in the 2020 FSEIS. Under the No Action Alternative, the pipeline would not cross streams and there would be no adverse effects.

3.2.15 Transportation

Effects on transportation were analyzed in the 2017 FERC FEIS (pp. 4-389 to 390) and the 2020 FSEIS (pp. 80 to 81). In summary, utilization of private roads to access the ROW on NFS lands would significantly reduce any conflict that potentially would have existed with other uses along NFS roads. In the 2020 MVP proposal, the use of NFS roads was removed from the proposed action and as a result no impacts on NFS transportation would occur.

The 2021 FERC Boring EA (p. 55) found that there would be increased construction-related traffic on local roads during construction. This is consistent with conclusions in the 2017 FERC FEIS and the 2020 FSEIS. The Forest Service determined that conventional bore stream crossing methods would not affect transportation on NFS roads as all access would be via private roads. Under the No Action Alternative, the pipeline would not cross streams and there would be no adverse effects.

3.3 Resources Analyzed in Detail

3.3.1 Analyzing Effects

Following each resource description is a discussion of the potential effects (environmental consequences) on the resource associated with implementation of each alternative. 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. Where third-party information is discussed in the analysis, such as MVP's sediment monitoring program, the Forest Service conducted an independent agency review to determine that the information was accurate, reliable, and relevant.

Environmental consequences or effects means changes to the human environment from the Proposed Action or alternatives that are reasonably foreseeable. The human environment is the natural and physical environment and the relationship of present and future generations of Americans with that environment. Direct environmental effects are caused by the action and occur at the same time and place. Indirect effects are those that are caused by the action and are later in time or farther removed in distance (40 CFR § 1508.1).

Potential adverse environmental effects that cannot be avoided are disclosed. Some adverse effects can be reduced or mitigated by limiting their extent or duration.

Short-term uses, and their effects, are those that would occur during the anticipated two-year-long construction period or restoration period. Long-term uses, and their effects, are those that would 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.

3.3.2 Water Resources

3.3.2.1 Affected Environment

Existing conditions 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) and the 2020 FSEIS (pp. 89 to 102, p. 157) which are 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 were identified within the vicinity of the project and no sites with potential groundwater contamination are 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 sources within the JNF (MVP 2022a).

Since publication of the 2020 FSEIS, the following new information or changed circumstances have occurred:

- The Fourth Circuit remanded the Forest Service "to consider USGS data and other relevant information indicating that the modeling used in the EIS may not be consistent with data about the actual impacts of the Pipeline and its construction."
- MVP initiated a sediment monitoring program per the 2020 FWS BO Monitoring Plan.
- The ROW on NFS lands continues to be monitored and ECDs maintained as needed.

3.3.2.2 Environmental Consequences

Methodology

The project hydrology specialists have formed professional judgments on probable effects. Professional judgments are based on an independent agency review of real-world data that includes USGS in-stream water quality monitoring station data, MVP sediment monitoring data, Virginia Department of Environmental Quality (VDEQ) ROW monitoring and related reports, and Transcon ROW monitoring reports. The Forest Service also contacted specialists including those at the USGS to confirm an understanding of the purpose, applications, and limitations of the data (personal communication with USGS Virginia and West Virginia Science Center, October 2022). The Forest Service and BLM conducted another independent agency review of the 2020 *Hydrologic Analysis* (Geosyntec Consultants 2020a, 2020b), MVP monitoring reports, the draft 2015-2019 George Washington and Jefferson National Forests (GWJ) Monitoring Evaluation Report (Forest Service 2020b), and previously received public comments received regarding water resources.

The Forest Service and BLM conducted a site visit in October 2022 to review each stream crossing on NFS lands and the Roanoke River in Lafayette, Virginia. The Forest Service and BLM also completed an independent agency review of MVP's Sediment Monitoring Analysis (Appendix L of the 2022 SBA); the

FERC FEIS; the *Hydrologic Analysis for the JNF* (Geosyntec Consultants 2020b); approved erosion and sediment control plans (POD Appendices C-1 through C-3); and scientific literature. The Forest Service also reviewed data and information described in public comments on the 2020 DSEIS.

Spatial and Temporal Boundaries

The spatial boundary for this analysis is the same as described in the 2020 FSEIS and includes the 3.5-mile ROW in the JNF and nine 12-digit Hydrologic Unit Code (HUC) subwatersheds within or draining to NFS lands (Table 3 and Figure 4). This boundary was chosen for consistency with the spatial boundary in the *Hydrologic Analysis*[16]. The LOD includes a 125-foot-wide temporary construction ROW and a 50-foot-wide authorized 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.

Table 3. HUC-12 Subwatersheds Within or Draining to NFS lands

HUC-12	Subwatershed Name
020802011001	Trout Creek - Craig Creek
020802011003	Broad Run - Craig Creek
030101010201	Dry Run - North Fork Roanoke River
050500020302	Upper Sinking Creek
050500020303	Lower Sinking Creek
050500020304	Little Stony Creek - New River
050500020305	Stony Creek
050500020601	Brush Creek - Rich Creek
050500020602	Clendennin Creek - Bluestone Lake

[16] This DSEIS references the Hydrologic Analysis of Sedimentation for the Jefferson National Forest, Virginia and West Virginia ("Hydrologic Analysis for the JNF"; Geosyntec Consultants 2020b) which is specific to the 3.5 miles of the proposed ROW on NFS lands. As described in the 2020 FSEIS (pp. 49 to 50), the *Hydrologic Analysis* was submitted to Federal agencies – including the Forest Service – with jurisdiction for review. Corresponding revisions were incorporated into the updated analysis, which was then reviewed and approved by the Forest Service.

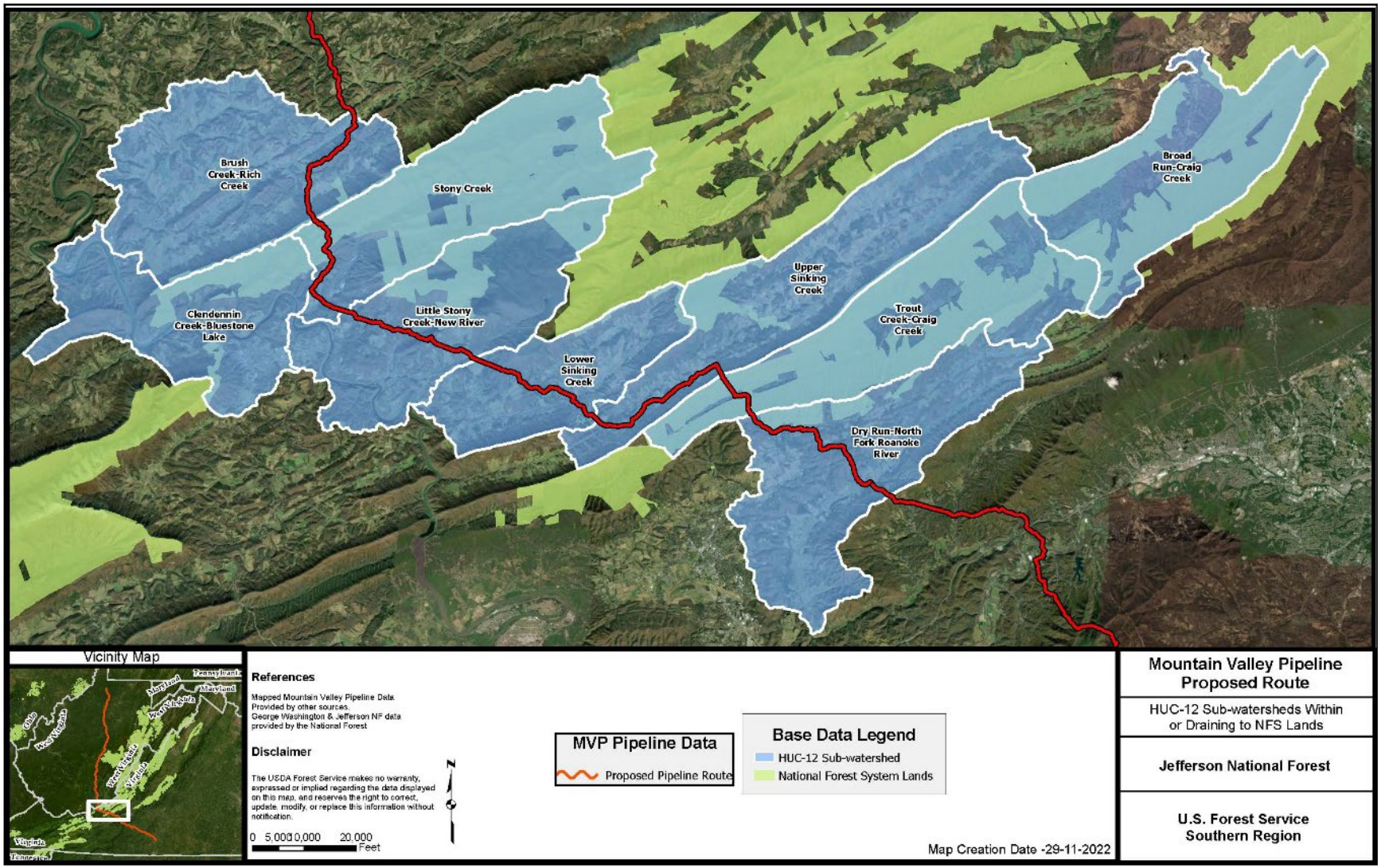

Figure 4. HUC-12 Subwatersheds Comprising Geographic Scope of Analysis for Direct and Indirect Effects on Water Resources.

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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 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). The portions of the project area on JNF land would be restored to as close to the pre-project condition as practicable or possible.

As described in the 2020 FSEIS, some resource effects described in the FERC FEIS have already occurred since the project has been partially constructed. Specifically, timber felling, grading, and soil stockpiling activities have occurred within all or portions of the ROW on 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 authorized ROW with herbaceous cover. The pipe (currently stored aboveground) would be removed and the forest would be allowed to regenerate in the construction zone. The effects associated with restoration[17] would be reduced sedimentation loads as compared to those during construction. There would be minor adverse effects in the short term associated with spreading topsoil and minor beneficial effects in the short and long term as revegetation occurred. 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.

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, 2020 FSEIS, and associated studies including the *Hydrologic Analysis*.

Alternative 2 – Proposed Action

The 2020 FSEIS analysis of effects on water resources is incorporated by reference. In summary, the 2020 FSEIS (pp. 95 to 102) found that 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. 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 maintenance and would be minor because disturbed areas would be revegetated, reducing the potential for sedimentation in surface water features.

[17] The restoration process is described in detail in the POD Appendix H and includes ROW stabilization and restoration, re-seeding, noxious and invasive weed control, revegetation, and road reclamation.

The objective of this analysis is to conduct an independent agency review of and disclose our consideration of the following relevant[18] information concerning the Fourth Circuit's remand:

- USGS in-stream water quality monitoring data
- MVP in-stream water quality monitoring data
- VDEQ in-stream water quality monitoring data and inspection reports
- Transcon ROW site inspection reports on the JNF

This analysis considers modeling and monitoring activities as they relate to erosion and sediment effects on surface water. In the context of this analysis, modeling refers to the Revised Universal Soil Loss Equation (RUSLE) model used to estimate annual erosion of soils within a watershed and RUSLE, Version 2 (RUSLE2) used to estimate site-specific annual erosion of soils due to project activities on the JNF. RUSLE2 was incorporated into the JNF-specific *Hydrologic Analysis* (Geosyntec Consultants 2020b). Monitoring, in contrast, is the USGS in-stream water quality monitoring program which began in 2017, MVP's in-stream water quality monitoring program, VDEQ's site inspection program established through VDEQ's permitting process for the pipeline since 2018, and Transcon's site inspection of the ROW within the JNF since 2018.

There are inherent limitations associated with comparing modeling outputs against monitoring data, and, specifically for the MVP, comparing annual soil loss predictions of the RUSLE2 model with in-stream water quality monitoring data and information. According to USDA (2008), "RUSLE2 is not designed to be evaluated or calibrated by inputting historical data to compute erosion values that are compared to values measured at a particular site." RUSLE2 is based on field experiments spanning several decades and representing over 10,000 plot-years of measured runoff and soil-loss data collected by USDA to measure gross soil loss based on various slopes, soil properties, vegetative cover, management practices, and other factors such as climatic data. USDA (2008) further indicates that "fitting RUSLE2 to data from a specific research study or measurements made at a specific field site often does not improve RUSLE2 estimates and in fact may degrade the quality of estimates." Finally, USDA (2008) states, "[t]he most important part of RUSLE2's validation is whether RUSLE2 leads to the desired erosion control decision, not how well RUSLE2 estimates compare to measured data."

"The purpose of RUSLE2 is to guide and assist erosion-control planning" (USDA 2008). The RUSLE2 modeling work (Geosyntec Consultants 2020b) produced estimates of annual sediment loads at several stream segment locations during two separate points in time: pre-pipeline construction and during pipeline construction. The modeling results were used to identify ECDs to effectively minimize downstream surface water erosion and sediment effects that may occur during rainfall events. The model results are valuable for comparing annual estimated sediment loads under various land management scenarios but do not predict in-stream sediment or turbidity concentrations caused by specific rainfall events. The RUSLE2 modeling analysis for the JNF was not intended to be representative of direct in-stream measurements; it was used as a conservative planning and analytical tool to identify areas with increased potential for sedimentation and address possible erosion problems with enhanced site-specific ECDs. As described above, the RUSLE2 modeling analysis informed the decision on where to place

[18] Relevant information was considered to be the best available scientific information (BASI). Forest Service planning regulations at 36 CFR § 219.3 state 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).

ECDs and which type of ECDs to install. The effectiveness of the ECDs can be observed via site inspections and monitoring data.

The RUSLE2 modeling estimated that enhanced ECDs would be effective at minimizing sedimentation in waterways. The model estimated that baseline sediment yields would vary from 0.15 to 0.43 tons/ac/yr at each HUC-12 watershed outlet, with a median of 0.35 tons/ac/yr for the study area. The model estimated that sediment yields during the tree clearing phase of the project would increase by less than 0.001 tons/ac/yr (median: less than 0.001 tons/ac/yr) above the baseline. The sedimentation modeling estimated that sediment yields during construction would increase by less than 0.001 to 0.011 tons/ac/yr (median: 0.003 tons/ac/yr) above the baseline. This correlates to an increase of 0.1% to 2.6% (median: 1.1%) compared to the baseline scenario. One year after construction is completed sediment yields would be reduced to about 0.01% to 0.5% (median: 0.4%) above baseline. Comprehensive analysis of the modeling results and real-world data indicates that the ECDs that were installed and maintained are effective at managing sediment yields.

Pipeline construction has several stages and the entire LOD associated with the Project at a certain location is not exposed all at one time. As construction activities progress, temporary and permanent stabilization measures are implemented on an ongoing basis to minimize the extent of disturbed areas.

USGS In-Stream Water Quality Monitoring Stations

In 2017, the USGS, in cooperation with VDEQ, installed 12 in-stream water quality monitoring stations in Virginia to measure water quality near MVP stream crossings. Per USGS, "The purpose of the monitoring effort is to collect baseline water-quality data and, if the pipeline construction is approved, to monitor water quality in these streams before, during, and after pipeline construction" (USGS 2017). The stations were set up in pairs at six stream crossings: one station was installed upstream of the pipeline crossing and the other downstream (see Appendix B for the location of each USGS station). Each station measures several water quality attributes including turbidity[19] every 15 minutes. The USGS monitoring stations were in place before land clearing began along the pipeline ROW. The sampling points of these stations capture real-time water quality data both upstream and downstream of each of the monitored crossings. Mountain Valley provided its own analysis of the USGS monitoring data (MVP 2022e), concluding that the USGS data could not corroborate the RUSLE2 modeling. The following analysis in this DSEIS demonstrates the Forest Service's independent agency review of the USGS data.

Although the USGS in-stream monitoring station drainage areas do not include NFS lands, the USGS data are relevant to this DSEIS because four of the 12 stations are in HUC-12 watersheds which were included in the *Hydrologic Analysis* model and form the geographic boundary for this analysis.

At each pair of USGS stations, the difference between the drainage area of the upstream station and the drainage area of the downstream station is referred to as the incremental drainage area. Figures in Appendix B show the incremental drainage area between the upstream and downstream stations. At each of the six stream crossings monitored by paired USGS stations, there are various land uses within the incremental drainage area. These include forested land cover, agricultural lands including cropland and livestock pasture, residential and commercial development, paved and gravel roadways, a railroad, and the pipeline corridor and associated laydown areas (there are no NFS lands in the incremental drainage areas; see Appendix B). Each of these land uses, including the MVP (which has been constructed and is being maintained with ECDs approved by permitting agencies and designed to minimize turbidity and sedimentation), are potential sources of sediment which can contribute to in-stream turbidity. As a result, the USGS data do not specify how much turbidity is directly attributable to an individual source.

[19] Turbidity is the degree to which light is scattered by particles suspended in a liquid.

While the USGS data cannot identify specific sources of turbidity, they are a useful tool for understanding the relationship between precipitation, increased stream flows, and turbidity. The following graph displays turbidity readings at the two Sinking Creek stations during Hurricane Michael October 11-13, 2018. The graphs, which cover a period of approximately 4 days, illustrate how quickly turbidity can spike and recede in response to precipitation events.

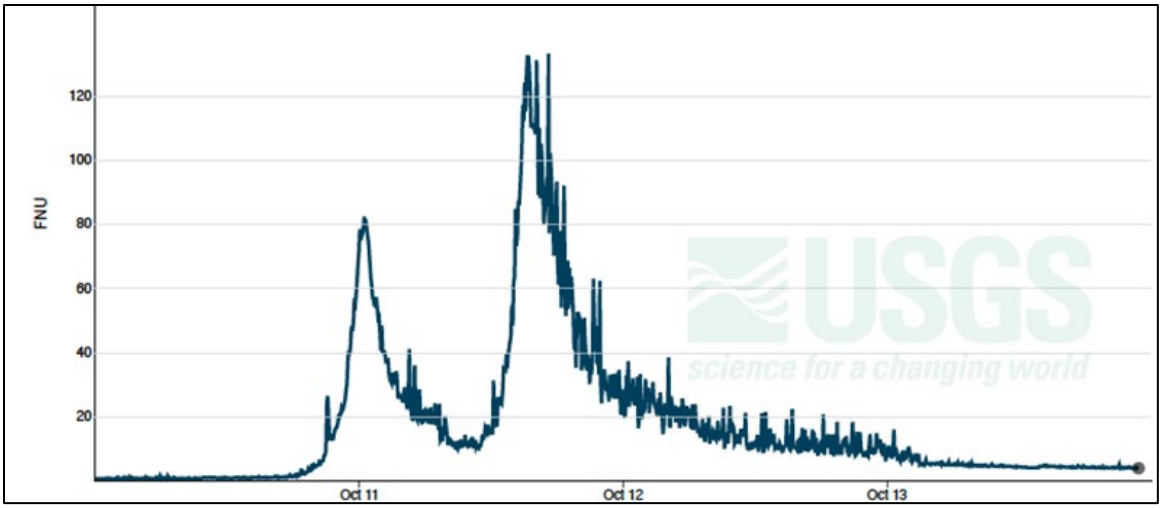

Figure 5. Little Stony Creek Upstream (03171597) Turbidity – Hurricane Michael October 11-13, 2018.

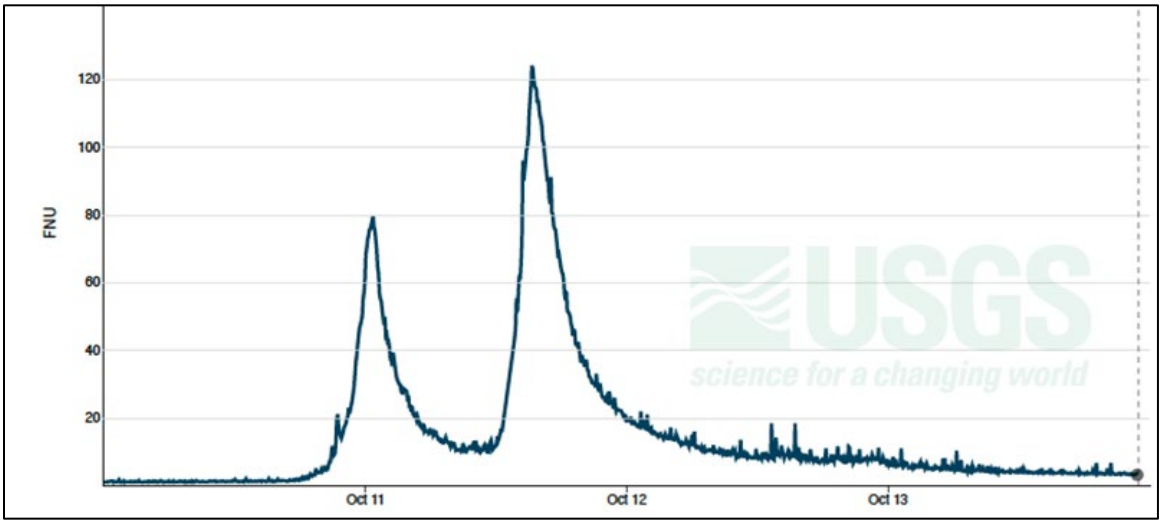

Figure 6. Little Stony Creek Downstream (0317159760) Turbidity – Hurricane Michael October 11-13, 2018.

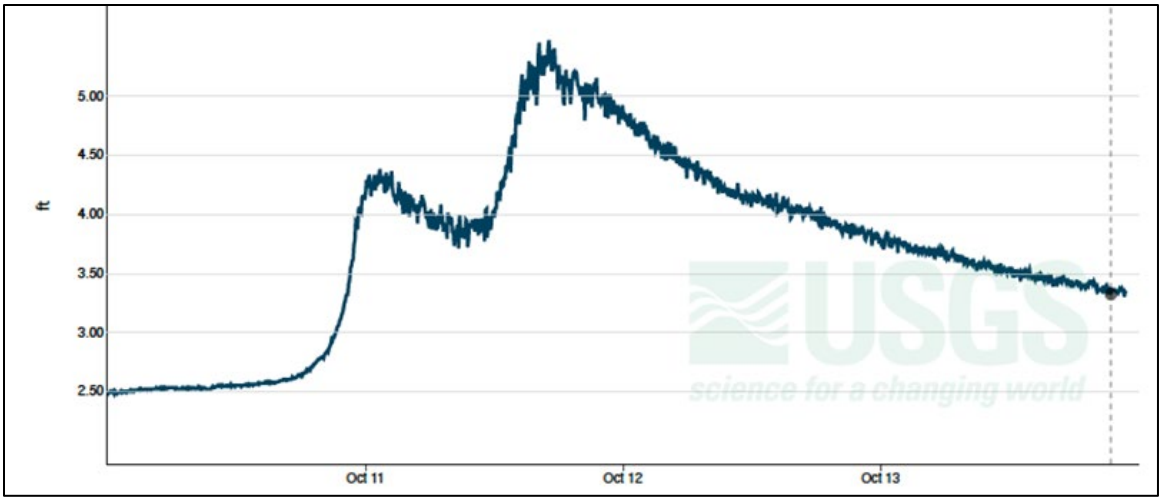

Figure 7. Little Stony Creek Gage Height – Hurricane Michael October 11-13, 2018.

The Forest Service conducted independent agency statistical analyses of the USGS data to examine potential trends and differences in turbidity between upstream and downstream stations. Specifically, statistical analyses were completed on in-stream turbidity data at three river crossings (see Table 4) to determine if there were significant differences in the upstream - downstream peak turbidity levels between the pre- and post-construction periods. The paired in-stream water quality monitoring stations for Little Stony Creek and Sinking Creek were considered relevant because they are within the HUC-12 subwatersheds that form the geographic scope of this analysis. In addition, an examination of the USGS online National Map Advanced Viewer shows that the drainage basin topography, land cover, and slope associated with the Little Stony Creek and Sinking Creek stations are most like the JNF. The Roanoke River paired stations were identified in the Fourth Circuit's opinion. The Forest Service also considered an analysis of single (non-paired) USGS stations, but these stations are not intended to assess the effects of pipeline construction or other actions in incremental drainage areas.

Table 4. USGS In-Stream Water Quality Monitoring Stations Used in Statistical Analyses.

River	USGS Station - Upstream	USGS Station - Downstream	Monitoring Start	Construction Start
Little Stony Creek	Little Stony Creek Above Archer Trail Near Pembroke - 03171597	Little Stony Creek Below Archer Trail near Pembroke - 0317159760	August 2017	September 2021
Roanoke River	Roanoke River Along Route 626 at Lafayette - 0205450393	Roanoke River Above Route 11 at Lafayette - 0205450495	August 2017	July 2019
Sinking Creek	Sinking Creek Along Route 604 Near Newport - 0317154954	Sinking Creek at Covered Bridge Lane Near Newport - 0317155123	August 2017	June 2021

The continuous turbidity data collected by USGS was aggregated into individual events that exceeded 50 Formazin Nephelometric Units (FNU)[20]. This threshold was chosen because it is the basis for State water

[20] FNU (Formazin Nephelometric Units) and NTU (Nephelometric Turbidity Units) are the Environmental Protection Agency-designated units of turbidimetric measurement. Both measure scattered light at 90 degrees from the incident light beam, but the FNU is measured with an infrared light source according to the International Organization for Standardization 7027 method whereas the NTU is measured with a white light according to EPA method 180.1.

quality standards for turbidity in neighboring West Virginia and North Carolina (Virginia does not have a water quality standard for turbidity). The upstream and downstream stations were paired and, for each storm event, the peak turbidity was selected for the paired analysis. Events with missing data at either the upstream or downstream station were discarded from the analysis. At Little Stony Creek and Sinking Creek, the number of post-construction precipitation events with turbidity greater than 50 FNU (11 and 13 events, respectively; see Table 5) was an insufficient sample size for regression analysis.

Table 5. Number of Runoff Events with Turbidity Greater Than 50 FNU.

River	Pre-Construction - Number of Events Greater Than 50 FNU	Post-Construction - Number of Events Greater Than 50 FNU
Little Stony Creek	43	11
Roanoke River	32	61
Sinking Creek	55	13

For the Roanoke River, the analysis used a regression approach for detecting significant differences in an upstream - downstream relationship after a change in land management (Grabow et al. 1998). This methodology is appropriate for watersheds where there is an upstream station (measuring the control watershed) and a downstream station (measuring the treatment watershed). The null hypothesis is that there is no statistically significant difference between the upstream and downstream stations. The comparison of peak event upstream - downstream turbidity for the pre- and post-construction periods at the paired Roanoke River stations identified no significant differences at the 95% confidence level ($\alpha = 0.05$), indicating that in-stream turbidity measured during storm events did not increase following the beginning of construction.

In conclusion, the RUSLE2 modeling results are not meant to be validated by USGS or other monitoring data. However, examination of the USGS data can provide insight into potential changes in in-stream turbidity. As described above, there was an insufficient sample size for regression analysis for two streams. The Roanoke River had a sufficient sample size and was analyzed; its results show no statistically significant increase in in-stream turbidity following the beginning of construction.

MVP In-Stream Water Quality Monitoring Stations

In accordance with the 2020 FWS BO Monitoring Plan, MVP conducted sediment monitoring within multiple off-NFS watersheds along the pipeline route beginning in 2021. The purpose of this monitoring is to ensure compliance with the BO's required limits on sediment in watersheds with suitable habitat for the Federally listed Roanoke logperch and candy darter. A detailed summary of the monitoring program is provided as Appendix L to the 2022 SBA (MVP 2022b).

Per the terms of the 2020 FWS BO, MVP installed in-stream water quality monitoring stations off NFS lands in 21 FWS-identified Mixing Zones. Of these, six Mixing Zones have "commissioned"[21] stations and are included in the monitoring program reporting because pipeline construction had occurred nearby. The other stations were not included because of a variety of reasons, including unavailable land access, the FWS BO Mixing Zone monitoring requirement was discontinued due to ROW restoration, or an impoundment was installed (MVP 2022b). Some non-commissioned stations are collecting data, but no construction has occurred near them and, therefore, no analysis of pre- or post-construction is possible.

[21] Commissioned stations were installed, operational, and collecting data subject to Monitoring Plan requirements.

The commissioned station data are relevant to this DSEIS because some commissioned stations were installed in watersheds that were part of the *Hydrologic Analysis* model and because the Monitoring Plan was informed by the *Hydrologic Analysis* model and therefore satisfies the Fourth Circuit's remand to consider real-world data as it may relate to the *Hydrologic Analysis*.

In the subject watersheds, monitoring stations were installed on tributaries where pipeline construction was planned, as well as on streams identified in the 2020 FWS BO as suitable habitat for the Roanoke logperch or candy darter. By comparing the suspended sediment concentrations (SSC) in tributaries where construction occurred with the SSC in upstream and downstream species streams, the FWS could infer if the pipeline was contributing to elevated SSCs downstream. Although non-pipeline land uses could also be contributing to elevated SSCs within the tributaries, the FWS Monitoring Plan conservatively assumed all measured SSC contributions at the tributary monitoring stations were attributable to the MVP. Under the Monitoring Plan, when thresholds were exceeded[22], Mountain Valley undertook response actions as outlined in Appendix F of the 2020 BO to determine the cause of elevated SSCs and perform appropriate remedies if necessary. These response actions included site investigations to examine the sediment monitoring equipment and look for evidence of offsite sedimentation from the pipeline corridor or other land uses. After the February 3, 2022 BO vacatur, Mountain Valley voluntarily continued the Monitoring Plan. The results of the Monitoring Plan are discussed in the analyses below and presented in detail in Appendix L of the 2022 SBA.

Mountain Valley installed monitoring stations before resuming construction in each Roanoke logperch monitored watershed. Excepting higher rain events, low flows and low turbidity were measured within the monitored tributaries where construction occurred. Figure 8 displays how flow spiked in response to Tropical Storm Ida in one of the monitored streams.

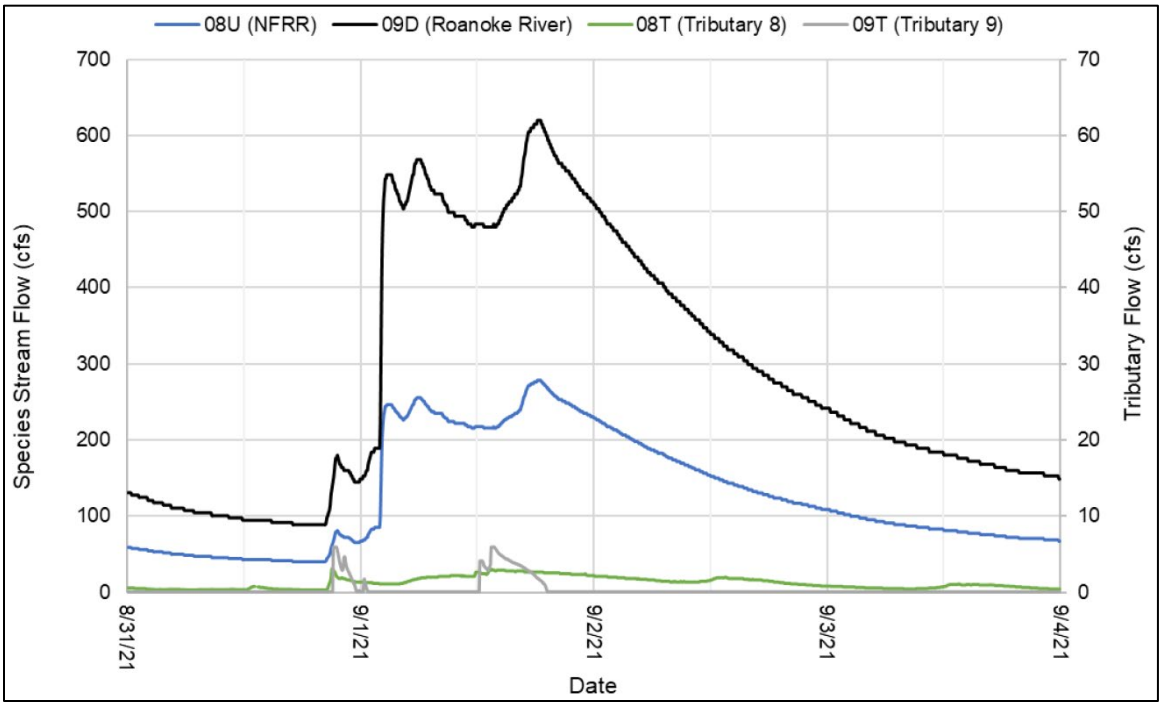

Figure 8. Flow Hydrograph for Monitored Sediment Mixing Zone during Hurricane Ida, September 2021.

[22] Exceedances reported by Mountain Valley in the Suspended Sediment Monitoring Analysis (MVP 2022b) were caused by equipment malfunction, equipment detachment, and/or equipment recalibration issues.

The maximum turbidity in each tributary before and after the Fourth Circuit's February 3, 2022 vacatur was below the tributary Take Risk Concentration[23] that would require implementation of the BO's Rapid Response Protocol actions. This confirms that turbidity never exceeded the Take Risk Concentrations.

In candy darter monitored watersheds, project construction activities had not yet resumed when the Fourth Circuit vacated the 2020 FWS BO in February 2022. However, the candy darter monitoring stations were brought online upon installation in 2021, have remained operational, and have been continuously collecting data since installation. Although not officially commissioned for the Monitoring Plan (due to the vacatur), Mountain Valley conducted field inspections and remote analysis of potential exceedances measured by the stations. During named storms (Tropical Storm Fred, Hurricane Ida, and Hurricane Ian), the monitoring data show that the maximum tributary SSCs were similar to or lower than the maximum SSCs in the corresponding downstream species streams. The maximum calculated SSC Differences in the species streams were all below the FWS's thresholds for the named storms reviewed. None of the elevated calculated SSC Differences in the species streams exceeded the FWS Take Risk Concentration (MVP 2022b).

The Forest Service conducted an independent agency review of the MVP sediment monitoring program and determined that the sediment monitoring data suggest that the Project has not exceeded Mixing Zone Impact Areas thresholds in the FWS-identified species streams.

In conclusion, the RUSLE2 modeling results are not meant to be validated by the MVP sediment monitoring data. However, examination of the MVP sediment monitoring data show that pipeline construction in the monitored watersheds did not cause sedimentation levels to exceed the FWS-identified Take Risk Concentrations for Federally listed aquatic species.

VDEQ In-Stream Water Quality Monitoring and Inspection Reports

VDEQ conducts in-stream water quality monitoring for multiple purposes, including to meet the needs of State regulatory and water quality management programs (VDEQ 2022). For the MVP project, VDEQ partnered with USGS and Virginia Commonwealth University to conduct water quality monitoring at the six stream crossings described above under "USGS In-Stream Water Quality Monitoring Stations." The purpose of this monitoring is to determine the effects of any physical and chemical changes on aquatic life (VDEQ 2017). As part of its MVP monitoring program, VDEQ also uses the USGS data to direct inspection resources as appropriate, such as in response to potential pollution events. In-stream water quality monitoring began in 2017 and inspections began in 2018.

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

The VDEQ, in response to a December 2018 complaint, analyzed its notices of violations related mostly to erosion control and stormwater management. The analysis looked at the entirety of the pipeline route in Virginia off NFS lands. The agency found that the vast majority did not result in any environmental harm[24] (VDEQ 2021).

[23] The Take Risk Concentration in a tributary to a Stream of Interest (i.e., species stream) is the concentration of Project-related sediment in the tributary to potentially cause a 20 mg/L increase in the Stream of Interest (as indicated in Table 2 of Appendix F to the 2020 BO). For the commissioned stations, these Take Risk Concentrations range from 622 mg/L on Bradshaw Creek to 5,212 mg/L on Indian Run.

[24] "A number were paperwork violations, such as failing to keep a daily log of project activities related to environmental permit compliance and corrective measures implementation. In summary, approximately 180 violations were failure to repair a control

In a November 19, 2021 memo to the State Water Control Board, VDEQ addressed several topics commonly raised in public comments regarding the MVP and water quality (VDEQ 2021). As part of VDEQ's monitoring protocol, and in response to public concerns, agency staff conducted further inspections and outreach. Its corresponding reports to the Board included photographic documentation of temporary stabilization, documentation of stream restoration after completion of stream crossing construction, and ongoing construction activities. VDEQ reports on page 10 of its memo that there have been no widespread impacts, no evidence of a fish kill, or citizen monitoring-identified violations of water quality standards. VDEQ further states on page 10 that ongoing USGS total suspended solids data do not reflect any pipeline construction related events. VDEQ (page 10) also does not agree with assertions from the public that there are ongoing, significant regular violations of erosion and sediment controls or water quality standards. These conclusions are based on a consistent, almost daily field presence of both VDEQ inspectors (including a pipeline team with three erosion and sediment control inspectors) and VDEQ's third party compliance inspectors (VDEQ 2021).

VDEQ's inspection reports also document field investigations of actual project conditions off NFS lands. For example, pipeline ROW inspections were conducted in response to elevated turbidity readings on July 15-16, 2019 at the paired USGS stations on the Roanoke River near Lafayette in Montgomery County. This timeframe corresponded with a high precipitation event: at Pipe Yard 006 on July 15, there was a total of 3.6 inches of water observed in the rain gauge. Local weather station data from Weather Underground (station KVAELLIS5), located in Lafayette, showed a short-duration, high-intensity precipitation event occurring on July 15 lasting from approximately 5:09 pm to 8:09 pm with a total accumulation for the event at 2.15 inches. During the inspection, all inspected MVP ECDs near the river crossing were found to be installed correctly and functioning as designed. In addition, no areas of sediment runoff outside the ROW were observed (VDEQ 2019). This suggests that other land uses in the watershed contributed to the elevated turbidity levels in the Roanoke River.

Although VDEQ does not inspect the ROW on NFS lands, the Forest Service performed an independent agency review of VDEQ pipeline inspection reports covering non-NFS lands in Craig, Giles, and Montgomery counties, Virginia. These counties were chosen because their topography and land use / land cover are most similar to the JNF. A total of 135 inspection reports from January 2021 through August 2022 were available on the VDEQ website (VDEQ 2022). In summary, the review found that, in 125 of 135 inspection reports, erosion "controls were installed and implemented in accordance with the approved [Erosion and Sediment Control Plan (ESCP)] and stormwater management plans." In 113 of 135 inspection reports, erosion "control measures were properly maintained in effective operating condition in accordance with good engineering practices and, where applicable, manufacturer specifications." Where improper maintenance or ineffective operation conditions of erosion controls were identified, they were classified by VDEQ as Routine Maintenance (requiring corrective actions within 72 hours from notification) or Ineffective Controls (requiring corrective actions within 24 hours from notification). Waterbar maintenance, inlet protection maintenance, waterbars not of adequate length, sumps requiring maintenance, and CFS requiring repair were typical deficiencies noted in these inspection reports (VDEQ 2021-2022).

Finally, there were two reports of offsite sediment deposition observed out of 135 inspection reports. In one of these reports, sediment removal was observed at one non-NFS stream crossing, possibly due to sumps requiring maintenance. In the other report, sediment at one non-NFS forested location had escaped

structure within 24 hours, approximately 58 violations related to inadequate temporary stabilization, approximately 65 violations related to inadequate stabilization of stockpiles and approximately 42 related to sediment moving off the right of way. Of the citations related to sediment moving off the right of way, about 20 resulted in a discharge of sediment into state waters. In every instance where MVP was given landowner permission to access off site properties, the sediment release to streams was remediated" (VDEQ 2021).

the LOD by approximately 15-20 feet (VDEQ instructed MVP to retrieve the sediment and restabilize the disturbed area) and access road stone was observed in a non-NFS stream (VDEQ instructed MVP to remove the sediment/stone per FERC approval and landowner approval; VDEQ 2021-2022).

The Forest Service's independent review included VDEQ pipeline inspections conducted immediately following named storms in 2021 and 2022. These included three within one week of Hurricane Ida in September 2021. Two inspections were conducted in Craig and Giles counties off NFS lands on September 8, 2021, four days after the storm passed. Both inspections found that erosion and sediment controls were installed and implemented in accordance with the approved erosion and sediment control plan and stormwater management plans. At one location, the storm event resulted in torn silt fence, rill erosion, and stabilization concerns within the ROW, resulting in a recommended corrective action to maintain all controls per the approved erosion and sediment control plan and stormwater management plans. No offsite sediment deposition was observed. In response to agency inspection results and as part of its standard monitoring procedures, Mountain Valley performed necessary maintenance actions. On September 10, 2021, an inspection was conducted elsewhere off NFS lands in Craig and Montgomery counties, finding that controls at three stream crossings were in place and functioning properly.

The VDEQ monitoring and inspection program is not intended to evaluate the effectiveness of the RUSLE2 modeling, but it provides relevant information about the performance of the ECDs in Virginia and insight into real-world pipeline inspections and maintenance. In this role, the monitoring and inspection program reveals that the pipeline is regularly inspected, ECDs are maintained and repaired as needed, and the vast majority of inspection reports did not identify any environmental harm.

Transcon ROW Inspections

Transcon, a third-party contractor reporting to the Forest Service, has been inspecting the MVP ROW on the JNF since 2018. Transcon's inspection reports are real-world data relevant to this DSEIS because they provide a record of ECD performance on NFS lands within watersheds that were included in the *Hydrologic Analysis* model.

The 2020 FSEIS stated, "Transcon's reports show that ECDs are effective at controlling erosion, runoff, and sedimentation under normal conditions when properly installed and maintained" (2020 FSEIS, p. 84). Since publication of the 2020 FSEIS, Transcon has continued pipeline ROW monitoring multiple times per week. Transcon's 2021 and 2022 monitoring reports show that ECDs on the JNF continue to be effective (Transcon 2018-2022). For example, a review of the 2021-2022 reports does not identify any instances of sediment leaving the pipeline ROW on NFS lands, including the inspection reports immediately following Tropical Storm Fred, Hurricane Ida, and Hurricane Ian, which show pipeline ROW ECDs functioning as intended and no observation of offsite sedimentation. Transcon monitoring and inspections are not intended to quantitatively evaluate the effectiveness of the RUSLE2 modeling, but they provide relevant professional observations, supported by photographic documentation, about the performance of the ECDs on NFS lands, corroborating the accuracy of RUSLE2's conclusion that site-specific enhanced ECDs would be effective in minimizing sediment runoff.

Conclusion

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

related effects to soils, such as trench excavation, backfilling, contouring, and the movement of construction equipment.

This analysis also demonstrates the Forest Service and BLM's consideration of USGS data and other relevant information related to the modeling used in the 2020 FSEIS and the actual impacts of the pipeline and its construction. Relevant data and information indicate that construction activities associated with the pipeline are potential contributors to turbidity and sediment in local streams along with other land uses in the watersheds that may produce sediment during rainfall events. Because RUSLE2 is not designed to be validated with in-stream water quality monitoring data, it is not possible to conclusively determine if the USGS data and other relevant information are consistent with the modeling. However, examination of both quantitative data (i.e., USGS and MVP monitoring data) and inspection and monitoring reports (i.e., VDEQ and Transcon) that visually examine the ROW (including in direct response to potential sediment-delivering events) do not suggest that actual data are inconsistent with the modeling used in the 2020 FSEIS.

3.3.2.3 Effects of Forest Plan Amendment on Hydrology

There are 11 project-specific Forest Plan standards that would be amended in the proposed action. Six amended standards are related to hydrology: FW-5, FW-8, FW-9, FW-13, FW-14, 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). 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.

3.3.3 Threatened, Endangered, and Sensitive Species

The 2020 FSEIS (pp. 86 to 87) describes in detail the Endangered Species Act (ESA) Section 7(a)(2) process that was initiated in 2017. Formal consultation with the FWS has been conducted by the FERC, which is the lead Federal agency for the entire 303.5-mile-long MVP project. An updated SBA was prepared in July 2022 (MVP 2022b) in response to the Fourth Circuit's February 3, 2022 vacatur of the 2020 FWS BO and to address changes in the listing status of species and their habitat. To address the vacatur including those species that were determined likely to be adversely affected by the Project, the FWS is anticipated to issue a new BO and Incidental Take Statement for the MVP project in early 2023[25]. The new BO would supersede the vacated 2020 BO.

Appendix D provides a summary table of the Federally listed species and RFSS addressed in this DSEIS.

[25] For the broader 303.5-mile-long project, the FERC remains the lead consulting agency which is why the BO will address the MVP as a whole.

3.3.3.1 Affected Environment

Aquatic Species

Since publication of the 2020 FSEIS, the pipeline remains partially constructed on NFS lands and nearby watersheds were analyzed for direct, indirect, and cumulative effects. Monitoring and maintenance of ECDs is ongoing. Construction off NFS lands resumed in early 2021 but stopped in 2022 upon receipt of the Fourth Circuit's opinion and associated stop-work order from the FERC.

Special status species lists have changed since the 2020 FSEIS. Specifically, Critical Habitat for the candy darter was designated on May 7, 2021 and includes a segment of Stony Creek downstream of NFS lands. In addition, the Atlantic pigtoe (*Fusconaia masoni*) was listed as Threatened under the ESA and Critical Habitat was designated on December 16, 2021, including in Craig Creek, downstream of NFS lands. Finally, one aquatic species, the Tennessee dace (*Chrosomus tennesseensis*), is proposed to be added and two species are proposed to be removed (Sickle darter (*Percina williamsi)* and Allegheny County cave amphipod (*Stygobromus allegheniensis*)) from the Draft Updated Region 8 list of RFSS.

Since publication of the 2020 FSEIS, the following changed conditions with potential to affect Federally listed aquatic species have occurred: issuance of the 2021 FERC Boring EA regarding conventional boring; MVP sediment monitoring per the 2020 FWS BO; the Fourth Circuit's February 3, 2022 opinion on the 2020 FWS BO; and changes to the status of Federally listed species and designated critical habitat. This analysis considers each of these changed conditions as they relate to activities on NFS lands that may affect Federally listed aquatic species. Aquatic species for which there are no changed conditions or effects determinations (i.e., clubshell mussel [*Pleurobema clava*], snuffbox mussel [*Epioblasma triquetra*], yellow lance [*Elliptio lanceolata*], and James spineymussel [*Pleurobema collina*]) are addressed in the 2017 FERC FEIS and 2020 FSEIS and supplemental analysis is not needed. These changes are addressed in the environmental consequences section below.

Terrestrial and Plant Species

Existing conditions for terrestrial and plant species are as described above for aquatic species. In addition, there has been early successional tree and plant regrowth within the temporary construction ROW on Peters Mountain.

Terrestrial species for which there are no changed conditions or effects determinations (i.e., gray bat [*Myotis grisescens*], Virginia big-eared bat [*Corynorhinus townsendii virginianus*], rusty patched bumble bee [*Bombus affinis*], smooth coneflower [*Echinacea laevigata*], small whorled pogonia [*Isotria medeoloides*], and shale barren rock cress [*Arabis serotina*]) are addressed in the 2017 FERC FEIS and 2020 FSEIS and supplemental analysis is not needed.

As described in the 2020 FSEIS, four exotic invasive species were 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 2020, the invasive species tree-of-heaven (*Ailanthus altissima*) and princess tree (*Paulownia tomentosa*) have been observed growing within the temporary construction ROW on Peters Mountain.

Special status species lists have changed since the 2020 FSEIS:

- On November 29, 2022, the FWS reclassified the northern long-eared bat (*Myotis septentrionalis*) from Threatened to Endangered under the ESA.
- Additionally, on September 13, 2022, the FWS proposed to list the tricolored bat (*Perimyotis subflavus*) as endangered, and a decision is expected September 2023. Due to recovery of the species, running buffalo clover (*Trifolium stoloniferum*) was delisted on August 6, 2021.

- Changes to the Draft Updated Region 8 RFSS list:
    - Addition of four species: Tennessee dace, American bumble bee, little brown bat, and American Ginseng.
    - Removal of ten species: Sickle darter, Rafinesque's big-eared bat, Appalachia bellytooth, brown supercoil, highland slitmouth, crossed dome, delicate vertigo, cupped vertigo, Alleghany County cave amphipod, and Avernus cave beetle (Draft Updated RFSS List (June 1, 2022)).

3.3.3.2 Environmental Consequences

Methodology

The project biologists have formed professional judgments on probable effects. Professional judgments are based on field visits and site-specific information including species surveys; the FERC FEIS; independent agency review in 2022 of the *Hydrologic Analysis for the JNF* (Geosyntec Consultants 2020b) and the *Hydrologic Analysis for Aquatic Species* (Geosyntec Consultants 2020a); the 2017 Biological Assessment (BA) and 2020 and 2022 SBAs (FERC 2017c, MVP 2020b, MVP 2022b); the 2017 and 2020 FWS BOs (FWS 2017, 2020); the 2017, 2020, and 2022 Biological Evaluations (BEs) (MVP 2017; Copperhead 2020; Copperhead 2022); the POD and appendices (MVP 2022a); and data and information described in public comments on the DSEIS.

Alternative 1 – No Action

Aquatic Species

As described in the 2020 FSEIS (p. 105), 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 2021 and 2022 Transcon weekly and monthly monitoring reports shows that areas within the JNF continue to be stable and erosion and sedimentation controls are functioning as intended. Under the No Action Alternative, the JNF project area would be revegetated and minor, short-term adverse effects to aquatic TES would occur from use of equipment and vehicles during restoration activities (2022 POD Appendix H: Restoration Plan). 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. This is consistent with the conclusions in the FERC FEIS and 2020 FSEIS.

Erosion and sedimentation issues continue to occur along Pocahontas Road, however, contributing factors likely include the pre-existing condition of the roadway and an independent timber sale (TS) that was completed in 2022. The JNF is near completion of a separate action to improve the road surface, address in-stream road crossings, and reduce sedimentation associated with Pocahontas Road.

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 2017 FERC FEIS and 2020 FSEIS (p. 89). Indirect effects associated with habitat loss would occur over the long term because revegetation and restoration of the affected JNF lands under the No Action Alternative would be augmented through planting grasses, herbaceous cover, and woody vegetation. Because the pre-project condition was forest, this area would be regenerating trees, whether planted or volunteer species, for decades, in successional habitat stages. Under the No Action Alternative, the JNF project area would be revegetated and restored 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 both documents.

Alternative 2 – Proposed Action

Aquatic Species – Federally Listed

Conclusions in the 2021 FERC Boring EA regarding conventional bore methods for stream crossings are consistent with those disclosed in the 2020 FSEIS; conventional boring would result in fewer adverse effects on soils, water quality, and aquatic species compared to the originally proposed dry-ditch open cut method. After an independent agency review, the Forest Service determined that the analysis of conventional boring disclosed in the 2020 FSEIS (pp. 111 to 112) remains applicable and is discussed in further detail in Section 3.4.3. The 2022 SBA analyzed the effects of climate change on aquatic TES species and the Forest Service conducted its own independent agency review, determining that the effects disclosed (e.g., changes in water quality and temperature) in the SBA could be applicable to species on the JNF.

Per Monitoring Plan requirements in the 2020 FWS BO, MVP has conducted suspended sediment monitoring to ensure that incidental take limits for the Roanoke logperch and candy darter are not exceeded. Monitoring has occurred in multiple watersheds as directed by the FWS, but none of the commissioned[26] monitoring stations are located on NFS lands. In these watersheds, monitoring stations were installed on tributaries where pipeline construction was planned, as well as on species streams of interest (see Section 3.3.2). This allowed MVP and the FWS to determine if the SSC in tributaries near pipeline construction exceeded SSC in the larger streams that might house TES species. Under the Monitoring Plan, when thresholds were exceeded, the Project team was notified, and response actions were undertaken as outlined in Appendix F of the 2020 BO. After the vacatur, Mountain Valley voluntarily continued the Monitoring Plan. The results of the Monitoring Plan are discussed in the analyses below and presented in detail Appendix L of the 2022 SBA.

The analysis in this DSEIS acknowledges the Fourth Court's February 3, 2022 vacatur and that the FWS is anticipated to issue a new BO in early 2023 that will contain 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 implementation of all mandatory measures from the 2023 BO applicable to species and habitat on NFS land as a condition of approving the Plan amendment and concurring with the ROW grant. Therefore, the project, and all activities on NFS lands, would be compliant with the ESA.

Aquatic Species Action Area

The action area remains the same as described in the 2020 FSEIS (pp. 105 to 106): The upstream extent of the Action Area for aquatic species 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" (2020 FSEIS). 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, total suspended solids or suspended sediment concentration) from the project could not be discerned from background sediment concentrations (i.e., the concentration attenuation threshold)" (2020 FSEIS).

[26] Commissioned stations were installed, operational, and collecting data subject to Monitoring Plan requirements.

Candy Darter (*Etheostoma osburni*)

The candy darter is a small, freshwater fish found in small to large streams and rivers in the Gauley and greater New River watersheds in Virginia and West Virginia. As a habitat specialist, this species prefers fast flowing segments with coarse substrate (FWS 2018). Since publication of the 2020 FSEIS, this species has been listed as Endangered under the ESA and Critical Habitat has been designated. In consideration of the entire 303.5-mile-long project, the 2022 SBA recommended a determination of **May Affect, Likely to Adversely Affect** for this species (MVP 2022b).

No direct effects are anticipated for the candy darter on the JNF since the impact area defined in the 2022 SBA does not include any waterbodies in the JNF known to harbor the species (MVP 2022b). No candy darter Critical Habitat occurs in the JNF waterbodies crossed by the MVP. Indirect sedimentation effects to Stony Creek are anticipated from JNF ROW runoff via Kimballton Branch which does not support candy darter populations.

The 2020 FWS BO required sediment monitoring to assess the effects of pipeline activity on the candy darter. Project construction activities had not yet resumed in the candy darter sediment monitoring watersheds when the Fourth Circuit vacated the 2020 FWS BO. The candy darter monitoring stations were brought online upon installation, have remained operational, and have been continuously collecting data since installation. Although not officially commissioned for the Monitoring Plan (due to the vacatur), Mountain Valley conducted field inspections and remote analysis of potential exceedances measured by the stations. As discussed in more detail in Section 3.3.2.2, the monitoring data show that the maximum tributary SSCs during named storms were similar to or lower than the maximum SSCs at the upstream and downstream stations in the corresponding species streams for the same storms. This suggests that sources of SSCs in the tributaries, which include the pipeline along with other uses, have a similar or lower effect on water quality as sources in the upstream and downstream species streams, which do not include the pipeline. The maximum calculated SSC Differences in the species streams were all below the FWS's 3-hour 40 mg/L threshold for the named storms reviewed. None of the elevated calculated SSC Differences in the species streams exceeded the FWS Take Risk Concentration[27]. A thorough independent review of the MVP data was performed by Forest Service biologists and hydrologists.

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

Candy Darter Critical Habitat

The 2022 SBA determined that no direct adverse effects are likely because the pipeline will cross Stony Creek off NFS lands using a guided conventional bore crossing method. Indirect effects are anticipated to be negligible because the Transcon inspection reports show no appreciable sediment losses at the JNF stream crossings (MVP 2022b). The 2022 SBA recommended a determination of **Not Likely to Destroy or Adversely Modify** designated Critical Habitat**,** which is consistent with the 2020 SBA.

Roanoke Logperch (*Percina rex*)

This species typically occurs in warm, medium to large streams and rivers in riffles, runs, and pools, preferring the areas with sandy gravel to boulder type substrates. Throughout its life, logperch will use most habitat in the river and except in winter, is intolerant to moderately to heavily silted substrate.

[27] The Take Risk Concentration in a tributary to a Stream of Interest is the concentration of Project-related sediment that must occur in the tributary to potentially cause a 20 mg/L increase in the Stream of Interest as indicated in Table 2 of Appendix F to the 2020 BO.

Threats include sedimentation, industrial development, and flood control projects (FWS 1992). No Critical Habitat has been designated for the Roanoke logperch.

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 2022 SBA recommended a determination of **May Affect, Likely to Adversely Affect** the species for the MVP as a whole, but no suitable habitat occurs in the JNF and no effects from project activities on the JNF are expected.

As required by the 2020 BO and Monitoring Plan, Mountain Valley installed monitoring stations before resuming construction in each Roanoke logperch monitored watershed. In general, low flows and low turbidity were measured within the monitored tributaries where construction occurred. The Monitoring Plan conservatively assumed all measured turbidity/sediment contributions at the tributary monitoring stations were attributable to the Project. The maximum turbidity in each tributary before the Fourth Circuit's February 3, 2022 vacatur was below the tributary FWS's Take Risk Concentration that would require implementation of the BO's Rapid Response Protocol actions.

Post-vacatur, Mountain Valley voluntarily continued implementation of the Monitoring Plan. Observations during the post-vacatur period, when construction was inactive, were generally consistent with observations in the pre-vacatur period during active construction; they were below the FWS's Take Risk Concentration that would have required implementation of the BO's Rapid Response Protocol actions had the Project been under active construction.

Atlantic Pigtoe (*Fusconaia masoni)*

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). 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). Consultation with FWS in 2020 resulted in a No Effect determination. In December 2021, this species was listed as Threatened under the ESA and Critical Habitat was designated.

The 2022 SBA proposed retaining the 2020 determination of **No Effect** because the 2021 listing and Critical Habitat designation did not provide new information about the species or its occurrences near the project area (MVP 2022b).

As described in the 2020 FSEIS (pp. 98 to 99), populations of this species were not identified at any of the Project stream crossings, and the closest known population (according to the Virginia Department of Wildlife Resources [VDWR] Wildlife Environmental Review Map Service database) occurs in Craig Creek downstream of the confluence with Johns Creek approximately 30.2 miles downstream of the project area. 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 VDWR Wildlife Environmental Review Map Service 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 in that subwatershed (VDWR 2022a).

Atlantic Pigtoe Critical Habitat

During the 2020 reinitiated consultation, at which time FWS had proposed listing the Atlantic pigtoe as Threatened with a 4(d) rule and proposed designating Critical Habitat for the species, the 2022 SBA recommended a determination of **No Effect** on proposed critical habitat because the species does not occur "at or downstream of the MVP pipeline crossing of Craig Creek or any other MVP pipeline stream crossings, or in the Action Area (which includes upland sedimentation effects)" (MVP 2022b). The December 2021 final listing decision for the Atlantic pigtoe does not provide new information about the species or any occurrences in relevant proximity to the Project or its Action Area. Indirect effects on Critical Habitat are anticipated to be negligible because the pipeline will cross Craig Creek and its tributaries using a guided conventional bore crossing method to avoid or minimize impacts to streams.

Aquatic Species - RFSS

Under NFMA, the Forest Service is required to determine whether any RFSS are near the Proposed Action on NFS lands and to determine potential effects on those species. A Supplemental Biological Evaluation (SBE) was prepared in November 2022 to re-evaluate the RFSS with potential to be found on the JNF (MVP 2022d).

Since publication of the 2020 FSEIS, the Tennessee dace is being added to the Draft Updated Region RFSS list. The Tennessee dace does not occur in watersheds affected by the project and therefore is not included in the 2022 SBE or this DSEIS for further analysis. As a result, the analysis of effects on aquatic RFSS remains unchanged from that disclosed in the 2020 FSEIS (pp. 96 to 99).

Terrestrial Species – Federally Listed

The effects analyses for Federally listed terrestrial species addressed in the 2020 FSEIS are unchanged. Species addressed here are those whose listing status has since changed or were specifically addressed in the Fourth Circuit's February 3, 2022 decision regarding the FWS 2020 BO.

Terrestrial Species Action Area

The Action Area is the same as described in the 2020 FSEIS and covers 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 2020).

Indiana bat (*Myotis sodalis*)

Indiana bats are a nocturnal, medium-sized, brown-colored insectivorous bats ranging in size from 2.9 – 3.8 inches and weigh about as much as a nickel (< 0.3 ounces) (FWS 2022). The geographic range of Indiana bats includes much of the eastern, southeastern, and north central United States, including all of Virginia and West Virginia. Indiana bats migrate seasonally between caves or abandoned mines (hibernacula) in the winter and their summer range where they roost in dead, dying, or live trees with cracks, crevices, or exfoliating bark. There is no Critical Habitat for this species near the JNF.

The 2022 SBA recommended an effects determination of **May Affect, Likely to Adversely Affect** for the Indiana bat for the MVP as a whole. However, no effects are anticipated on the JNF. 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 in 2018. FWS has confirmed that the areas where trees were cleared for the Project continue to be unsuitable for bat species and will be for years to come (A. Bossie, FWS personal communication., July 2022). Based on coordination with VDWR, no new capture

or roost records have been reported with the Action Area (MVP 2022b). Some Indiana bat individuals would possibly be impacted during construction and operation and maintenance of the project. As summarized in Section 2.2.2.2, the Project would require implementation of measures to avoid, minimize, and mitigate adverse effects 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 (MVP 2022b). They weigh about as much as 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 southeastern Canada, much of the central, eastern, and northeastern United States, including all of Virginia and West Virginia. Northern long-eared bats hibernate in caves or abandoned mines in winter and roost underneath bark or in cavities or crevices of both live and dead trees in the summer during their reproductive season.

The 2022 SBA recommended an effects determination of **May Affect, Likely to Adversely Affect** for the northern long-eared bat for the MVP as a whole. Results of summer mist-net and harp trap surveys conducted in 2015 confirmed presence of northern long-eared bats within the LOD. Additional mist-net surveys have not been required by FWS since trees were removed in 2018 and the Action Area is no longer considered bat habitat. The Action Area for northern long-eared bat is the same as described above for the Indiana bat (MVP 2022b). Individuals present during spring staging and autumn swarming may be impacted during project development. As summarized in Section 2.2.2.2, the Project would require implementation of measures to avoid, minimize, and mitigate adverse effects on the northern long-eared bat.

Tricolored bat (*Perimyotis subflavus*)

On September 13, 2022, the FWS listed the tricolored bat as Proposed Endangered. Official listing as Endangered is expected in September 2023. Tricolored bats are geographically located from southeastern Canada south to Honduras and west through Oklahoma (Silvis et al. 2016). They typically leave their hibernacula from mid-April to early May and arrive at their maternity colonies shortly thereafter (Whitaker 1998, Silvis et al. 2016). Parturition occurs around late May to early July to one or two pups, with juveniles volant after about a month (Whitaker 1998). Fall migration may be in mid-August with bats entering their hibernacula between late September to mid-October (Silvas et al. 2016, Fraser et al. 2012). Similar to other Eastern United States bats, mating occurs in the fall and sperm is stored until after spring emergence.

Tricolored bats typically roost in dead or live foliage in the summer (Perry and Thill 2007, Veilleux et al. 2003) and hibernate in caves, culverts, rock crevices, and mines (FWS 2019). They have also been documented using bridges, decks, and buildings, as well as artificial roost structures such as rocket boxes and bat houses in the summer (Cervone et al. 2016, Whitaker 1998). While habitat availability is not a limiting factor for the species (Silvas et al. 2016), Perry and Thill (2007) found that tricolored bats prefer mature hardwood forests that contain abundant midstory hardwoods.

Perry and Thill (2007) also found that tricolored bat roosts were primarily in unharvested greenbelts which contained abundant midstory hardwoods. Silvas et al. (2016) suggest that while habitat availability is not a limiting factor for the species, tree felling activities and habitat manipulation should be limited during the active maternity season. Along with the Indiana and northern long-eared bats, tricolored bats have been heavily impacted by white-nose syndrome, a fungal disease harming and killing bats during hibernation.

The 2022 SBA recommended an effects determination of **May Impact Individuals – Is Not Likely to Cause a Trend Toward Federal Listing or Loss of Viability** for the tricolored bat for the MVP as a whole. Bat surveys were conducted in 2015 and 2016, but no tricolored bats were captured within the JNF ROW. Forested areas of the JNF outside of the Action Area provide potential summer habitat for tricolored bats. Additional mist net surveys may not be required by FWS since trees were removed in 2018 and the Action Area is no longer considered bat habitat. 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 (VDWR 2022b). Therefore, no additional effects would occur for this species that have not been covered by other BMPs and conservation measures (i.e., noise, hydrology, and karst features).

Terrestrial Species – RFSS

The list of terrestrial RFSS considered in the 2022 SBE is different from that in the 2020 SBE, 2017 BE, and FERC FEIS because the Region 8 RFSS list is being updated and the Draft Updated Region 8 RFSS was considered in the 2022 SBE. As of June 1, 2022, two additional terrestrial RFSS are being assessed for their potential to be affected by the project: the American bumble bee and the little brown bat. Preliminary determinations for these species are provided in this DSEIS. All other RFSS determinations made in the 2020 SBE remain the same.

American Bumble Bee (*Bombus pensylvanicus*)

In September 2021, the FWS found that the American bumble bee may be warranted for listing and initiated a status review (*Federal Register*/ Vol. 86, No. 186). Historical distribution ranged across most of North America, but distribution has declined to and is now more common from Florida, west to Colorado, Texas, and New Mexico (Rourke 2022). Found in open farmlands, it is a food generalist and will gather pollen and nectar from the plant genera *Vicia*, *Trifolium*, *Solidago*, and *Hypericum*, among others (NatureServe 2022).

A **No Impact** determination is made for the American bumble bee. This species has not been documented in the JNF. However, tree removal may create potential American bumble bee habitat. Revegetation of the ROW would follow a two-step process as recommended by the Forest Service: 1) stabilization of soils immediately following tree removal and construction activities with appropriate seed mixes and techniques and 2) revegetation of the ROW corridor as needed with native seed mixes recommended in consultation with the Forest Service.

Little Brown Bat (*Myotis lucifugus*)

The little brown bat is currently under review for listing under the ESA. Little brown bats can be found throughout most of the United States and Canada although it is generally absent from the southern Great Plains region (NatureServe 2022).

Little brown bats have been documented using human dwellings such as barns, sheds, attics, and buildings for roosting in the summers (Fenton and Barclay 1980; Davis et al. 1965; Kalcounis and Hecker 1995; Humphrey and Cope 1976), as well as artificial roost structures such as artificial bark (i.e., BrandenBark®) and bat boxes (Gumbert et al. 2013; Besler and Broders 2019; Waldron and Burke 2021; Webber and Willis 2018). However, they are also known to use trees, natural crevices, and rock crevices (Johnson et al. 2019).

During the summer months, female little brown bats have been documented to primarily use hot, dark, and poorly ventilated buildings for maternity day roosts while adult male bats roost either individually or

in small groups in rock crevices, tree hollows, loose tree bark, or small openings in buildings separate from the maternity roost (Humphrey and Cope 1976). It is assumed that prior to construction of man-made structures, little brown bats used hollow trees and rock crevices as maternity roosts, however other published documentation of natural roosts used by little brown bats is uncommon (Barclay and Cash 1985). Foraging habitat includes margins and edges of waterbodies and overtop of waterbodies (Fenton and Barclay 1980).

Winter hibernacula for little brown bats includes caves and abandoned mines with high humidity levels and temperatures above freezing. Little brown bats will often form clusters of both sexes during hibernation (Fenton and Barclay 1980).

A **May Impact Individuals – Is Not Likely to Cause a Trend Toward Federal Listing or Loss of Viability** determination is made for the little brown bat. Summer habitat for little brown bats is present within the JNF in the form of trees. However, the removal of trees has already occurred. There are no known winter hibernacula within the project area on the JNF; however, there are three known hibernacula in Giles County. The closest hibernaculum to the JNF sections of the MVP is approximately 3 miles northwest of the project (VDWR 2022b). Indirect effects from blasting are not expected to detrimentally impact little brown bats in the vicinity of the project area. No additional effects would occur for this species that have not been covered by other mitigation measures, i.e., noise, hydrology, and karst features.

Conclusion

To minimize or avoid adverse effects on terrestrial habitat that support RFSS, the POD includes Environmental Protection Measures in Appendix V: Plant and Wildlife Conservation Measures Plan. Other measures that would contribute to minimizing effects to RFSS are included in the FERC Plan and Procedures, the POD Appendix C: Erosion and Sediment Control Plan, and Appendix D: Spill Prevention, Control, and Countermeasure Plan. The SBE 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

There have been no changed conditions other than the delisting of running buffalo clover affecting Federally listed plant species, therefore, the analysis and effects determinations are unchanged from the 2020 FSEIS (pp. 121 to 123).

Plant Species – RFSS

The list of RFSS plants considered in the 2022 SBE is different from that in the 2020 SBE because the Region 8 RFSS list is being updated and the list contains American ginseng (*Panax quinquefolius*). Therefore, American ginseng is included in this DSEIS.

American Ginseng (*Panax quinquefolius*)

American ginseng is an herbaceous perennial with greenish-white flowers and red, berry-like fruits. It is native to the eastern US and Canada, and as far west as the Dakotas (NRCS 2003). This plant occurs primarily in rich, moist woods under a closed canopy of hardwood or mixed forests. According to NatureServe, the largest threat to this species is digging of its roots for commercial sale (NatureServe 2022). The root is valued as a medicinal herb and harvest of the plant is monitored by the FWS (VDAC 2022). As a result of commercial demand and illegal digging, most states have strictly regulated or prohibited collection of this species (NRCS 2003).

A **May Impact Individuals – Is Not Likely to Cause a Trend Toward Federal Listing or Loss of Viability** determination is made for American ginseng. This species was found at three locations during

plant surveys on alternative pipeline routes on JNF land that are no longer part of the proposed route (MVP 2017). Although suitable habitat is present within the project area, tree removal within the activity area has already occurred and therefore, the activity area is no longer under a closed canopy of mature trees or shaded. No additional effects would occur for this species that have not been covered by other mitigation measures.

Conclusion

To minimize or avoid adverse effects on vegetation habitat that support RFSS, the POD includes Appendix V: Plant and Wildlife Conservation Measures Plan (e.g., use existing roads to the pipeline before constructing new access roads, implement a project-specific erosion and sediment control plan, use Forest Service approved seed mixes for all restoration efforts) and Appendix S: Exotic and Invasive Species Control Plan (reseed all disturbed areas promptly after final grading, require equipment cleaning stations to ensure equipment is free of debris or excess soil to minimize potential for spread of weeds or soil-borne pests). The 2022 SBE determined that MVP would not cause a trend toward Federal listing or loss of viability for any plant species.

Summary of Species Determinations

Table 6 provides a summary of the TES species effects determinations referenced in this DSEIS.

Table 6. Summary of Threatened, Endangered, and Sensitive Species Effects Determinations

Status	Group	Species Name	Common Name	Effects Determination
Federally Endangered	Fish	*Etheostoma osburni*	Candy darter	May Affect, Likely to Adversely Affect; May Affect, Not Likely to Destroy or Adversely Modify Critical Habitat
Federally Endangered	Fish	*Percina rex*	Roanoke logperch	May Affect, Likely to Adversely Affect
Federally Threatened	Mussel	*Fusconaia masoni*	Atlantic pigtoe	No Effect; No Effect to Critical Habitat
Federally Endangered	Mammal	*Myotis septentrionalis*	Northern long-eared bat	May Affect, Likely to Adversely Affect
Federally Endangered	Mammal	*Myotis sodalis*	Indiana bat	May Affect, Likely to Adversely Affect
Federally Proposed Endangered	Mammal	*Perimyotis subflavus*	Tricolored bat	May Impact Individuals – Is Not Likely to Cause a Trend Toward Federal Listing or Loss of Viability
RFSS	Mammal	*Myotis lucifugus*	Little brown bat	May Impact Individuals – Is Not Likely to Cause a Trend Toward Federal Listing or Loss of Viability
RFSS	Insect	*Bombus pensylvanicus*	American bumble bee	No Impact
RFSS	Vascular Plant	*Panax quinquefolius*	American ginseng	May Impact Individuals – Is Not Likely to Cause a Trend Toward Federal Listing or Loss of Viability

3.3.3.3 Effects of Forest Plan Amendment on Aquatic and Terrestrial Species

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 Standards 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 7.

Table 7. Effects of Proposed Forest Plan Amendment on Aquatic and Terrestrial Species

JNF Forest Plan Standards (Modifications in Italics)	Effects on Fisheries and Aquatic Species	Effects on Terrestrial Species
Utility Corridors		
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.*	Does not change conditions apart from those required to construct and maintain pipeline which is already addressed in FEIS and POD.	Does not change conditions apart from those required to construct and maintain pipeline which is already addressed in FEIS and POD.
Soils and Riparian		
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 (e.g., Appendix C-1 to C-3, Erosion and Sediment Control Plan; Appendix E, ANST Contingency Plan; Appendix H, Restoration Plan) 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.	Does not change conditions apart from those required to construct and maintain pipeline which is already addressed in FEIS and POD.
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 (e.g., Appendix C-1 to C-3, Erosion and Sediment Control Plan; Appendix E, ANST Contingency Plan; Appendix H, Restoration Plan) 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.	Does not change conditions apart from those required to construct and maintain pipeline which is already addressed in FEIS and POD.	Does not change conditions apart from those required to construct and maintain pipeline which is already addressed in FEIS and POD.
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 (e.g., Appendix C-1 to C-3, Erosion and Sediment Control Plan; Appendix E, ANST Contingency Plan; Appendix H, Restoration Plan) 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.	Does not change conditions apart from those required to construct and maintain pipeline which is already addressed in FEIS and POD.
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 (e.g., Appendix C-1 to C-3, Erosion and Sediment Control Plan) 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.

Table 7 (continued). Effects of Proposed Forest Plan Amendment on Aquatic and Terrestrial Species

JNF Forest Plan Standards (Modifications in Italics)	Effects on Fisheries and Aquatic Species	Effects on Terrestrial Species
Standard FW-14: In channeled ephemeral zones, up to 50 percent 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 (e.g., Appendix C-1 to C-3, Erosion and Sediment Control Plan) 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. The effects of implementing mitigation measures and design requirements would be consistent with the wildlife, TES species analysis in the FERC FEIS and would not result in any additional effects beyond those disclosed in the FERC FEIS.
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 (e.g., Appendix C-1 to C-3, Erosion and Sediment Control Plan, Appendix M, Winter Construction Plan) 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		
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 MVP construction zone; and maintain the MVP right-of-way in accordance with the approved POD.	Does not change analysis and conclusions of the FEIS, BA, or BE, which address these issues.	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.
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 right-of-way.* Existing uses are allowed to continue.	Does not change analysis and conclusions of the FEIS, BA, or BE, which address these issues.	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.
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 right-of-way in accordance with the POD (e.g., Appendix E, ANST Contingency Plan).* 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.

Table 7 (continued). Effects of Proposed Forest Plan Amendment on Aquatic and Terrestrial Species

JNF Forest Plan Standards (Modifications in Italics)	Effects on Fisheries and Aquatic Species	Effects 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, in accordance with the POD (e.g., Appendix H, Restoration Plan).* 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.

3.3.4 National Forest Management Act

Plan amendments are guided by Federal regulations at 36 CFR § 219 (NFMA implementing regulations, 2012 Planning Rule, or Planning Rule). This proposed amendment applies only to the MVP project and thus is considered a project specific amendment. The plan amendment process consists of three primary steps:

1. Determine which plan standards must be amended in order to allow the project to be consistent with the amended plan (36 CFR § 219.13(a)).
2. Determine which of the substantive requirement(s) within §§ 219.8 through 219.11 are directly related to the proposed amendment based on the purpose and the effects of the amendment (36 CFR § 219.13(b)(5)). Whether a substantive requirement is directly related to an amendment is determined by the purpose or effects of the amendment (36 CFR § 219.13(b)(5)(i)). When basing the determination on adverse effect, a substantive requirement is directly related if the adverse effects are substantial or when the amendment would substantially lessen plan protections of a specific resource (36 CFR § 219.13(b)(5)(ii)(A)).
3. Apply those directly related substantive requirements to the amended plan within the scope and scale of the proposed amendment (36 CFR § 219.13(b)(5)).[28]

3.3.4.1 Step 1: Determine Standards to be Modified

The project as proposed would not be consistent with 11 standards in the JNF Forest Plan. The following standards will be modified to allow the proposed project to be consistent with the amended plan:

- FW-5 (revegetation)
- FW-8 (soil compaction in water saturated areas)
- FW-9 (soil effects from heavy equipment use)
- FW-13 (exposed soil)
- FW-14 (residual basal area within the channeled ephemeral zone)
- FW-184 (scenic integrity objectives)
- FW-248 (utility corridors)

[28] For further discussion of scope and scale, please see Appendix A.

- 4A-028 (Appalachian National Scenic Trail [ANST] and utility corridors)
- 6C-007 (tree clearing in the old growth management area)
- 6C-026 (utility corridors in the old growth management area)
- 11-003 (exposed soil within the riparian corridor)

3.3.4.2 Step 2: Determining Directly Related Substantive Requirements

The purpose of Step 2 is to identify what 2012 Planning Rule requirement(s) within 36 CFR §§ 219.8 through 219.11 are directly related to the amendment. Whether a substantive requirement 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)). In determining what requirements are directly related, the agency can ensure, through monitoring, site visits, and inspections, that the project is consistent with the amended Forest Plan.

The scope of this proposed project-specific amendment is defined as the 11 plan standards that are proposed for modification for only the MVP project. The scale for the proposed project-specific amendment varies by resource as described in Step 3 and Appendix A.

Utility Corridors

The 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. For the MVP project, the utility corridor would not be in a designated Management Prescription 5C, and the corridor would be managed under the current management prescriptions of: 4A-Appalachian National Scenic Trail Corridor; 4J-Urban/Suburban Interface; 6C-Old Growth Forest; and 8A1-Mix of Successional Habitats and 11-Riparian Corridors. The use of designated utility 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 500-foot-wide utility corridor designation could affect adjacent landowners by attracting future development. 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 project-specific Forest Plan amendment to modify this standard was proposed. The FERC FEIS and this DSEIS 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 are speculative at this time.

> **Purpose** – The purpose of amending standard FW-248 is to allow MVP to exceed one standard for managing for future utility corridors. Therefore, the proposed modification of standard FW-248 is directly related to the substantive requirements § 219.10(a)(3) – Appropriate placement and sustainable management of infrastructure, such as recreational facilities and transportation and utility corridors.
>
> **Effects** – There are no direct environmental effects of not designating the MVP corridor as Management Prescription 5C. In addition, there are 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 beneficial or adverse effects of not changing the land allocation. Since there would be no effects of not designating the corridor to Management Prescription 5C, the lessening of plan protections consideration is not applicable.

The proposed modification of standard FW-248 is directly related to § 219.10(a)(3) – Appropriate placement and sustainable management of infrastructure, such as recreational facilities and transportation and utility corridors. This is based on only the purpose of the amendment. No substantive requirements are directly related to the modification of standard FW-248 based on effects.

Soil and Riparian

Six 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 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 MVP.

Purpose - The purpose of amending standards FW-5, FW-8, FW-9, FW-13, FW-14, and 11-003 is to allow MVP to exceed one of the 56 standards for riparian area protection in Management Prescription 11, and five of the 30 Forest-wide standard for water, soil, and channeled ephemeral (riparian) zone protection. To ensure the amended plan continues to maintain or restore these resources, however, Forest Service will require MVP to implement mitigation measures from the POD to protect soil and water. The modification of these six 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; § 219.8(a)(3)(i) – ecological integrity of riparian areas; and §219.11(c) – timber harvesting for purposes other than timber production.

Effects - The effect of the modification of the six soils and riparian standards includes minor adverse effects of vegetation removal, 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. The greatest impacts to soils, riparian, and water resources would be during the construction and restoration period.

As stated previously, sedimentation modeling estimated that enhanced ECDs would be effective at minimizing sedimentation in waterways. The model estimated that baseline sediment yields would vary from 0.15 to 0.43 tons/ac/yr at each HUC-12 watershed outlet, with a median of 0.35 tons/ac/yr for the study area. The model estimated that sediment yields during the tree clearing phase of the project would increase by less than 0.001 tons/ac/yr (median: less than 0.001 tons/ac/yr) above the baseline. The sedimentation modeling estimated that sediment yields during construction would increase by less than 0.001 to 0.011 tons/ac/yr (median: 0.003 tons/ac/yr) above the baseline. This correlates to an increase of 0.1% to 2.6% (median: 1.1%) compared to

the baseline scenario. One year after construction is completed, sediment yields would be reduced to about 0.01% to 0.5% (median: 0.4%) above baseline. Comprehensive analysis of the modeling results and real-world data indicates that the ECDs that were installed and maintained are effective at managing sediment yields. Corresponding impacts to the soil resources would not be substantial across the HUC-12 watersheds and even less substantial across the JNF.

Further, 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), Landslide Mitigation Plan (POD, Appendix F), Site-Specific Design of Stabilization Measures in High Hazard Portions of the Route (POD, Appendix G), Restoration Plan (POD, Appendix H), and Winter Construction Plan (POD, Appendix M) would ensure effects to soils, riparian, and water resources are minimized and are designed to expedite vegetative recovery, such as planting trees and shrubs in the riparian corridor. Continuous monitoring indicates mitigation measures and design criteria are effective at minimizing impacts to soils, riparian, and water resources.

Based on the sedimentation analysis in context of the scope and scale of the amendment at the project level, modifying the six soils and riparian standards would not cause a substantial lessening of plan protections. (See Section 3.3.2 of the DSEIS for an analysis of sedimentation effects.) As stated above, most impacts occur during the construction and restoration phases of project, which would be considered minor and temporary adverse effects. In the long-term, after restoration has occurred and the project is in the operation and maintenance phase, sedimentation is expected to be minor (0.001 tons/ac/yr to 0.002 tons/ac/yr over baseline) due to maintenance and operation activities of the pipeline. Standards FW-5, FW-8, FW-9, FW-13, and FW-14 would continue to apply to the remaining 723,300 acres of the JNF, and Standard 11-003 would continue to apply to the remaining 73,600 acres in management prescription 11 on the JNF. The modified six standards would only apply to the 54-acre construction zone during construction activities and 22-acre authorized ROW, which would not constitute a substantial lessening of plan protections. Therefore, no substantive requirements are directly related due to lessening of plan protections.

The proposed modification of the six standards related to soil and water (FW-5, FW-8, FW-9, FW-13, FW-14 and 11-003) is directly related to § 219.8(a)(2)(ii) – soils and soil productivity, § 219.8(a)(2)(iii) – water quality, § 219.8(a)(2)(iv), § 219.8(a)(3)(i) – ecological integrity of riparian areas, and § 219.11(c) – timber harvesting for purposes other than timber production. These five substantive requirements are only directly related to the proposed amendment through the purpose of the amendment. None of the substantive requirements are directly related through substantial adverse effects, beneficial effects, or substantial lessening of plan protections.

Old Growth Management Area

Two 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 Draft EIS to be reallocated to Management Prescription 5C-Utility Corridor, but that part of the proposal was reconsidered in the FERC FEIS (see Utility Corridor write-up above). Therefore, the Forest Service proposes to modify these two standards for the construction and operation of the MVP on NFS lands.

Purpose - The purpose of modifying standards 6C-007 and 6C-026 is to allow MVP to exceed two of the 27 Forest Plan standards for old growth protection. Therefore, the modification of these two old growth standards is directly related to § 219.8(a)(1) – ecosystem integrity and § 219.9(a)(2) – ecosystem diversity 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.

Effects - The proposed modification of these two old growth standards would result in the clearing of about two acres of old growth within areas designated as 6C (FERC FEIS, Sec. 5.1.8, p. 5-9). Although this is an adverse impact to old growth ecosystems, it is not a substantial adverse impact due to the limited extent of the impact (about 2 of 30,200 old growth acres forest-wide). Therefore, no substantive requirements are directly related due to substantial adverse effects or beneficial effects.

Modifying the two old growth standards would not cause a substantial lessening of plan protections. As stated above, only two acres would be adversely impacted due to tree removal. Standards 6C-007 and 6C-026 would continue to apply to the remaining 30,200 acres in management prescription 6C on the JNF. Removal of these two acres would not constitute a substantial lessening of plan protections, and thus, no substantive requirements are directly related due to lessening of plan protections.

The proposed modification of the two old growth standards (6C-007 and 6C-026) is directly related to § 219.8(a)(1) – ecosystem integrity, § 219.9(a)(2) – ecosystem diversity, § 219.11(c) – timber harvesting for purposes other than timber production. These three substantive requirements are only directly related to the proposed amendment through the purpose of the amendment. None of the substantive requirements are directly related through substantial adverse effects, beneficial effects, or substantial lessening of plan protections.

Appalachian National Scenic Trail

The Forest Plan standard 4A-028 requires the Forest Service to locate new public utilities and ROWs along the ANST in areas where major effects 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 associated with the alternative routes included: longer routes; greater effects to old growth, inventoried roadless areas, wetlands, and other recreational effects; and increased risks from landslide prone areas (FERC FEIS Appendix AA). This proposed amendment would allow for a pipeline route to cross the ANST at a location where no other major effects already exist.

Purpose - The purpose of modifying standard 4A-028 is to allow MVP to exceed one out of 30 Forest Plan standards for the ANST corridor. Therefore, the modification of the 4A-028 standard is directly related by the purpose of the amendment to § 219.10(b)(1)(i) – sustainable recreation, including recreation setting, opportunities, access; and scenic character, and § 219.10(b)(1)(vi) – appropriate management of other designated areas or recommended designated areas in the plan area, including research natural areas.

Effects - The effect of the modification of the 4A-028 standard would be the allowance of a new utility corridor to cross under the ANST at a location other than where major effects already exist. As disclosed in the following paragraph, 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 and because effects would be limited to the approximately 10-week construction period.

The MVP would cross by boring under the trail, with an approximate 300-foot forested buffer on either side of the trail and 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 (anticipated to be 10 weeks) (FERC FEIS, p. 3-52) (POD, Sec. 1.3). Multiple measures are required to minimize impacts on recreational users on the ANST and the ANST itself. For example, Appendix E and Section 7.5.2 of the POD include measures to avoid placing equipment near the ANST, avoid conducting trenching near the ANST, and mitigation to control fugitive dust. Additionally, because there is a 70- to 90-foot elevation difference between the bore holes and the ANST, topography acts as a natural barrier to reduce potential visual impacts to the south of the ANST. Because there would be no long-term noise effects and the approximately 300-foot vegetative buffer on either side of the trail would screen the Project, the amended standard is only needed for approximately 10 weeks of construction; operation of the ROW is expected to meet Forest Plan direction.

In conclusion, modifying standard 4A-028 would not cause a substantial lessening of plan protections. As stated above, the pipeline would cross under the trail with a 300-foot-wide forested buffer on either side. The POD requires multiple measures to minimize noise, visual, and recreational impacts. The variance would only be needed for the anticipated 10-week construction period because operation of the ROW is expected to meet Forest Plan direction. Standard 4A-028 would continue to apply to the remaining 63,300 acres of the ANST corridor on the JNF and 29 other standards in Management Prescription 4A would be unaffected by the variance. Allowing the pipeline to go under the ANST would not constitute a substantial lessening of plan protections, and thus, no substantive requirements are directly related due to lessening of plan protections.

The proposed amendment for 4A-028 is directly related to § 219.10(b)(1)(i) – sustainable recreation, including recreation setting, opportunities, access; and scenic character, and § 219.10(b)(1)(vi) – appropriate management of other designated areas or recommended designated areas in the plan area, including research natural areas. These two substantive requirements are only directly related to the proposed amendment through the purpose of the amendment. None of the substantive requirements are directly related through substantial adverse effects, beneficial effects, or substantial lessening of plan protections.

Scenery Integrity Objectives

The 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 (50-foot-wide authorized ROW) would cross two areas on NFS lands assigned a Very High SIO (0.5 acres), High SIO (6.2 acres), four areas with a Moderate SIO (14.5 acres), and one area with a Low SIO (1.8 acres) (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 areas may appear slightly altered but should borrow from elements of form, line, color, texture, and scale found in the characteristic landscape. The clearing of vegetation along the ROW would highlight the linear nature of the pipeline and would not be consistent with the natural form, lines, and scales in the in adjacent landscape. This alteration of the landscape would be obvious to the casual observer and the landscape would appear altered. It is not practical to modify the MVP construction methods and achieve consistency with High and Moderate SIOs due to the linear nature of pipelines and the need to remove the vegetation along the corridor, which creates an unnatural form on the landscape. Therefore, the Forest Service proposes to amend FW-184 for the MVP project.

Purpose - The purpose of modifying standard FW-184 is to allow to allow MVP to exceed one of the 20 Forest-wide standards for scenery. Therefore, the modification of the FW-184 standard is directly related to § 219.10(b)(1)(i) – sustainable recreation, including recreation setting, opportunities, access; and scenic character – due to the purpose of the amendment.

Effects - The effect of the modification of the FW-184 standards would be the degradation of scenic quality inconsistent with the 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 construction zone and ROW are found in the updated POD (Sec. 7.9). The project crossing of the ANST would retain vegetative cover 300 feet on either side of the ANST, thus mitigating foreground visual impacts. Additionally, the topography acts as a natural barrier to reduce potential visual impacts to the south of the ANST. Background and middle ground visual impacts would occur for the long-term with the ROW (22 acres) remaining in an early successional vegetative condition; however, on NFS lands the ROW would be managed in an early successional condition for only 10 feet rather than the entire 50-foot ROW and planting would be used to minimize the temporal impact to the scenic character. This would significantly reduce the visibility of the pipeline, especially in the background and middle ground. Vegetative growth would allow the corridor to meet the assigned SIO within five years following construction (FERC FEIS p. 4-338).

Modifying standard FW-184 through the proposed amendment would not cause a substantial lessening of plan protections. As stated above, the pipeline would go under the trail and a forest buffer 300 feet on either side of the ANST would remain. In addition the mitigation measure of managing the ROW in herbaceous cover for only 10 feet rather than the full 50 feet would minimize impacts to scenic character. Standard FW-184 would continue to apply across the Forest with 283,000 acres remaining in a high SIO with the MVP project only affecting 0.5 acres in Very High SIO, 6.2 acres in High SIO, and 242,000 acres remaining in a Moderate SIO with the MVP project only affecting 14.5 acres in Moderate SIO. Exempting the MVP project from FW-184 would not constitute a substantial lessening of plan protections, and thus, no substantive requirements are directly related due to lessening of plan protections.

The proposed modification of FW-184 is directly related to § 219.10(b)(1)(i) – sustainable recreation, including recreation setting, opportunities, access; and scenic character. This substantive requirement is only directly related to the proposed amendment through the purpose of the amendment. None of the substantive requirements are directly related through substantial adverse effects, beneficial effects, or substantial lessening of plan protections.

Additional Effect

One additional effect of the proposed amendment not tied to the proposed modification of any particular 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.

Directly Related Substantive Requirements

Based on the criteria and analyses described above, the substantive requirements that are directly related were only through the purpose of the amendment except for § 219.8(b)(3) – multiple uses that contribute to local, regional, and national economies, which was directly related through beneficial effects. The substantive requirements that are directly related include:

- § 219.8(a)(1) – Ecosystem integrity
- § 219.8(a)(2)(ii) – Soils and soil 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
- § 219.8(b)(3) – Multiple uses that contribute to local, regional, and national economies
- § 219.9(a)(2) – Ecosystem diversity
- § 219.10(a)(3) – Appropriate placement and sustainable management of infrastructure, such as recreational facilities and transportation and utility corridors
- § 219.10(b)(1)(i) – Sustainable recreation, including recreation setting, opportunities, access; and scenic character
- § 219.10(b)(1)(vi) – Appropriate management of other designated areas or recommended designated areas in the plan area, including research natural areas
- § 219.11(c) – Timber harvest for purposes other than timber production

Table 8. Summary of Plan Amendment Step 2 – Determining Directly Related Substantive Requirements.

Standard	Directly Related			Required Protection Measures in the POD
	Purpose	*Effect*	*Substantive Requirement*	
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 Forest Plan, p. 2-60).	Yes	No	• § 219.10(a)(3) – appropriate placement and sustainable management of infrastructure, such as recreational facilities and transportation and utility corridors	N/A
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 percent of the activity area and revegetation is accomplished within 5 years (JNF Forest Plan, p. 2-7).	Yes	No	• § 219.8(a)(2)(ii) – soils and soil productivity • § 219.8(a)(2)(iii) – water quality • § 219.8(a)(2)(iv) – water resources	• Appendix C-1 to C-3, Erosion and Sediment Control Plan • Appendix H, Restoration Plan • Appendix E – ANST Contingency Plan
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 Forest Plan, p. 2-7).	Yes	No	• § 219.8(a)(2)(ii) – soils and soil productivity • § 219.8(a)(2)(iii) – water quality • § 219.8(a)(2)(iv) – water resources	• Appendix C-1 to C-3, Erosion and Sediment Control Plan • Appendix H, Restoration Plan • Appendix E – ANST Contingency Plan
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 Forest Plan, p. 2-7).	Yes	No	• § 219.8(a)(2)(ii) – soils and soil productivity • § 219.8(a)(2)(iii) – water quality • § 219.8(a)(2)(iv) – water resources	• Appendix C-1 to C-3, Erosion and Sediment Control Plan • Appendix H, Restoration Plan • Appendix E – ANST Contingency Plan

Table 8 (continued). Summary of Plan Amendment Step 2 – Determining Directly Related Substantive Requirements.

Standard	Directly Related			Required Protection Measures in the POD
	Purpose	*Effect*	*Substantive Requirement*	
Standard FW-13: Management activities expose no more than 10% mineral soil in the channeled ephemeral zone (JNF Forest Plan, p. 2-8).	Yes	No	• § 219.8(a)(2)(ii) – soils and soil productivity • § 219.8(a)(2)(iii) – water quality • § 219.8(a)(2)(iv) – water resources	• POD Appendix C-1 to C-3, Erosion and Sediment Control Plan
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 LRP, p. 2-8).	Yes	No	• § 219.8(a)(2)(iii) – water quality • § 219.8(a)(2)(iv) – water resources § 219.8(a)(3)(i) – ecological integrity of riparian areas • § 219.11(c) – timber harvesting for purposes other than timber production	• Appendix C-1 to C-3, Erosion and Sediment Control Plan
Standard 11-003: Management activities expose no more than 10 percent mineral soil within the project area riparian corridor (JNF Forest Plan, p. 3-182).	Yes	No	• § 219.8(a)(2)(ii) – soils and soil 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	• Appendix C-1 to C-3, Erosion and Sediment Control Plan • Winter Construction Plan – Appendix M
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 Forest Plan, pp. 3-82 to 3-83).	Yes	No	• § 219.8(a)(1) – ecosystem integrity • § 219.9(a)(2) – ecosystem diversity • § 219.11(c) – timber harvesting for purposes other than timber production	N/A

Table 8 (continued). Summary of Plan Amendment Step 2 – Determining Directly Related Substantive Requirements.

Standard	Directly Related			Required Protection Measures in the POD
	Purpose	*Effect*	*Substantive Requirement*	
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 Forest Plan, p. 3-84)	Yes	No	• § 219.8(a)(1) – ecosystem integrity • § 219.9(a)(2) – ecosystem diversity	N/A
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 Forest Plan, p. 3-23).	Yes	No	• § 219.10(b)(1)(i) – sustainable recreation, including recreation setting, opportunities, access; and scenic character • § 219.10(b)(1)(vi) – appropriate management of other designated areas or recommended designated areas in the plan area, including research natural areas	• Appendix E, ANST Consistency Plan
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 Forest Plan, p. 2-48).	Yes	No	• § 219.10(b)(1)(i) – sustainable recreation, including recreation setting, opportunities, access; and scenic character	• Appendix H, Restoration Plan

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3.3.4.3 Step 3: Applying the Directly Related Substantive Requirements

The Forest Service must ensure that the JNF Forest Plan will contain components meeting the directly related substantive requirements even after the MVP project-specific amendment takes effect. Specifically, the amended plan must contain plan components that maintain or restore[29] ecosystem integrity and diversity (36 CFR § 219.8 and § 219.9), guide the plan area's contribution to social and economic sustainability (36 CFR § 219.10), and guide timber management within the plan area (36 CFR § 219.11). To "maintain" a resource is defined by the rule as "*to keep in existence or net continuance of the desired ecological condition in terms of desired composition, structure, and processes*" (36 CFR § 219.19). This does not infer that there must be *no net loss* to the resource in question across the plan area. The following descriptions of the application of the directly related substantive requirements to the JNF Plan standards are grouped by related resources.

§ 219.8(a)(1) – Ecosystem integrity and § 219.9(a)(2) – Ecosystem diversity

The substantive requirements § 219.8(a)(1) – Ecosystem integrity and § 219.9(a)(2) – Ecosystem diversity are directly related to the proposed amendment through the purpose of amending standards 6C-007 and 6C-026. The overarching goal of the substantive requirements related to § 219.8 and § 219.9 is to provide for the ecological conditions to both maintain the integrity and diversity of plant and animal communities and support the persistence of most native species in the plan area. The substantive requirements specific to ecosystem integrity and diversity are to include plan components to maintain or restore the integrity and diversity of ecosystems and habitat types throughout the plan area.

Scope

The scope of the amendment is the modification of the two old growth standards as they are applied to the MVP project, which is a 3.5-mile corridor across the JNF.

Scale

The scale of the project-specific amendment is the permanent loss of two acres of old growth of the approximately 30,200 acres of old growth across the JNF, or about 0.07% of the total old growth on the JNF.

Plan Components

Only two Management Prescription 6C standards (6C-007 and 6C-026) are directly related to the proposed project-specific amendment; the other 25 standards would not be affected and would remain in place. The limited scope of the variance is one reason why the amended Forest Plan direction, which includes an old growth management strategy (Appendix B of the Forest Plan) would meet the overarching goal of the substantive requirements related to § 219.9.

The FY 2015-2019 Monitoring Evaluation Report for the GWJ (Forest Service 2020b) indicates old growth on the JNF exceeds JNF Forest Plan objectives. Recommended changes for management of old growth from the monitoring report were a review of the survey process and exploring option and methodologies for analyzing impacts to old growth from mechanical

[29] The process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed. Ecological restoration focuses on reestablishing the composition, structure, pattern, and ecological processes necessary to facilitate terrestrial and aquatic ecosystem sustainability, resilience, and health under current and future conditions (36 CFR § 219.19)

treatments. Current plan components are sufficient to maintain and restore old growth habitats across the JNF.

The substantive requirements § 219.8(a)(1) – Ecosystem integrity and § 219.9(a)(2) – Ecosystem diversity would be sufficiently applied to the scope and scale of the project-specific amendment, and no additional plan components are needed to ensure ecosystems and habitat types are maintained or restored the throughout the plan area because:

- the limited area the proposed modification of the two old growth standards would be applied to (about 2 acres),
- the continued application of 25 Management Prescription 6C unmodified standards and 58 other old growth standards in Management Prescriptions 6A and 6B across the remaining 30,200 acres of old growth, and
- the fact that current old growth habitat exceeds JNF Forest Plan objectives.

§ 219.8(a)(2)(ii) – Soils and soil productivity

The substantive requirement § 219.8(a)(2)(ii) – Soils and soil productivity is directly related to the proposed amendment through the purpose of modifying standards FW-5, FW-8, FW-9, FW-13, and 11-003. The overarching goal of the substantive requirements related to § 219.8 is for the plan 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.

Scope

The scope of the amendment for this substantive requirement is the modification of the five standards related to soils and soil productivity and the application of the modified standards to the MVP project 3.5-mile corridor across the JNF.

Scale

The scale of the project-specific amendment for this resource is the construction zone (54 acres) during the construction and restoration phases. After construction the scale would be limited to the ROW (22 acres) for the life of the pipeline.

Plan Components

Forest-wide Plan components to maintain and restore soils and soil productivity would remain in place on 99.99% of the JNF and on 99.99% of soils in Management Prescription 11. As such, the scale of the proposed amendment is negligible in context of the forest-wide (FW-5, FW-8, FW-9, and FW-13) or Management Prescription 11 (11-003) soil resource. Based on scale alone, existing Forest Plan direction for the JNF is sufficient to maintain the soil resource despite the allowance of the MVP project. Further, a variance for soils and soil productivity is only needed during the construction and restoration phase. After construction, operation of the ROW is expected to meet the Forest Plan direction for ‘maintaining or restoring’. Therefore, it is only during the construction and restoration phases that this project-specific amendment would be in place.

As stated previously, sedimentation modeling estimated that enhanced ECDs would be effective at minimizing sedimentation in waterways and associated soil loss. The model estimated that baseline sediment yields would vary from 0.15 to 0.43 tons/ac/yr at each HUC-12 watershed

outlet, with a median of 0.35 tons/ac/yr for the study area. The model estimated that sediment yields during the tree clearing phase of the project would increase by less than 0.001 tons/ac/yr (median: less than 0.001 tons/ac/yr) above the baseline. The sedimentation modeling estimated that sediment yields during construction would increase by less than 0.001 to 0.011 tons/ac/yr (median: 0.003 tons/ac/yr) above the baseline. This correlates to an increase of 0.1% to 2.6% (median: 1.1%) compared to the baseline scenario. One year after construction is completed sediment yields would be reduced to about 0.01% to 0.5% (median: 0.4%) above baseline. Comprehensive analysis of the modeling results and real-world data (see Section 3.3.2) indicates that the ECDs that were installed and maintained are effective at managing sediment yields. Corresponding impacts to the soil resources would not be substantial across the HUC-12 watersheds and even less substantial across the JNF.

Despite the soil compaction and displacement, the soil resource within the ROW would be maintained to the level sufficient to accommodate the Forest Plan desired conditions for soil resources across the project area. Mitigation measures identified in the POD would require regrading and recontouring of the ROW to approximate the original contours. The POD also requires the removal and storage of topsoil for later replacement during the regrading and recontouring phase of the project. Topsoil would be supplemented to mitigate any lost nutrients and ensure adequate productivity for revegetation. Although, at the project level, soils would be compacted and loss of porosity would occur, soils would be of sufficient structure and composition after revegetation to maintain desired soil processes of soil stability and production of desired vegetation of grass/forbs for the ROW. The allowance of the amendment for the MVP project would not hinder the attainment of Forest Plan desired conditions for the soil resource across the plan area because the project area would eventually sustain desired conditions and the unmodified standards would still be applied across the rest of the JNF. As stated above, the amended standard is only needed for construction; operation of the ROW is expected to meet Forest Plan direction. The proposed amended standard is geographically limited and does not affect other areas of the JNF or set precedence for other projects.

As stated in the determination of substantive requirements, there would not be a substantial lessening of plan protection for the soil resource. In addition, the soil structure and composition would be sufficient to maintain desired soil processes in the ROW, and over the long-term, soil loss would not be substantial within the ROW. Therefore, despite the modification of the five standards related to soil, the substantive requirement § 219.8(a)(2)(ii) would be sufficiently applied across the plan area (forest-wide) to maintain ecological sustainability of the soil resource and maintain the desired ecological condition for soil structure, composition, and processes.

The FY 2015-2019 Monitoring Evaluation Report for GWJ (Forest Service 2020) does not indicate problems with the protection of soils resources on the JNF within the context of ongoing activities. In addition, the Transcon inspection reports for the MVP provides an additional mechanism for the Forest Service to determine effects on soils resources. The inspection reports show that ECDs are effective at controlling erosion, runoff, and sedimentation under normal conditions when properly installed and maintained. The proposed MVP project, which includes minimization measures in the POD, would be consistent with acreages and associated impacts of historic activities on the JNF despite the need for an amendment.

The substantive requirement § 219.8(a)(2)(ii) – Soils and soil productivity would be sufficiently applied to the scope and scale of the project-specific amendment, and no additional plan

components are needed to ensure soils and soil productivity are maintained or restored across the planning unit because:

- the limited area the proposed modification to the soil standards would be applied to (54-acre construction zone),
- the limited soil loss and displacement from the construction, operation, and maintenance of the pipeline,
- the mitigation measures and design criteria in the POD used to minimize loss of soil productivity,
- the ability for the soil in the impacted area (54-acre construction zone) over the approximately two-year construction period to maintain the desired ecological conditions in the existing unmodified JNF Plan,
- the continued application of the unmodified standards and other soil standards across the rest of the Forest, and
- that Forest Plan monitoring and Transcon inspections show the existing JNF Forest Plan has been adequate to protect the soil resource in context of ongoing activities, and the proposed MVP project is consistent with historic activities on the JNF.

§ 219.8(a)(2)(iii) – Water quality and § 219.8(a)(2)(iv) – Water resources

The substantive requirements § 219.8(a)(2)(iii) – Water quality and § 219.8(a)(2)(iv) – Water resources are directly related to the proposed amendment through the purpose of modifying standards FW-5, FW-8, FW-9, FW-13, FW-14, and 11-003. 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 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.

Scope

The scope of the project-specific amendment for the water quality and water resource substantive requirements is the modification of the six standards (FW-5, FW-8, FW-9, FW-13, FW-14, and 11-003) related to water quality and water resources.

Scale

The scale of the amendment is the nine affected HUC-12 watersheds out of 88 HUC-12 watersheds containing JNF lands. Eight of the affected HUC-12 watersheds include the pipeline corridor and one is downstream. These nine affected HUC-12 watersheds contain 61,826 acres of NFS lands; the 88 HUC-12 watersheds contain 537,748 acres of NFS lands. There are about 811 stream miles within these nine HUC-12 watersheds, of which about 155 miles of stream would experience increased sedimentation from the MVP project (Geosyntec Consultants 2020b).

Plan Components

The 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 Forest-wide soil and water standards (FW-5, FW-8, and FW-9) and two Forest-wide riparian standards (FW-13 and FW-14), seven additional Forest-wide water and soil quality standards and 17 Forest-

wide channeled ephemeral (riparian) zone standards remain unchanged by the proposed amendment that would continue to protect water quality and water resources. In addition, specific water and soils standards associated with individual management prescriptions are provided in many of the individual prescriptions; and standards FW-5, FW-8, FW-9, FW-13, and FW-14 would continue to apply to the remaining 723,300 acres of the JNF, and standard 11-003 would continue to apply to the remaining 73,600 acres in management prescription 11 on the JNF. After construction, operation of the 22-acre authorized ROW is expected to meet the Forest Plan direction for 'maintaining or restoring'. Therefore, it is only during the construction and restoration phases that this project-specific amendment would be in place. Please see Table 8 for a list of Required Protection Measures in the POD for each amended standard.

As stated previously, sedimentation modeling estimated that enhanced ECDs would be effective at minimizing sedimentation in waterways. The model estimated that baseline sediment yields would vary from 0.15 to 0.43 tons/ac/yr at each HUC-12 watershed outlet, with a median of 0.35 tons/ac/yr for the study area. The model estimated that sediment yields during the tree clearing phase of the project would increase by less than 0.001 tons/ac/yr (median: less than 0.001 tons/ac/yr) above the baseline. The sedimentation modeling estimated that sediment yields during construction would increase by less than 0.001 to 0.011 tons/ac/yr (median: 0.003 tons/ac/yr) above the baseline. This correlates to an increase of 0.1% to 2.6% (median: 1.1%) compared to the baseline scenario. One year after construction is completed sediment yields would be reduced to about 0.01% to 0.5% (median: 0.4%) above baseline. Comprehensive analysis of the modeling results and real-world data indicates that the ECDs that were installed and maintained are effective at managing sediment yields (see Section 3.3.2). As disclosed in Section 3.3.2, effects on water resources in the HUC-12 watersheds during construction would be minor to moderate and, therefore, would not be substantial across the HUC-12 watersheds and even less substantial across the JNF.

The FY 2015-2019 Monitoring Evaluation Report for the GWJ (Forest Service 2020) includes long-term macroinvertebrate monitoring, which is an indicator of water quality and aquatic habitat conditions. Results of the macroinvertebrate monitoring indicate forest protection measures are adequate for protection of water resources and aquatic habitats on the JNF within the context of ongoing activities. The proposed MVP project would be consistent with acreages and associated impacts of historic activities on the JNF despite the need for an amendment. Based on the macroinvertebrate monitoring there was no change recommended for management of water resources in the FY 2015-2019 Monitoring and Evaluation Report. This recommendation indicates forest-wide protections are adequate for maintaining or restoring the desired conditions for the water resources on the JNF.

The substantive requirements § 219.8(a)(2)(iii) – Water quality and § 219.8(a)(2)(iv) – Water resources would be sufficiently applied to the scope and scale of the project-specific amendment, and no additional plan components are needed to ensure water quality and water resources are maintained or restored across the planning unit because:

- the limited area the proposed modification to standards associated with water quality and water resources would be applied to (54-acre construction zone),
- only nine HUC-12 watersheds would be affected by the MVP project out of 88 HUC-12 watersheds forest-wide,
- within the nine affected HUC-12 watersheds, only 155 of the 811 stream miles would experience increased sedimentation from the MVP project,

- the ability for water quality in the impacted area (54-acre construction zone) over the approximately two-year construction period to maintain the desired ecological conditions in the existing unmodified JNF Plan,
- the limited sediment delivery to streams, which would substantially decrease one year after construction,
- the mitigation measures and design criteria in the POD used to minimize sedimentation to streams,
- operation of the ROW is expected to meet the Forest Plan direction for 'maintaining or restoring'. Therefore, it is only during the construction and restoration phases that this project-specific amendment would be in place,
- the continued application of the unmodified standards and other standards across the rest of the Forest, and
- that Forest Plan monitoring and Transcon inspections show the existing JNF Forest Plan has been adequate to protect water quality and the water resource in context of ongoing activities as indicated by ongoing macroinvertebrate monitoring and the proposed MVP project is consistent with historic activities on the JNF.

§ 219.8(a)(3)(i) – Ecological integrity of riparian areas

The substantive requirement § 219.8(a)(3)(i) – Ecological integrity of riparian areas is directly related to the proposed amendment through the purpose of amending standards FW-5, FW-8, FW-9, FW-13, FW-14, and 11-003. 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 riparian areas is to include plan components to maintain or restore the ecological integrity of riparian areas in the plan area.

Scope

The scope of the project-specific amendment for the riparian area substantive requirements is the modification of the six standards (FW-5, FW-8, FW-9, FW-13, FW-14, and 11-003) related to the ecological integrity of riparian areas. Variances would be applied to the six standards for the MVP project's 3.5-mile corridor across the JNF, and the MVP project would only cross four streams on the JNF.

Scale

During construction, the scale of the amendment is 0.6 acres because the variance to the standards would be limited to the 0.6 acres of riparian areas within the construction zone. The scale during the operation and maintenance phase would be smaller, as riparian vegetation would be allowed to regrow within the ROW, except for a 10-foot-wide area of herbaceous cover over the pipeline, which would minimize riparian impacts to 0.05 acres in the long-term.

Plan Components

There are 55 riparian area standards for Management Prescription 11 that are not subject to variance as part of this proposed amendment. Forest-wide, there are about 73,600 acres of riparian areas (i.e., lands designated as Management Prescription 11). Short- and long-term impacts would affect only 0.6 and 0.05 acres, respectively, of those 73,600 acres. After construction, operation of the ROW is expected to meet the Forest Plan direction for

'maintaining or restoring'. Therefore, it is only during the construction and restoration phases that this project-specific amendment would be in place.

The substantive requirement § 219.8(a)(3)(i) – Ecological integrity of riparian areas would be sufficiently applied to the scope and scale of the project-specific amendment, and no additional plan components are needed to ensure the ecological integrity of riparian areas across the planning unit are maintained or restored because:

- the proposed modification would apply to only 0.6 acres during construction and 0.05 acres thereafter,
- the limited impact to riparian vegetation,
- the design criteria in the POD applied to the pipeline corridor to allow riparian vegetation to regrow within the ROW except for a 10-foot-wide area over the pipeline,
- operation of the ROW is expected to meet the Forest Plan direction for 'maintaining or restoring'. Therefore, it is only during the construction and restoration phases that this project-specific amendment would be in place,
- that Forest Plan monitoring and Transcon inspections show the existing JNF Forest Plan has been adequate to protect riparian areas in context of ongoing activities and the proposed MVP project is consistent with historic activities on the JNF, and
- the continued application of the unmodified Forest-wide standards and 55 other riparian standards across the remaining 73,600 acres of riparian areas across the Forest.

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

The substantive requirement § 219.8(b)(3) – Multiple uses that contribute to local, regional, and national economies is directly related to the proposed amendment based on the beneficial effects of the proposed action. 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.

Scope

The scope of the project-specific amendment for the economic substantive requirement is the modification of all 11 standards and the application of the modified standards for the MVP project's 3.5-mile corridor across the JNF.

Scale

The scale of the amendment is the contribution the MVP project has to the local, regional, and national economies.

Plan Components

The Forest Plan includes goals, objectives, desired conditions, and standards to ensure the JNF contributes to social and economic sustainability. The 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 to 11. Therefore, the amended Forest Plan would further meet the overarching goal of the substantive requirements related to §219.8, and no

additional plan components are needed to guide the plan area's contribution to social economic sustainability.

§ 219.10(a)(3) – Appropriate placement and sustainable management of infrastructure, such as recreational facilities and transportation and utility corridors

The substantive requirement § 219.10(a)(3) – Appropriate placement and sustainable management of infrastructure, such as recreational facilities and transportation and utility corridors is directly related to the proposed amendment through the purpose of modifying standard FW-248. 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 utility corridors is consideration of appropriate placement and sustainable management of infrastructure, including utility corridors.

Scope

The scope of the project-specific amendment is the modification of the FW-248 standard as it is applied to the MVP project which is a 3.5-mile corridor across the JNF.

Scale

During construction, the scale of the amendment is the 54-acre construction zone and, after construction, the 22-acre authorized ROW. These acreages correlate to 0.007% of the total JNF during construction and 0.003% of the total JNF during operation.

Plan Components

The Forest Plan includes forest-wide goals, objectives, and standards for lands and special uses, which include utility corridors and ROWs. In addition, current management prescriptions of: 4A-Appalachian National Scenic Trail Corridor; 4J-Urban/Suburban Interface; 6C-Old Growth Forest; and 8A1-Mix of Successional Habitats and 11-Riparian Corridors would continue to apply to the MVP corridor. The amended Forest Plan direction provides sufficient direction for future placement of infrastructure, including utility corridors.

The substantive requirement § 219.10(a)(3) – Appropriate placement and sustainable management of infrastructure, such as recreational facilities and transportation and utility corridors would be sufficiently applied to the scope and scale of the project-specific amendment, and no additional plan components are needed to ensure appropriate placement and sustainable management of infrastructure, including utility corridors because:

- the limited footprint of the proposed MVP project accounts for about 0.007% of the entire plan area during construction, and
- Forest Plan direction for utility corridors and ROWs would continue to apply across the Forest along with other Forest Plan direction, which do not foreclose future placement of infrastructure.

§ 219.10(b)(1)(i) – Sustainable recreation, including recreation setting, opportunities, access; and scenic character

The substantive requirement § 219.10(b)(1)(i) – Sustainable recreation, including recreation setting, opportunities, access; and scenic character is directly related to the proposed amendment through the purpose of amending standard FW-184. 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 sustainable scenic character.

Scope

The scope of the project-specific amendment is the modification of the FW-184 standard as it is applied to the MVP project which is a 3.5-mile corridor across the JNF.

Scale

The scale of the amendment encompasses areas of Very High SIO (0.5 acres), High SIO (6.2 acres), Moderate SIO (14.5 acres), and Low SIO (1.8 acres), approximately 43% of the 54-acre construction zone or approximately 0.003% of the 723,300-acre JNF.

Plan Components

Only one Forest-wide scenery standard (FW-184) is directly related to the proposed project-specific amendment; the other 19 standards would not be affected and would remain in place.

MVP mitigation measures to reduce effects to scenery include reducing the appearance of the ROW from 50 feet wide to 10 feet wide on the JNF through the restoration and revegetation plan contained in Appendix H of the POD. Application of this mitigation measure in the ROW grant 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. As a result, the variance is needed only for the five-year period after construction. After the five years, operation of the ROW is expected to meet the Forest Plan direction for ‘maintaining or restoring’. Therefore, it is only during the five-year period immediately following construction that this project-specific amendment would be in place.

The Forest Plan includes numerous forest-wide goals, objectives, and 19 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. The amended Forest Plan direction along with the application of the revegetation plan would provide for sustainable scenic character for the JNF.

The substantive requirement § 219.10(b)(1)(i) – Sustainable recreation, including recreation setting, opportunities, access; and scenic character would be sufficiently applied to the scope and scale of the project-specific amendment, and no additional plan components are needed to provide for sustainable scenic character because:

- the limited area the proposed modification to scenic standards would be applied to (0.5 acres of Very High SIO, 6.2 acres of High SIO and 14.5 acres of Moderate SIO),
- the mitigation measures to reduce the appearance of the ROW from 50 feet wide to 10 feet wide on the JNF,
- the variance would only apply to one out of 20 Forest-wide scenery standards in the Forest Plan and would only be needed for five years after construction, and
- the application of scenery standards across the remaining plan area.

§ 219.10(b)(1)(vi) – Appropriate management of other designated areas or recommended designated areas in the plan area, including research natural areas

The substantive requirement § 219.10(b)(1)(vi) – Appropriate management of other designated areas or recommended designated areas in the plan area, including research natural areas is directly related to the proposed amendment through the purpose of modifying standard 4A-028. The overarching goal of the substantive requirements related to § 219.10 is to provide for ecosystem services and multiples uses within Forest Service authority and the inherent capability of the plan area. 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.

Scope

The scope of the project-specific amendment is the modification of the 4A-028 standard as applied to the MVP project which is a 3.5-mile corridor across the JNF.

Scale

The scale of the amendment is the one crossing of the pipeline under the ANST, which is about 2.5 acres of the ROW within 4A or 0.008% of the 30,700 acres of the JNF allocated to Management Prescription 4A.

Plan Components

Only one Management Prescription 4A standard (4A-028) is directly related to the proposed project-specific amendment; the other 29 standards would not be affected and would remain in place.

The ANST is approximately 2,190 miles long, running from Georgia to Maine; there is no reasonable alternative that avoids crossing the ANST. The MVP project would cross the ANST once near MP 196.3 through a 600-foot-long bore underneath the trail, effectively mitigating impacts within Management Prescription 4A for the reasons outlined below. After construction, operation of the ROW is expected to meet the Forest Plan direction for 'maintaining or restoring'. Therefore, it is only during the approximately 10-week-long construction phase that this project-specific amendment would be in place.

Appendix E "Contingency Plan for the Proposed Crossing of the Appalachian National Scenic Trail" in the POD contains measures to avoid and minimize impacts on the ANST, including avoiding trenching near the ANST and staging equipment away from the ANST. Direct impacts to users of the ANST would be limited to the noise and dust from the boring operations and would only occur during the approximately 10-week construction period. Visual impacts would be minor because of the 300-foot buffer on either side of the trail and because the topography acts as a natural barrier to reduce potential visual impacts to the south of the ANST.

The Forest Plan includes 29 other standards for recreation, including the ANST, in Management Prescription 4A, which are not subject to a variance from this proposed amendment. In addition, the Forest Plan includes specific recreational standards associated with other management prescriptions; these would not be subject to a variance, either. Management direction for Management Prescription 4A would continue to apply and continue to provide for protection of other designated areas, such as the ANST.

The substantive requirement § 219.10(b)(1)(vi) – Appropriate management of other designated areas or recommended designated areas in the plan area, including research natural areas would be sufficiently applied to the scope and scale of the project-specific amendment, and no

additional plan components are needed to provide for protection of other designated areas, such as the ANST because:

- the limited impact to the single crossing of the pipeline and the fact that it would go under the ANST with 300 feet on either side of the trail to mitigate visual impacts. Additionally, the topography acts as a natural barrier to reduce potential visual impacts to the south of the ANST. Appendix E of the POD also includes measures to avoid placing equipment and conducting trenching near the ANST,
- direct impacts to users of the ANST would be limited to the noise and dust from the boring operations only during the approximately 10-week construction period, and
- the variance would only affect one out of 30 Management Prescription 4A standards and would only be needed during the approximately 10-week construction period

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

The substantive requirement § 219.11(c) – Timber harvesting for purposes other than timber production is directly related to the proposed amendment through the purpose of modifying standard FW-14 and 6C-007. 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.

Scope

The scope of the project-specific amendment is modification of the two standards (FW-14 and 6C-007) as applied to the MVP project which is a 3.5-mile corridor across the JNF.

Scale

The scale of the amendment is the vegetation removal along the 54-acre construction zone.

Plan Components

The 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 Forest Plan. No additional components need to be added to the Forest Plan. After construction, operation of the ROW is expected to meet the Forest Plan direction for ‘maintaining or restoring’. Therefore, it is only during the construction phase that this project-specific amendment would be in place.

3.4 Cumulative Effects

This analysis supplements the FERC FEIS and 2020 FSEIS cumulative effects analysis. It has been updated as needed to reflect new activities or a change in status of actions disclosed in the 2020 FSEIS. Consistent with the FERC FEIS and 2020 FSEIS, the geographic scale of analysis is the HUC-10 watersheds that overlap the MVP route on NFS lands.

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 9). Table 9 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 9. Cumulative Effects Analysis Area

HUC-10 Watershed	HUC-10 Code	Acres
East River – New River	0505000206	107,883
Upper Craig Creek	0208020110	71,468
Sinking Creek – New River	0505000203	126,574
Total	-	305,925

HUC-10 watersheds were determined to still be appropriate for the cumulative effects analysis because they are the scale at which indirect and cumulative effects are reasonably expected to occur for the resources analyzed.

The 2020 FSEIS (USDA FS 2020, Sec. 1.1.1, 1.1.2) reviewed the Forest's Schedule of Proposed Action reports, information gathered from Forest Service specialists, projects identified in the FWS BO and other FERC energy projects, and projects brought forward by the public. Information reviewed for this DSEIS includes the FERC MVP Amendment Project (boring analysis) and Forest Service project updates. Additional 2020 FSEIS projects that were outside but adjacent to the HUC-10 boundaries were considered for inclusion. The activities cited in the FERC boring analysis were reviewed as they included activity information from West Virginia and Virginia State and Federal agencies (FERC 2021).

The 2020 FSEIS (p. 127) disclosed those projects that were considered but dismissed because they did not cumulatively contribute measurable effects to soil productivity, erosion, and sedimentation; water quality; Threatened and Endangered species and their habitat; Forest Service RFSS; vegetation; and scenery.

Relevant past, present, and reasonably foreseeable projects on NFS and other lands listed in Table 10 have been updated as needed. Figure 9 displays the boundaries of past, present, and reasonably foreseeable projects for which mapping is available. A conclusion with rationale is included in this section.

Short-term uses, and their effects, are those that would occur during the anticipated two-year-long construction period or restoration period. Long-term uses, and their effects, are those that would occur during the 30-year term of the ROW grant/TUP. As mentioned previously, resource specialists reviewed activity information and based on their specific resource they may have added or deleted activities or adjusted the cumulative effects boundary.

The 2020 FSEIS disclosed the review of Forest Schedule of Proposed Action reports, information gathered from Forest Service specialists, and additional past projects identified in public comments on the DSEIS. Other sources of information reviewed during preparation of this DSEIS include updates on JNF projects and other non-Forest Service activities in the HUC-10 watersheds. The activities cited in the MVP project were reviewed again for relevancy because the information sources included West Virginia Department of Environmental Protection (WVDEP); WV Division of Forestry; WVDEP Division of Mining

and Reclamation; WV DOT, Division of Highways; WV Division of Natural Resources – Office of Land and Streams; VDEQ; Virginia DOT; Virginia Department of Forestry; Virginia Department of Energy; regional planning departments; county planning departments; and county floodplain coordinators.

3.4.1 Past, Present, and Reasonably Foreseeable Future Actions

3.4.1.1 Changes in Past, Present, and Reasonably Foreseeable Transportation Actions

Table 10 summarizes changes in the transportation system actions as it relates to the MVP. As of 2022, emergency road repairs funded through the Emergency Relief for Federally Owned Roads Program (ERFO) will continue to occur within the GWJ in response to severe weather events.

Road work that was foreseeable in 2020 is now present and ongoing on 5.7 miles of Pocahontas Road (East River - New River Watershed). The JNF is currently improving the road surface, addressing in-stream road crossings, and reducing sedimentation associated with Pocahontas Road. The foreseeable work on Mystery Ridge Road is no longer planned and has been removed (October 19, 2022, personal communication with Thompson, Christensen, and Cote).

3.4.1.2 Changes in Past, Present, and Reasonably Foreseeable Vegetation and Prescribed Fire Actions

Table 10 summarizes vegetation (including restoration) actions that have been completed (now part of the existing condition), are present and ongoing, or reasonably foreseeable. Road actions are included in the overall project acres:

- Completed Projects – 569 acres completed by 2022: (1) The 317-acre White Rocks TS located in the Sinking Creek/New River watershed and about 8.5 miles north of the MVP (completed in 2018); (2) Barton Road TS (91 acres shelterwood harvest, 96 acres thinning completed in 2022); and (3) Salt Sulphur TS (57 acres of shelterwood harvest, 8 acres thinning completed in 2022).
- Present and Ongoing Projects – 262 acres: There are two present/on-going vegetation management projects as of 2023 that are occurring within the temporal and spatial HUC-10 cumulative effects boundary for the MVP project:
    - Warren Road TS (152 acres total with 71 acres shelterwood harvest, 81 acres of thinning) is in progress with 5 acres of shelterwood harvest and 81 acres of thinning complete as of October 2022.
    - Pocahontas TS (110 total acres of shelterwood harvest) is in progress with 95 acres complete and one 15-acre unit remaining to be cut. Note: Until the project is 100% complete, it is categorized as present and ongoing.
- Reasonably Foreseeable: There is one prescribed fire project (East Highlands) that overlaps with the cumulative effects temporal and spatial boundary.

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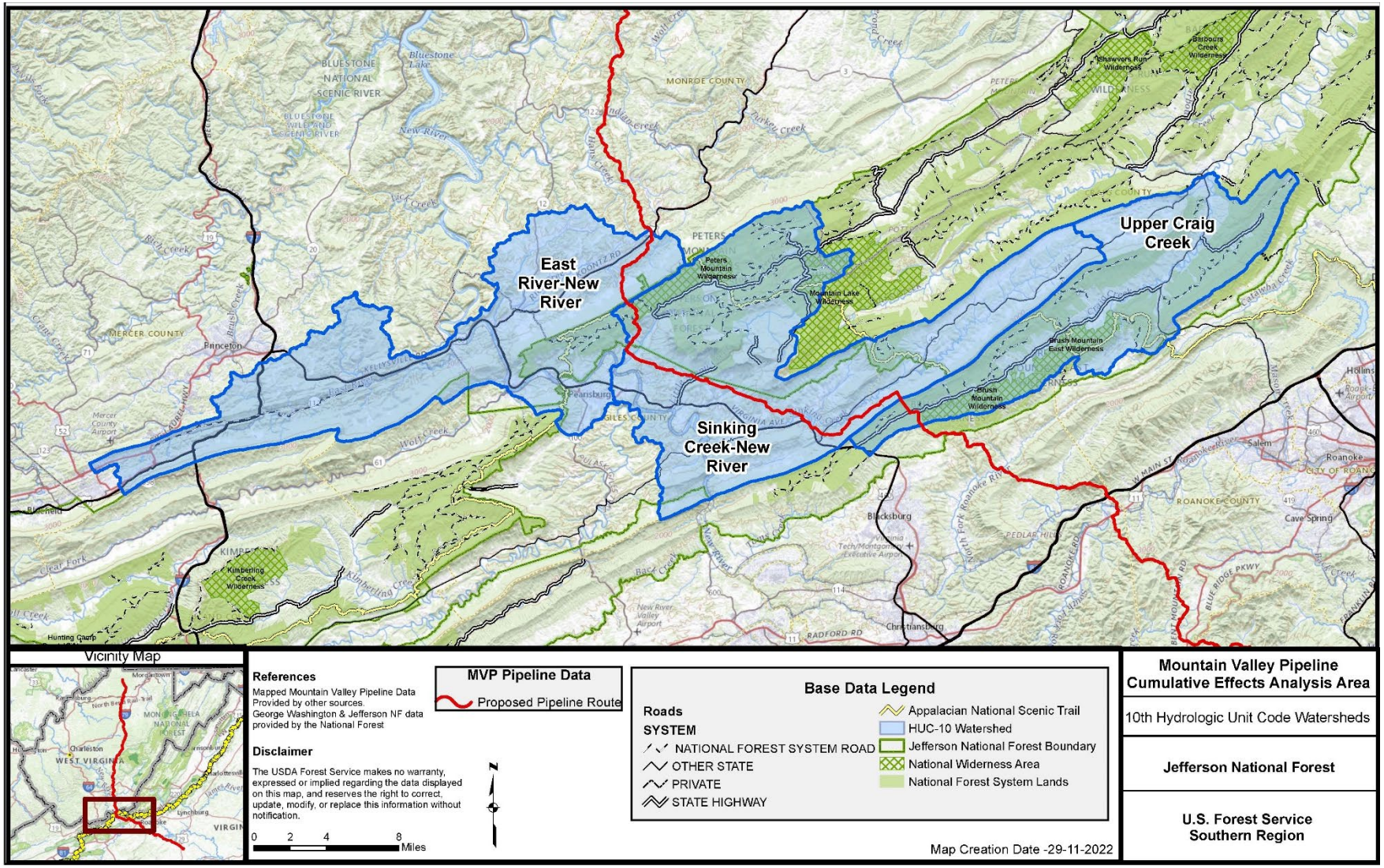

Figure 9. Cumulative Effects Analysis Area.

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Several projects were considered but eliminated from detailed analysis because they are located outside of the HUC-10 geographic scope of analysis:

- East Divide Insect and Disease Phase II (1,259 acres of commercial timber harvest in response to gypsy moth defoliation).
- Middle Tub (75 total acres of clearcut with reserves. Harvest has been conducted, but overall project status is present and ongoing until 100% complete).
- Tub Run East (91 total acres with 73 acres of clearcut with reserves complete and 18 acres of hardwood restoration/white pine conversion in progress/to be completed).
- White Pine Removal (1,476 acres of regeneration harvests and commercial thinning. Scoping letter sent to public in April 2022).

3.4.1.3 Other Past, Present, and Reasonably Foreseeable Actions

- General ROW maintenance continues within the 3.5-mile pipeline corridor (temporary and authorized ROW). In 2022, stabilization efforts are present and ongoing. Pipe cribbing is being shored up or repaired as needed.
- As noted in Section 3.3.1, since publication of the 2020 FSEIS, Giles County implemented a Virginia Tourism Corporation Grant to promote the New River as a water trail. The MVP ROW may be visible from several places along the river, though the view is likely blocked by forested vegetation. After restoration (Alternative 1) or construction (Alternative 2), the ROW would be revegetated, reducing its visual impact. For these reasons, cumulative impacts would be negligible.

Figure 10 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.

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Table 10. Past, Present, and Reasonably Foreseeable Actions[30]

Project Name	Proponent (if relevant)	Description	Nearest approx. milepost or facility	Approx. Distance & Direction from the MVP	Status: (Past; Present & Ongoing/ Reasonably Foreseeable	Change since 2020 FSEIS?	Comments
ERFO road repairs	Forest	Road repairs on 15.5 miles of the GWJ.	Varies by project	Varies by project	Present & Ongoing	Yes	All counties within the GWJ.
Routine maintenance of road corridors and utility ROWs	Forest	59,000 acres of road corridors and 6,500 acres of existing gas and power line utility ROWs across the entire Forest	Varies by project	Varies by project	Present & Ongoing	Yes – changed to Ongoing	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.
Pocahontas Road	Forest	Repair of waterbars, culverts, and aquatic organism passage development	198.0	Less than 1 mile	Present & Ongoing	Yes – changed to Ongoing	The road has erosion and sedimentation issues because of failing waterbars and culverts.
White Rocks TS	Forest	317 acres of vegetation management including temporary roads	204.9	8.5 miles north of the MVP	Past	No, implementation was completed in 2018	The TS is approximately 8.5 miles north of the MVP and within the Sinking Creek/New River watershed
MVP Settlement TS	Forest	82 acres of tree clearing for pipeline activities	On MVP ROW	Occurring along the pipeline ROW	Past	Yes (this action has been implemented)	Clearing of the MVP ROW – status updated to "past"

[30] Road actions associated with vegetation projects are not included.

Table 10 (continued). Past, Present, and Reasonably Foreseeable Actions.

Project Name	Proponent (if relevant)	Description	Nearest approx. milepost or facility	Approx. Distance & Direction from the MVP	Status: (Past; Present & Ongoing/ Reasonably Foreseeable	Change since 2020 FSEIS?	Comments
Fork Mountain Vegetation Management Project	Forest	11,714 acres of veg treatments	191.5	5 miles east of the MVP	Present & Ongoing	No	Project is in the Sinking Creek / New River Watershed
Barton Road TS	Forest	187 acres of veg treatments including roads	191.5	8.5 miles east of the MVP	Past	Yes – project has been completed	Project is in the Sinking Creek / New River Watershed and was part of the Fork Mountain Vegetation Management EA – status updated to "past", acres updated
Salt Sulphur TS	Forest	65 acres of veg treatments including roads	191.7	6 miles east of the MVP	Past	Yes – project has been completed	Project is in the Sinking Creek / New River Watershed – status updated to "past", acres updated
Warren Road TS	Forest	152 acres of veg treatments including roads	191.5	8.5 miles east of the MVP	Present & Ongoing	Yes – project is now ongoing	Project is in the Sinking Creek / New River Watershed – status updated from foreseeable to present/ongoing – 50 acres completed as of 2022; project acres updated
Johnson Flats TS	Forest	176 acres of veg treatments including roads	191.5	8.5 miles east of the MVP	Reasonably Foreseeable - to be implemented in 2022/23	Yes – there is no indication this was included in the FERC FEIS	Project is in the Sinking Creek / New River Watershed – work anticipated to begin 2022/23, total acres updated
Kelly Flats Vegetation Management Project	Forest	898 acres of harvest and/or prescribed fire	191.5	5 miles east of the MVP	Past	Yes – there is no indication this was included in the FERC FEIS	Project is in the Sinking Creek / New River Watershed

Table 10 (continued). Past, Present, and Reasonably Foreseeable Actions.

Project Name	Proponent (if relevant)	Description	Nearest approx. milepost or facility	Approx. Distance & Direction from the MVP	Status: (Past; Present & Ongoing/ Reasonably Foreseeable	Change since 2020 FSEIS?	Comments
Sarton Ridge Vegetation Management Project	Forest	Insecticide treatments to control the spread of the gypsy moth	220	Approx. 1 mile from MVP	Past	Yes – there is no indication this was included in the FERC FEIS	Project is in the Sinking Creek / New River Watershed, Upper Craig Creek Watershed
Eastern Divide Highlands Prescribed Fire	Forest	60,628 acres total with 15,000 planned annually on 3- to 5-year rotation basis	196.2 - 197.7 and 219.6 - 220.8	Intersects the MVP	Reasonably foreseeable with implementation starting in 2022 or 2023	No	East River/New River Watershed, North Fork Roanoke Watershed, Sinking Creek/New River Watershed, Upper Craig Creek Watershed – project has not yet been implemented
Pocahontas TS	Forest	110 acres shelterwood harvest	N/A	South of the MVP	Present & Ongoing	Yes – project narrative and status updated	15 acres remaining to be treated in 2022. Only the TS location was displayed in 2020 FSEIS; included in this table in 2022.
MVP ROW maintenance	Forest	Incidental maintenance of ECDs as needed	196.2 to 197.8, 198.3 to 198.4, 218.5 to 219.4, and 219.8 to 220.7	On the MVP ROW	Present & Ongoing	Yes, status updated to present/ongoing	Ongoing ECD maintenance/stabilization as needed

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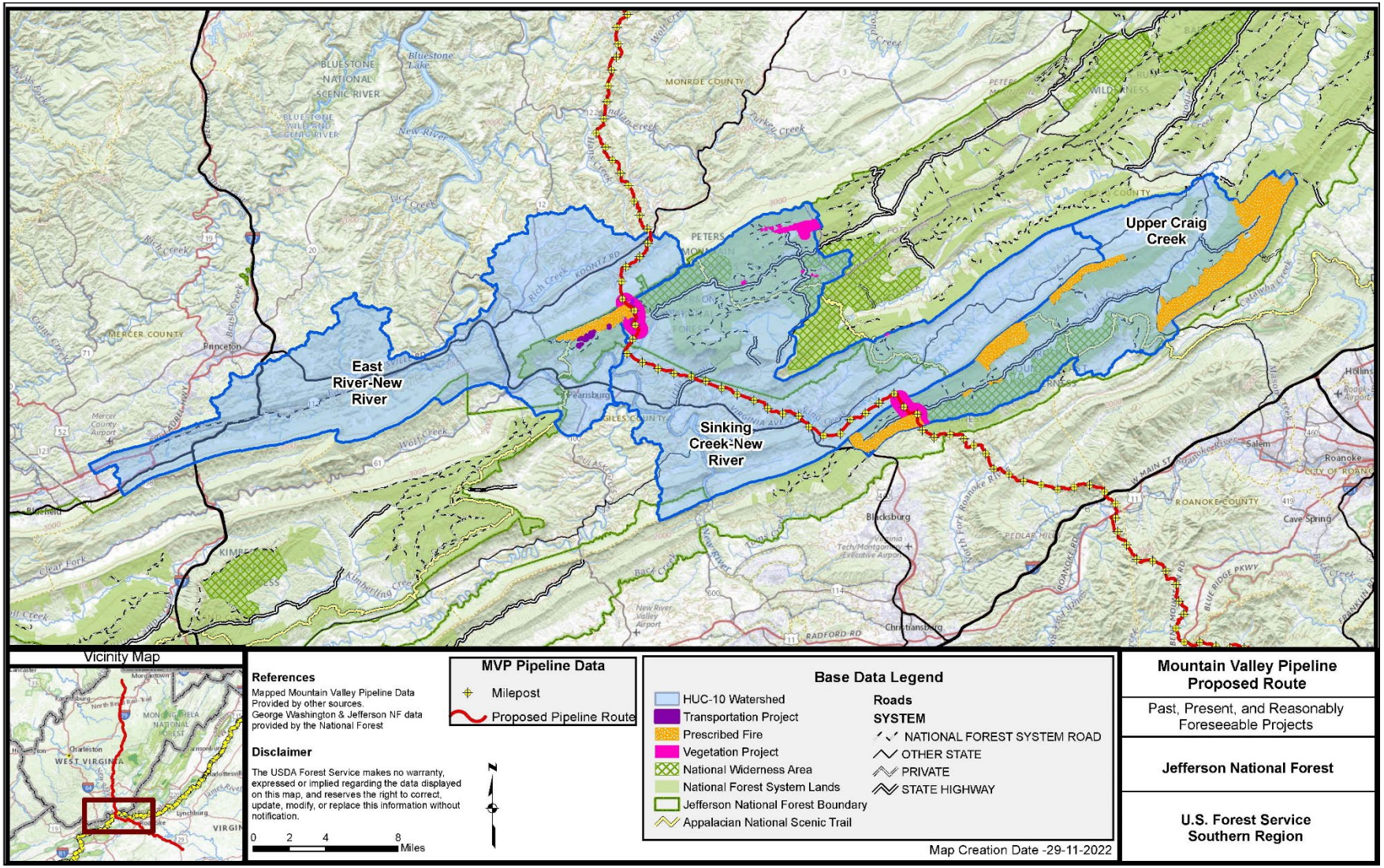

Figure 10. Past, Present, and Reasonably Foreseeable Future Actions.

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3.4.2 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 minimizing 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. The use of off-NFS public and private roads to access the ROW is described in Sections 4.9.1.5 and 4.9.2.5 of the 2017 FERC FEIS. Where needed, Mountain Valley would perform upgrades such as grading, widening, or stabilization of access roads. Following pipeline installation, Mountain Valley would restore improved roads to their pre-construction condition, unless otherwise directed by the landowner, county, or State agency. As a result, effects on water resources would be minor (FERC 2017, pp. 4-389 to 4-390).

The 2020 FSEIS cumulative effects analysis (pp. 142 to 160) is incorporated by reference. In summary, the 2020 FSEIS found that direct and indirect adverse effects under the No Action Alternative would be minor and short-term. When combined with the effects associated with road maintenance projects and approximately 831 acres of TS (Table 10), 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 are consistent with those disclosed in the 2020 FSEIS. In summary, they would be greater than those under the No Action Alternative. Effects from construction of the MVP would be minimized by the same ECDs that are in place for the No Action Alternative, but the Proposed Action includes additional surface disturbing actions (e.g., trenching, stream crossings) and there would be a greater potential for adverse effects. Combined with the road and vegetation projects listed in Table 10, 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.

3.4.3 Threatened, Endangered, and Sensitive Species

3.4.3.1 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 2020 FSEIS found that restoration of the ROW under the No Action Alternative 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 and 2020 FSEIS. 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 effects on the same or similar habitat types. Implementation of the actions identified in Appendix W of the FERC FEIS, those in Table 10 of this DSEIS, 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. Due to adherence with BMPs and Forest standards to minimize impacts on aquatic resources, none of these effects would be cumulatively significant. 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.

3.4.3.2 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 10 of this DSEIS. The analysis of effects in the 2020 FSEIS remains accurate. 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 and 2020 FSEIS. The actions listed in Table 10 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 proposed changes to the RFSS, the cumulative effects on these newly listed species would not differ substantially from those analyzed in the 2020 FSEIS. Cumulative effects from TSs would be minor because the Proposed Action and reasonably foreseeable TSs account for approximately 831 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.

As disclosed in the 2020 FSEIS, under the No Action Alternative, restoration of the ROW 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 are also consistent with those disclosed in the 2020 FSEIS: 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 authorized 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 831 acres of the 305,925-acre analysis area) that would be impacted and because surveys in the authorized ROW did not identify suitable habitat for Federally listed or RFSS plant species.

3.5 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). 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 two years and anticipated to occur during construction (Proposed Action) or restoration (No Action Alternative) of the MVP. "Long-term" is defined as the 30-year term of the ROW grant/TUP. Surface-disturbing activities, including vegetation re-clearing,

boring, and installing the pipeline, would result in the greatest potential for effects on long-term productivity. Adherence to Forest Plan guidance (as amended), BMPs and mitigation are intended to minimize the effect of short-term commitments and the effects of pipeline operation and maintenance over the long term.

Short-term use of the ROW for construction would result in the long-term loss of forested habitat within the authorized ROW and the fragmentation of this habitat type within the HUC-10 watersheds that the pipeline intersects. Overall, long-term productivity would be maintained within the authorized ROW by managing the vegetation in an open seral stage with species that attract pollinator insects.

3.6 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.

Unavoidable adverse effects remain the same as disclosed in the 2020 FSEIS: 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.

3.7 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 a loss of timber productivity or old growth in forested areas that are cleared and maintained 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 ROW would cross existing NFS 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 authorized ROW would result in an irretrievable loss of forested wildlife habitat. The two acres of old growth that were cut to accommodate the ROW is irretrievable because of the length of time needed to re-establish this resource.

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.

3.8 Incomplete or Unavailable Information

An effort was made to obtain and use the best available science and information to evaluate and compare the effects of alternatives. NEPA implementing regulations (40 CFR § 1502.22) 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 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 DSEIS, in conjunction with the analyses presented in the 2017 FERC FEIS, 2020 FSEIS, and 2004 JNF Forest Plan FEIS, along with their planning records, provides the responsible official with the "essential" information needed to make a reasoned choice among alternatives.

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4 Consultation and Coordination

FERC and the Forest Service consulted with the following individuals, Federal, State, and local agencies, tribes and other organization and individuals during development of the 2017 FERC FEIS, 2020 SEIS, and this draft SEIS:

4.1 Federal, State, and Local Agencies

Bureau of Land Management

Federal Energy Regulatory Commission

National Park Service

Natural Resource Conservation Service

U.S. Army Corps of Engineers

U.S. Fish and Wildlife Service

U.S. Geological Survey

4.2 Tribes

Absentee-Shawnee Tribe of Indians of Oklahoma

Cherokee Nation of Oklahoma

Eastern Band of Cherokee Indians

Monacan Indian Nation

United Keetoowah Band of Cherokee Indians in Oklahoma

4.3 Preparers and Contributors

4.3.1 Forest Service and Bureau of Land Management Team

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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 DSEIS. 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
Botetourt County
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
Federal Energy Regulatory Commission
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
Montgomery County
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
Town of West Union
U.S. Army Corps of Engineers
U.S. Army Corps of Engineers – Huntington District
U.S. Army Corps of Engineers - Norfolk District
U.S. Department of Transportation, Pipeline & Hazardous Materials Safety Administration, Office of Pipeline Safety
U.S. Department of Transportation, Surface Transportation Board
U.S. Environmental Protection Agency, Region 3
U.S. Fish and Wildlife Service Southwest Virginia Field Office
U.S. Fish and Wildlife Service, Pennsylvania Field Office
U.S. Fish and Wildlife Service, West Virginia
U.S. Forest Service
U.S. Forest Service, George Washington and Jefferson National Forests
U.S. Forest Service, Regional Office
U.S. Geological Survey
U.S. National Park Service
USDA Conservation and Environmental Program Division, FSA
USDA Forest Service-Ecosystem Management Coordination
USDA Natural Resources Conservation Service
Virginia Department of Conservation and Recreation
Virginia Department of Conservation and Recreation, Division of Natural Heritage
Virginia Department of Conservation and Recreation, Division of Planning and Recreation
Virginia Department of Conservation and Recreation, Virginia Cave Board
Virginia Department of Environmental Quality
Virginia Department of Environmental Quality, Air Permitting Division
Virginia Department of Environmental Quality, Office of Environmental Impact Review
Virginia Department of Environmental Quality, Water Division
Virginia Department of Forestry
Virginia Department of Game and Inland Fisheries
Virginia Department of Historic Resources, Division of Review and Compliance
Virginia Department of Mines Minerals and Energy, Division of Gas and Oil
Virginia Department of Transportation
Virginia Department of Environmental Quality
Webster County
West Virginia Department of Agriculture

West Virginia Department of Commerce
West Virginia Department of Conservation and Recreation, Division of Natural Heritage
West Virginia Department of Environmental Protection
West Virginia Department of Environmental Protection, Division of Air Quality
West Virginia Department of Environmental Protection, Division of Water and Waste Management
West Virginia Department of Environmental Protection, North Central Regional Office
West Virginia Department of Environmental Quality
West Virginia Department of Natural Resources
West Virginia Department of Natural Resources Office of Land and Streams
West Virginia Dept of Environmental Protection
West Virginia Department of Environmental Protection, Division of Water and Waste Management
West Virginia Department of Transportation, Division of Highways
West Virginia Division of Culture and History SHPO
West Virginia Division of Culture and History, Historic Preservation Office
West Virginia Division of Energy
West Virginia Division of Forestry
West Virginia Division of Natural Resources
West Virginia Division of Tourism
West Virginia Environmental Council
West Virginia Environmental Protection Agency Office of Oil and Gas Permitting
Wetzel County

4.4.2 Tribes

Absentee-Shawnee Tribe of Indians of Oklahoma
Cherokee Nation
Cherokee Nation of Oklahoma
Eastern Band of Cherokee Indians
Eastern Shawnee Tribe of Oklahoma
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 Blue Ridge Alliance
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.
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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.
Briarwood Development, LLC
Bridgeport Public Library
Bristol Methodist Church
Brown Mist Fuel Company
Brush Mountain Estates
Buck Ridge Farm
Buckland Law Firm, P.L.L.C
Bunola Volunteer Fire Company Station #156
Bush Family Living Trust
Butterfly Evolution Trust
C. L. Draughn Ditching Contractor, Inc.
Cadle Family Trust
Cahas Mountain Rural Historic District
Calloway Level Primitive Baptist Church
Canaan Properties, LLC
Canestrale Environmental Control Co.
Cardno
Carl C. Bosley Family Trust, David Bosley, et al.
Carl Ray Swiger Estate
Catherine R. Beckner Irrevocable Trust
Cave Conservancy of the Virginias
Cave Hill Farm
Celanese Acetate LLC
Center for Applied Behavior Systems
Center for Biological Diversity
Center Point Outpost Library
CFX, Inc.
Chalmer Coen and Betty and Debra J. Bates
Charleroi Area School District
Charleston Regional Chamber of Commerce
Chatham High School
Chatham Star Tribune
Chemical Lime Company of Virginia
Chesapeake Bay Foundation
Chesapeake Bay Program
Chesapeake Climate Action Network
Chestnut Mill Ranch, LLC
Ciras Inc
Cissel Living Trust
City of Salem Public Library
Clarksburg Exponent-Telegram
Clarksburg-Harrison Public Library
Clarksville Volunteer Fire Company
Cloeter Living Trust
CNX Gas Company LLC
Coal Bank Ridge Homeowners Association
Coastal Forest Resources Company
Coastal Timberlands Company
Co-Chair, POWHR Coalition
Columbia Forest Products
Columbia Plywood Corp.

Columbia West Virginia Corp.
Comfort Inn
Commonwealth Forest Investments Inc.
Consolidated Edison Company of New York, Inc.
Consolidation Coal Company
Countryside Land Company LC
County Commissioners Association of Pennsylvania
Cowen Public Library
Craig Botetourt Electric Cooperative
Craig County Board of Supervisors
Craig County Public Library
Craig-Botetourt Electric Cooperative
Craigsville Public Library
Cross Family Trust
CSX Railroad PGH and Lake Erie RR Co
CSX Transportation Inc
Cummings Properties, an Ohio LLC
Dallison Lumber, Inc.
Danbury Ltd.
Danville Institute for Advanced Learning and Research
Danville Pittsylvania County Chamber of Commerce
Danville Regional Foundation
David B. Sprenkle Living Trust
David K. Walker and Glady B. Walker
David Lane Orlena Robinson Life Estate
DB Mining Services
Estate of James Humphrey
Estate of Vorheis Buskirk MacNab, Martha Buskirk and Barbara Buskirk
Dillon Living Trust
Dinsmore and Shohl, LLP
DJR Holdings, Inc.
Doddridge Co. EDA
Doddridge County Library
Doddridge Independent
Doe Creek Farm, Inc.
Dominion
Dominion Hope
Dominion Transmission, Inc.
Doughboy LLC, (Millehan, Joseph and Vicky)
Dowdy Farm LLC
Ducks Unlimited, Pennsylvania
Ducks Unlimited, Virginia
Ducks Unlimited, West Virginia
Duke Energy Progress, LLC
Dyer Family Trust
Eagles Nest Ministries, Inc.
Earth Rise Indivisible
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
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 R. L. Ensminger
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
Galileo LLC Project
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
Heatherwood 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
Holistic Veterinary Consultants
Hollow Hill Farm
Holt Properties, LLC
HRW Properties LLC
HS Tejas, Ltd.
Huffman Family Living Trust
Hurd IIP LLC
Indian Creek Watershed Association
Indivisible Charlottesville
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
Martin, Hopkins and Lemon, P. C.
Mary M. Beckett Estate
McKenzie and McKenzie LLC
Meadow Creek Coal Corporation
Meadowbrook Public Library
Media General Operations, Isel
Mickey Garman Estate
Mike Ross Inc
Mike Ross, Inc.
Mike Ross, Inc. and Waco Oil and Gas
Mill Mountain Conservation Committee
Mining Company Consol, LLC
Mon Valley Regional Chamber of Commerce
Monroe County Administration Building
Monroe County Commission
Monroe County Historical Society
Monroe County Organic District
Monroe County Planning Commission
Monroe County Public Library
Monroe County Schools
Monroe Watchman
Monte Vista Brethren Church
Montgomery County Board of Supervisors
Montgomery County Chamber of Commerce
Montgomery-Floyd Regional Library
Morgantown Area Chamber of Commerce
Morris Fork Missionary Baptist Church
Motley Family Rev. Trust
Mount Tabor Ruritan Club
Mountain Branch Farm
Mountain Conservatory LLC
Mountain Creek Land Co., LLC
Mountain Lair LLC
Mountain Lakes Preservation Alliance
Mountain Messenger
Mountain Valley Pipeline LLC
Mountain Valley Watch
Mountain Way Realty
Mule Tracts, LLC
Nation Unsevered
National Committee for the New River
National Federation of Independent Businesses - Virginia Chapter
National Parks Conservation Association, Mid-Atlantic Region

National Wildlife Federation
Natural Biodiversity
Natural Resource Partners
Natural Resources Defense Council
New Martinsville Chamber of Commerce
New Martinsville City Council
New Martinsville Police Department
New Martinsville Public Library
New Martinsville Volunteer Fire Department
New River Community College
New River Economic Development Alliance
New River Gorge Development Authority
New River Land Trust
Newport Community Action Committee
Newport Development Company, LLC
Newton D. Bogard and Lonard E. Taylor
NextEra Energy Power Marketing, LLC
NGHD Lands, Inc.
Nicholas Chronicle
Nicholas County High School
Norfolk Southern Corporation
North Marion High School
Novelty Land Holdings LLC
Oak Lawn Farm LLC
Oakgrove Christian Church
Observer Reporter
Occanneechi, Inc
Offutt Investments Limited Partnership 1
Ohio Valley Environmental Coalition
Oil Change International
Old Brick Manor Farm
Open Space Institute
Orion Power Midwest, LP Property Tax Dept
Orr Living Trust
Owen Anderson, LLC
P and D Holdings, Inc.
Pacific Crest Trail Association
Pacific Northwest Trail Association
Paco Land, Inc.
PAP, Inc.
Pardee and Curtin Realty, LLC
Partner for the National Trails System
Patricia M. Frizzell Revocable Trust
Paugh Family Trust II
Paulette A. Sears Revocable Trust
Pearisburg Public Library
Peerless Minerals, LLC
Penhook UM Church
PennEnvironment
Pennsylvania Association of Conservation Districts, Inc.
Pennsylvania Holdings Co.
Pennsylvania Lines, LLC
Pennzoil Exploration and Production Co.
Peoples Natural Gas Company LLC
Perry Queener
Peters Township Public Library
Piala Living Trust
Piedmont Natural Gas Company, Inc.
Pine Grove Public Library
Pine Grove Volunteer Fire Department
Pittsburgh Post-Gazette
Pittsburgh Tribune-Review
Pittsylvania Counsel
Pittsylvania County Farm Bureau
Pittsylvania County Library
Pittsylvania Historical Society
Plum Creek Timberlands, LP
Polino Enterprises, Inc.
Poole, Revocable Trust
Potomac Appalachian Trail Club
Potts Creek Ranch LLC
Preservation Alliance of West Virginia
Preservation Virginia
Preserve Bent Mountain
Preserve Bent Mountain/BREDL
Preserve Craig, Inc.
Preserve Giles County
Preserve Greenbriar County
Preserve Monroe
Preserve Montgomery County Virginia
Preserve the New River Valley
Preston Forest Homeowners Association
Price, Life Estate
Princeton-Mercer County Chamber of Commerce
Protect Our Water, Heritage and Rights (POWHR)
Protectors of the Watershed
Quince Farm LLC
R.L. Ensminger Estate
RaGln Koger Farm
Rainelle Community Development Corporation
Rainelle Public Library
Reader Volunteer Fire Department
Reese Family Ltd. Partnership
Rex Coal Land Company
RGC Resources, Inc.

Richwood Area Chamber of Commerce
Roanoke Appalachian Trail Club
Roanoke Blacksburg Technology Council
Roanoke County Administration
Roanoke County Administration Building
Roanoke County Attorney's Office
Roanoke County Board of Supervisors Clerk's Office
Roanoke County Library
Roanoke Gas Company
Roanoke Regional Chamber of Commerce
Roanoke Regional Partnership
Roanoke River Basin Association
Roanoke Valley 4 Wheelers Assoc
Rockydale Quarries Corporation
S/V Sojourner LLC
Salem-Roanoke Chamber of Commerce
Sands Anderson
Sandy P. Simmons Estate
Save Monroe Inc.
Scenic Virginia
Science Policy Initiative
Second Star Farm

Sentra Resources, LLC
Shavers Fork Coalition
Shenandoah Valley Battlefields Foundation
Shenandoah Valley Network
Shirley Titus Estate
Sierra Club
Sierra Club - Virginia Chapter
Sierra Club, Environmental Justice Program
Sierra Club, Virginia Chapter
Sierra Club, West Virginia Chapter
Sierra Club, West Virginia Chapter, Monongahela Group
Sisson and Ryan Inc.
Sizemore, Inc.
Skidmore and Woodward Farm Development
Skidmore/Woodward Farm Develop DBA Little General Store Inc.
Smith and Associates
Smith Mountain Lake Association
Smith Mountain Lake Chamber of Commerce
Smithview Management Corporation
SMMM LC
Soil Works, Inc.
SonaBank
South County Library
Southern Country Farms, Inc.
Southern Environmental Law Center
Southern Virginia Regional Alliance
Southway Farm LLC
Southwest Regional Police
Sparvin Energy LLC
Sperry Hardwoods, Inc.
SPI-DAC
Springdale, L.L.C.
St. Bernard's Church Parsonage and Cemetery
Steele Acres, LLC
Stockbridge Munsee Community
Straus Troy Co. LPA
Sullivan's Haven
Summers County Public Library
Summersville Area Chamber of Commerce
Summersville Public Library
Sun Lumber Co.
Sunrise Pipeline, LLC
Sunshine Valley School Inc.
Susquehanna Appalachian Trail Club
Sustainable Living for West Virginia
Sustainable Pittsburgh
Sutton Public Library
Sweet Springs Water Company
T. C. Lands Inc.
Tall Timber, Inc.
Tall Trees and Land, Inc.
Talty Clinical Biomechanics and Orthopedic Medicine
TAS Greenbrier Properties, LLC
Tetra Tech
Texas Eastern Transmission, Corp.
The Border Conservancy
The Catherine R. Beckner Trust
The Conservation Fund
The Danville Register and Bee
The Emmadale Strader Revocable Living Trust
The Estate of Edith Naomi Stewart
The Estate of Ernest L. and Blondena Floyd
The Estate of Rebecca Richards
The Estate of Robert E. Dunbar
The Estate of Zola Lucille Devericks
The Franklin News-Post
The Hope Gas Inc., d/b/a Dominion Hope
The Huntington National Bank
The Mark Czaja 2015 Revocable Trust
The Maryella D. Hitt Trust
The Mitchell Law Firm

The Nature Conservancy
The Nature Conservancy - Virginia
The Nature Conservancy, Virginia
The Nature Conservancy, West Virginia
The Newcastle Record
The Roanoke Times
The State Journal
The Weston Democrat
The Wilderness Society
Thomas L. Woodward, Jr. Trust
Thomas Ltd.
Three Rivers Avian Center
Timberlands III, LLC
TractorWorks Building
Transcontinental Gas Pipeline Corporation
Triangle Sportsman Club, LLC
Triangle Sportsmen's Club
Trout Unlimited
Trout Unlimited, Chestnut Ridge (#670)
Trout Unlimited, New River Valley Chapter (#207)
Trout Unlimited, Roanoke Valley Chapter (#308)
Trout Unlimited, Virginia Council / Virginia Council of Trout Unlimited
Trout Unlimited, West Virginia Council
Trust for Public Land
Trust Fund B under the Last Will and Testament of Woodrow Trent
Twilight Hills, Inc.
U.S. Army Corps of Engineers South Atlantic Division
Upper Monongahela River Association
Virginia Center for Coal and Energy Research
Virginia Chapter of the American Fisheries Society
Virginia Clean Cities
Virginia Conservation Network
Virginia Farm Bureau Federation
Virginia Forest Products Association
Virginia Forestry Association
Virginia Lakes and Watersheds Alliance
Virginia League of Conservation Voters
Virginia Manufacturers Association
Virginia Native Plant Society
Virginia Oil and Gas Association
Virginia Outdoors Foundation
Virginia Petroleum Council
Virginia Polytechnic Institute and State University
Virginia Tech
Virginia Wilderness Committee
Virginia Wilderness Committee; Southern Environmental Law Center
W.C. Flinchum and Sons
Waco Oil and Gas
Wallace Volunteer Fire Department. Inc.
Walnut Hill Farm
Walnut Hills Holdings, LLC
Washington Gas
Washington Gas Light Company
Water and Power Law Group PC
Watershed Strategies, LLC
Waynesburg Chamber of Commerce
Waynesburg-Franklin Township Volunteer Fire Company
WBOY-TV
Webster Co. EDA
Webster County Lumber Co. Inc.
Webster Echo
Webster-Addison Public Library
West Virginia AFL-CIO
West Virginia Association of County Commissioners
West Virginia Business and Industry Council
West Virginia Chamber of Commerce
West Virginia Citizens Action Group
West Virginia Contractors Association
West Virginia Daily News/Greenbrier Valley Ranger
West Virginia Farm Bureau
West Virginia Highlands Conservancy
West Virginia Hospitality and Travel Association
West Virginia Independent Oil and Gas Association
West Virginia Land Trust
West Virginia Manufacturers Association
West Virginia Native Plant Society
West Virginia Oil and Natural Gas Association
West Virginia Public Broadcast
West Virginia Rivers Coalition
West Virginia Roundtable
West Virginia State University - Extension Service in Partnership with New River Gorge Regional Development Authority
West Virginia Tourism Commission
West Virginia University Jackson's Mill

West Virginia Affiliated Construction Trades Foundation
Western Pennsylvania Conservancy
Western Pocahontas Properties Limited Partnership
Westgate Holdings, LLC
Wetlands Watch
Wetzel Chronicle
Wetzel County Chamber
Wetzel County Commissioner
Wetzel County Flood Plain Management, Emergency Services
Wetzel Counsel
WGL Midstream, Inc.
Wheeling Area Chamber of Commerce
White Pine, Inc., a West Virginia corporation
Whitehorn Creek Buffalo Ranch
Wilbur Parker Trust
Wild Virginia
Wildlife Foundation of Virginia
Wildlife Habitat Council
Willard Construction of Smith Mountain Lake LLC
William H. Foster Trust / Franklin Grocery and Grain Corp.
William P. Crosier Trust
Wimmer Family, LLC
Wimmer, E. V. Revocable Trust
Windstream Communications
Wingo Living Trust
Wiseman Living Trust
WMS WV Minerals Trust
Wolf Creek Realty Mortgage
Woody Lumber Company, Inc.
WPW Properties, LLC
WPXI-TV
WTAE-TV
WV Land and Mineral Owners
WV Univ. Board of Governors
WVFX-TV
Zenith Farms LLC
Ziegler and Ziegler, L.C. Attorneys at Law

4.4.4 Individuals

Notification of the availability of the 2022 DSEIS were also sent to approximately 3,355 individuals.

5 Index

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6 References

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Appendix A – National Forest Management Act Analysis

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Mountain Valley Pipeline
Proposed Forest Plan Amendment

National Forest Management Act

This section provides an overview of the process used to amend a forest plan for a specific project. It is followed by the three sections that walk the reader through the three major steps of the amendment process as it applies to the Mountain Valley Pipeline project. The last section of this document provides a discussion of how the amendment requirements are met for this project.

The Forest and Rangeland Renewable Resources Planning Act of 1974, as amended by the National Forest Management Act of 1976 (NFMA) requires National Forests to be managed under a land and resource management plan (land management plan or forest plan). The NFMA requires that proposed projects, such as the Mountain Valley Pipeline (MVP) project, to be consistent with a land management plan of the National Forest where the project occurs (FSH 1909.12 - Chapter 20, Section 21.33). When a project is not consistent with the standards contained within the applicable land management plan[31], the Forest Service has the following options: 1) modify the proposed project to make it consistent with the applicable plan; 2) reject the proposal; 3) amend the plan so that the project would be consistent with the plan as amended; or 4) amend the plan contemporaneously with the approval of the project so the project would be consistent with the plan as amended. The fourth option may be limited to apply only to the project.

The MVP Project, as proposed, cannot adhere to several Forest Plan standards that are intended to protect soil, water, riparian, visual, old growth, and recreational resources. This appendix describes how the Forest Service proposes to amend the Forest Plan so that the MVP Project would be consistent with the amended Forest Plan (per option #4 in the preceding paragraph).

Land management plans are like municipal zoning plans, which take a geographical area (a city) and partition it into zones to promote various objectives such as economic development, traffic flow, etc. To achieve those objectives, the zoning plan provides codes which limit or promote certain activities within a zone. In a municipal zoning plan, alterations to zoning codes, often called variances, are allowed to provide exceptions to a code restriction for a developer or property owner.

Rather than partitioning a city under a municipal zoning plan, a land management plan partitions a national forest into areas called management areas or prescriptions. A land management plan defines the objectives of the zoning plan through goals, objectives, and desired conditions. Each management area and prescription has an emphasis which is articulated in desired conditions and objectives, which are achieved through limiting or promoting certain activities through standards and guidelines. Like a municipal zoning plan, a land management plan allows for variances through the plan amendment process. “Project specific amendments give a way to deal with exceptions. An exception is similar to a variance to a county zoning ordinance” (77 FR 21239).

Land management plan revisions are comprehensive changes to a plan, whereas plan amendments are more limited changes to a plan to accommodate specific projects and/or activities. The U.S. Department of Agriculture issued a final rule that amended the 2012 Planning Rule (36 CFR Part 219) in December 2016, which clarified the U.S. Department of Agriculture’s direction for amending land management plans. The 2016 final rule stated that “[n]o individual amendment is required to do the work of a revision” (81 FR 90725). “The process requirements for plan amendments… are simpler than those for new plan

[31] For land management plans developed under the 1982 Planning Rule

development or plan revisions in order to… keep plans current and adapt to new information or changed conditions" (FR 77 21237). The Forest Service is proposing a project-specific plan amendment rather than a plan revision. "The point of a project-specific amendment is to allow a project that would otherwise not be consistent with the plan to be authorized" (77 FR 21239).

Plan amendments are guided by Federal regulations at 36 CFR § 219 (NFMA implementing regulations, 2012 Planning Rule, or Planning Rule). This proposed amendment applies only to the MVP project and thus is considered a project specific amendment. The plan amendment process consists of three primary steps:

- Determine which plan standards must be amended in order to allow the project to be consistent with the amended plan (36 CFR § 219.13(a)).
- Determine which of the substantive requirement(s) within §§ 219.8 through 219.11 are directly related to the proposed amendment based on the purpose and the effects of the amendment (36 CFR § 219.13(b)(5)). Whether a substantive requirement is directly related to an amendment is determined by the purpose or effects of the amendment (36 CFR § 219.13(b)(5)(i)). When basing the determination on adverse effect, a substantive requirement is directly related if the adverse effects are substantial or when the amendment would substantially lessen plan protections of a specific resource (36 CFR § 219.13(b)(5)(ii)(A)).
- Apply those directly related substantive requirements to the amended plan within the scope and scale of the proposed amendment (36 CFR § 219.13(b)(5)).

Scope and Scale of the Amendment

The 2012 Planning Rule gives the responsible official the discretion, within the framework of the rule's requirements, to tailor the scope and scale of an amendment to reflect the need to change the plan (81 FR 90725). The 2012 Planning Rule at 36 CFR 219.13(a) states, "[t]he responsible official has the discretion to determine whether and how to amend the plan and to determine the scope and scale of any amendment," and 36 CFR 219.13(b)(5) states, "[d]etermine which specific substantive requirement(s) within §219.8 through §219.11 are directly related to the plan direction being added, modified, or removed by the amendment and apply such requirement(s) within the scope and scale of the amendment."

The scope of an amendment is generally considered to be the extent of the changes to the land management plan. The scope of this proposed project-specific amendment is the 11 plan standards that are proposed to be modified for the MVP project and would only be modified for the duration of this project.

The scale of a project-specific amendment varies for each substantive requirement. For example, for the MVP Project, as disclosed in the Step 3 analysis, the scale for old growth is 2 acres, the scale for soils is the 54-acre construction zone, and the scale for riparian areas is 0.6 acres.

Applying the Directly Related Substantive Requirements

"A 2012 amendment to a 1982 rule plan does not have to bring the entire plan into compliance with the 2012 rule. The key distinction is between an amendment and an amended plan. The amendment – the changed plan components – must meet the directly related substantive requirements of the 2012 rule and not be contrary to any substantive requirements. However, the responsible official need not propose to change portions of a plan even if those portions are inconsistent with or even contradictory to the 2012 planning rule; therefore, the amended plan will have plan components changed by the amendment and plan direction that has not been changed. An amended plan is not held to the same standard as a revised plan" (81 FR 70375).

Appropriate application of the directly related substantive requirements ensures that the amended land management plan has the components that are necessary to ensure that meeting those requirements within the plan area will not be compromised by any single project. If a directly related substantive requirement is not meeting the Planning Rule requirement through existing land management plan direction due to the amendment, then additional plan components such as additional standards would need to be added to the plan to meet the minimum requirement for the substantive requirement in question.

In December 2016, the Forest Service published an amendment to the 2012 Planning Rule (81 FR 90723) clarifying that the responsible official is not required to apply every requirement of every substantive section (36 CFR § 219.8 through 219.11) to every acre of land within the planning unit. The clarity provided by the 2016 planning rule amendment indicates that any evaluation of effects of amending the plan needs to remain focused on the amendment itself – its purpose, scope, and scale. While it is recognized that resources and uses can be interconnected, it is not expected for an individual plan amendment to do the work of a revision to bring an underlying plan into compliance with all the substantive requirements of the planning rule. The determination of which substantive requirements are directly related to the amendment, and to what extent they apply, shall depend on the purpose and effects of the changes being proposed by the amendment (81 FR 90725). "[N]ot every… requirement within those sections will be directly related to the scope and scale of a given amendment" (81 FR 70375).

This understanding further supports that the purpose of the amendment is not to ensure compliance of the entire plan area with all the substantive requirements of the 2012 rule, but rather to apply only those requirements that are directly related to the amendment.

Purpose of the 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 January 2004 Jefferson National Forest Revised Land and Resource Management Plan (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 Forest Plan, p. 2-1).

The MVP Project, as proposed, cannot adhere to 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 standards to allow the project to be consistent with the Forest Plan. In this case, the modified standards would only allow this project to be implemented with exceptions, but all other standards would remain unmodified and applicable to all other activities.

The purpose of the amendment is not the same as the applicant's purpose of the project, although they are interrelated. 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 Federal Energy Regulatory Commission (FERC) Final Environmental Impact Statement (FEIS), page 1-8. Despite the remand of the Forest Service's 2017 and 2020 MVP Record of Decisions (RODs), the project purpose articulated in the FERC FEIS has not changed.

Step 1: Determine the Standards to be Modified

The MVP project as proposed would be inconsistent with 11 standards in the Forest Plan. The Forest Service proposes a project-specific amendment to modify the 11 standards to meet the requirement that the MVP project is consistent with the Forest Plan. The proposed amendment would exempt the MVP project from complying with the 11 amended standards and would apply to the 54 acres of the

construction zone (i.e., temporary construction ROW) and ultimately the 22 acres of the ROW grant. Standards denoted with an "FW" are Forest-wide standards. Standards that begin with a numeral (e.g., 11-003) apply to a specific management prescription or area as identified in the Forest Plan. For example, "11-003" is a Plan standard that applies to management prescription 11 (Riparian Corridors). The following standards are proposed to be modified:

- **FW-248** (utility corridors) - 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 5B or 5C. (JNF Forest Plan, P. 2-60).

  FW-248 would be modified to the following: 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 MVP construction zone and right-of-way.*

- **FW-5** (revegetation) - 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 Forest Plan, p. 2-7).

  FW-5 would be modified to the following: 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 MVP construction zone and right-of-way, for which the applicable mitigation measures identified in the approved Plan of Development (POD) (e.g., Appendix C-1 to C-3, Erosion and Sediment Control Plan; Appendix E, ANST Contingency Plan; Appendix H, Restoration Plan) and MVP Project design requirements must be implemented*.

- **FW-8** (soil compaction in water saturated areas) - 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 Forest Plan, p. 2-7).

  FW-8 would be modified to the following: 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 MVP construction zone and right-of-way, for which applicable mitigation measures identified in the approved POD (e.g., Appendix C-1 to C-3, Erosion and Sediment Control Plan; Appendix E, ANST Contingency Plan; Appendix H, Restoration Plan) 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.

- **FW-9** (soil effects from heavy equipment use) - 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 Forest Plan, p. 2-7).

  FW-9 would be modified to the following: 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 MVP construction zone and right-of-way, for which applicable mitigation measures identified in the approved POD (e.g., Appendix C-1 to C-3, Erosion and Sediment Control Plan; Appendix E, ANST Contingency Plan; Appendix H, Restoration Plan) and MVP Project design requirements must be implemented.*

- **FW-13** (exposed soil) - Management activities expose no more than 10% mineral soil in the channeled ephemeral zone (JNF Forest Plan, p. 2-8).

  FW-13 would be modified to the following: Management activities expose no more than 10% mineral soil in the channeled ephemeral zone, *with the exception of the MVP construction zone and right-of-way, for which applicable mitigation measures identified in the approved POD (e.g., Appendix C-1 to C-3, Erosion and Sediment Control Plan) and MVP Project design requirements must be implemented*.

- **FW-14** (residual basal area within the channeled ephemeral zone) - 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 Forest Plan, p. 2-8).

  FW-14 would be modified to the following: 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 MVP construction zone and right-of- way, for which applicable mitigation measures identified in the approved POD (e.g., Appendix C-1 to C-3, Erosion and Sediment Control Plan) and MVP Project design requirements must be implemented*.

- **11-003** (exposed soil within the riparian corridor) - Management activities expose no more than 10 percent mineral soil within the project area riparian corridor (JNF Forest Plan, p. 3-182).

  11-003 would be modified to the following: Management activities expose no more than 10 percent mineral soil within the project area riparian corridor, *with the exception of the MVP construction zone and right-of-way, for which applicable mitigation measures identified in the approved POD (e.g., Appendix C-1 to C-3, Erosion and Sediment Control Plan, Appendix M, Winter Construction Plan) and MVP Project design requirements must be implemented*.

- **6C-007** (tree clearing in the old growth management area) - 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 Forest Plan, pp. 3- 82 to 3-83).

  6C-007 would be modified to the following: 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 MVP construction zone; and maintain the MVP right-of-way in accordance with the approved POD.*

- **6C-026** (utility corridors in the old growth management area) - These areas are unsuitable for designation of new utility corridors, utility rights-of- way, or communication sites. Existing uses are allowed to continue (JNF Forest Plan, p. 3-84).

6C-026 would be modified to the following: These areas are unsuitable for designation of new utility corridors, utility rights-of-way, or communication sites, *with the exception of the MVP right-of-way*. Existing uses are allowed to continue.

- **4A-028** (Appalachian National Scenic Trail [ANST] and utility corridors) - 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 Forest Plan, p. 3-23).

  4A-028 would be modified to the following: 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 right-of-way in accordance with the POD (e.g., Appendix E, ANST Contingency Plan)*. Limit linear utilities and rights- of-way to a single crossing of the prescription area, per project.

- **FW-184** (scenic integrity objectives) - 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 Forest Plan, p. 2-48).

  FW-184 would be modified to the following: The Forest Scenic Integrity Objectives (SIOs) Maps govern all new projects (including special uses), *with the exception of the MVP 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, in accordance with the POD (e.g., Appendix H, Restoration Plan)*. Assigned SIOs are consistent with Recreation Opportunity Spectrum management direction. Existing conditions may not currently meet the assigned SIO.

Step 2: Determine Directly Related Substantive Requirements

The purpose of Step 2 is to identify what 2012 Planning Rule requirement(s) within 36 CFR §§ 219.8 through 219.11 are directly related to the amendment. Whether a substantive requirement 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)). In determining what requirements are directly related, the agency can ensure, through monitoring, site visits, and inspections, that the project is consistent with the amended Forest Plan.

The scope of this proposed project-specific amendment is defined as the 11 plan standards that are proposed for modification for only the MVP project. The scale for the proposed project-specific amendment varies by resource as described in Step 3.

Utility Corridors

The 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. For the MVP project, the utility corridor would not be in a designated Management Prescription 5C, and the corridor would be managed under the current management prescriptions of: 4A-Appalachian National Scenic Trail Corridor; 4J-Urban/Suburban Interface; 6C-Old Growth Forest; and 8A1-Mix of Successional Habitats and 11-Riparian Corridors. The use of designated utility 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 500-foot-wide utility corridor designation could affect adjacent landowners by attracting future development. 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 project-specific Forest Plan amendment to modify this standard was proposed. The FERC FEIS and this DSEIS 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 are speculative at this time.

> **Purpose** – The purpose of amending standard FW-248 is to allow MVP to exceed one standard for managing for future utility corridors. Therefore, the proposed modification of standard FW-248 is directly related to the substantive requirements § 219.10(a)(3) – Appropriate placement and sustainable management of infrastructure, such as recreational facilities and transportation and utility corridors.
>
> **Effects** – There are no direct environmental effects of not designating the MVP corridor as Management Prescription 5C. In addition, there are 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 beneficial or adverse effects of not changing the land allocation. Since there would be no effects of not designating the corridor to Management Prescription 5C, the lessening of plan protections consideration is not applicable.

The proposed modification of standard FW-248 is directly related to § 219.10(a)(3) – Appropriate placement and sustainable management of infrastructure, such as recreational facilities and transportation and utility corridors. This is based on only the purpose of the amendment. No substantive requirements are directly related to the modification of standard FW-248 based on effects.

Soil and Riparian

Six 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 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 MVP.

> **Purpose** - The purpose of amending standards FW-5, FW-8, FW-9, FW-13, FW-14, and 11-003 is to allow MVP to exceed one of the 56 standards for riparian area protection in Management Prescription 11, and five of the 30 Forest-wide standard for water, soil, and channeled ephemeral (riparian) zone protection. To ensure the amended plan continues to maintain or restore these

resources, however, Forest Service will require MVP to implement mitigation measures from the POD to protect soil and water. The modification of these six 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; § 219.8(a)(3)(i) – ecological integrity of riparian areas; and §219.11(c) – timber harvesting for purposes other than timber production.

Effects - The effect of the modification of the six soils and riparian standards includes minor adverse effects of vegetation removal, 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. The greatest impacts to soils, riparian, and water resources would be during the construction and restoration period.

As stated previously, sedimentation modeling estimated that enhanced ECDs would be effective at minimizing sedimentation in waterways. The model estimated that baseline sediment yields would vary from 0.15 to 0.43 tons/ac/yr at each HUC-12 watershed outlet, with a median of 0.35 tons/ac/yr for the study area. The model estimated that sediment yields during the tree clearing phase of the project would increase by less than 0.001 tons/ac/yr (median: less than 0.001 tons/ac/yr) above the baseline. The sedimentation modeling estimated that sediment yields during construction would increase by less than 0.001 to 0.011 tons/ac/yr (median: 0.003 tons/ac/yr) above the baseline. This correlates to an increase of 0.1% to 2.6% (median: 1.1%) compared to the baseline scenario. One year after construction is completed, sediment yields would be reduced to about 0.01% to 0.5% (median: 0.4%) above baseline. Comprehensive analysis of the modeling results and real-world data indicates that the ECDs that were installed and maintained are effective at managing sediment yields. Corresponding impacts to the soil resources would not be substantial across the HUC-12 watersheds and even less substantial across the JNF.

Further, 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), Landslide Mitigation Plan (POD, Appendix F), Site-Specific Design of Stabilization Measures in High Hazard Portions of the Route (POD, Appendix G), Restoration Plan (POD, Appendix H), and Winter Construction Plan (POD, Appendix M) would ensure effects to soils, riparian, and water resources are minimized and are designed to expedite vegetative recovery, such as planting trees and shrubs in the riparian corridor. Continuous monitoring indicates mitigation measures and design criteria are effective at minimizing impacts to soils, riparian, and water resources.

Based on the sedimentation analysis in context of the scope and scale of the amendment at the project level, modifying the six soils and riparian standards would not cause a substantial lessening of plan protections. (See Section 3.3.2 of the DSEIS for an analysis of sedimentation effects.) As stated above, most impacts occur during the construction and restoration phases of project, which would be considered minor and temporary adverse effects. In the long-term, after restoration has occurred and the project is in the operation and maintenance phase, sedimentation is expected to be minor (0.001 tons/ac/yr to 0.002 tons/ac/yr over baseline) due to maintenance and operation activities of the pipeline. Standards FW-5, FW-8, FW-9, FW-13, and FW-14 would continue to apply to the remaining 723,300 acres of the JNF, and Standard 11-003 would continue to apply to the remaining 73,600 acres in management prescription 11 on the JNF. The modified six standards would only apply to the 54-acre construction zone during construction activities and

22-acre authorized ROW, which would not constitute a substantial lessening of plan protections. Therefore, no substantive requirements are directly related due to lessening of plan protections.

The proposed modification of the six standards related to soil and water (FW-5, FW-8, FW-9, FW-13, FW-14 and 11-003) is directly related to § 219.8(a)(2)(ii) – soils and soil productivity, § 219.8(a)(2)(iii) – water quality, § 219.8(a)(2)(iv), § 219.8(a)(3)(i) – ecological integrity of riparian areas, and § 219.11(c) – timber harvesting for purposes other than timber production. These five substantive requirements are only directly related to the proposed amendment through the purpose of the amendment. None of the substantive requirements are directly related through substantial adverse effects, beneficial effects, or substantial lessening of plan protections.

Old Growth Management Area

Two 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 Draft EIS to be reallocated to Management Prescription 5C-Utility Corridor, but that part of the proposal was reconsidered in the FERC FEIS (see Utility Corridor write-up above). Therefore, the Forest Service proposes to modify these two standards for the construction and operation of the MVP on NFS lands.

Purpose - The purpose of modifying standards 6C-007 and 6C-026 is to allow MVP to exceed two of the 27 Forest Plan standards for old growth protection. Therefore, the modification of these two old growth standards is directly related to § 219.8(a)(1) – ecosystem integrity and § 219.9(a)(2) – ecosystem diversity 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.

Effects - The proposed modification of these two old growth standards would result in the clearing of about two acres of old growth within areas designated as 6C (FERC FEIS, Sec. 5.1.8, p. 5-9). Although this is an adverse impact to old growth ecosystems, it is not a substantial adverse impact due to the limited extent of the impact (about 2 of 30,200 old growth acres forest-wide). Therefore, no substantive requirements are directly related due to substantial adverse effects or beneficial effects.

Modifying the two old growth standards would not cause a substantial lessening of plan protections. As stated above, only two acres would be adversely impacted due to tree removal. Standards 6C-007 and 6C-026 would continue to apply to the remaining 30,200 acres in management prescription 6C on the JNF. Removal of these two acres would not constitute a substantial lessening of plan protections, and thus, no substantive requirements are directly related due to lessening of plan protections.

The proposed modification of the two old growth standards (6C-007 and 6C-026) is directly related to § 219.8(a)(1) – ecosystem integrity, § 219.9(a)(2) – ecosystem diversity, § 219.11(c) – timber harvesting for purposes other than timber production. These three substantive requirements are only directly related to the proposed amendment through the purpose of the amendment. None of the substantive requirements are directly related through substantial adverse effects, beneficial effects, or substantial lessening of plan protections.

Appalachian National Scenic Trail

The Forest Plan standard 4A-028 requires the Forest Service to locate new public utilities and ROWs along the ANST in areas where major effects 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 associated with the alternative routes included: longer routes; greater effects to old growth, inventoried roadless areas, wetlands, and other recreational effects; and increased risks from landslide prone areas (FERC FEIS Appendix AA). This proposed amendment would allow for a pipeline route to cross the ANST at a location where no other major effects already exist.

> **Purpose** - The purpose of modifying standard 4A-028 is to allow MVP to exceed one out of 30 Forest Plan standards for the ANST corridor. Therefore, the modification of the 4A-028 standard is directly related by the purpose of the amendment to § 219.10(b)(1)(i) – sustainable recreation, including recreation setting, opportunities, access; and scenic character, and § 219.10(b)(1)(vi) – appropriate management of other designated areas or recommended designated areas in the plan area, including research natural areas.
>
> **Effects** - The effect of the modification of the 4A-028 standard would be the allowance of a new utility corridor to cross under the ANST at a location other than where major effects already exist. As disclosed in the following paragraph, 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 and because effects would be limited to the approximately 10-week construction period.
>
> The MVP would cross by boring under the trail, with an approximate 300-foot forested buffer on either side of the trail and 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 (anticipated to be 10 weeks) (FERC FEIS, p. 3-52) (POD, Sec. 1.3). Multiple measures are required to minimize impacts on recreational users on the ANST and the ANST itself. For example, Appendix E and Section 7.5.2 of the POD include measures to avoid placing equipment near the ANST, avoid conducting trenching near the ANST, and mitigation to control fugitive dust. Additionally, because there is a 70- to 90-foot elevation difference between the bore holes and the ANST, topography acts as a natural barrier to reduce potential visual impacts to the south of the ANST. Because there would be no long-term noise effects and the approximately 300-foot vegetative buffer on either side of the trail would screen the Project, the amended standard is only needed for approximately 10 weeks of construction; operation of the ROW is expected to meet Forest Plan direction.
>
> In conclusion, modifying standard 4A-028 would not cause a substantial lessening of plan protections. As stated above, the pipeline would cross under the trail with a 300-foot-wide forested buffer on either side. The POD requires multiple measures to minimize noise, visual, and recreational impacts. The variance would only be needed for the anticipated 10-week construction period because operation of the ROW is expected to meet Forest Plan direction. Standard 4A-028 would continue to apply to the remaining 63,300 acres of the ANST corridor on the JNF and 29 other standards in Management Prescription 4A would be unaffected by the variance. Allowing the pipeline to go under the ANST would not constitute a substantial lessening of plan protections, and thus, no substantive requirements are directly related due to lessening of plan protections.

The proposed amendment for 4A-028 is directly related to § 219.10(b)(1)(i) – sustainable recreation, including recreation setting, opportunities, access; and scenic character, and § 219.10(b)(1)(vi) –

appropriate management of other designated areas or recommended designated areas in the plan area, including research natural areas. These two substantive requirements are only directly related to the proposed amendment through the purpose of the amendment. None of the substantive requirements are directly related through substantial adverse effects, beneficial effects, or substantial lessening of plan protections.

Scenery Integrity Objectives

The 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 (50-foot-wide authorized ROW) would cross two areas on NFS lands assigned a Very High SIO (0.5 acres), High SIO (6.2 acres), four areas with a Moderate SIO (14.5 acres), and one area with a Low SIO (1.8 acres) (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 areas may appear slightly altered but should borrow from elements of form, line, color, texture, and scale found in the characteristic landscape. The clearing of vegetation along the ROW would highlight the linear nature of the pipeline and would not be consistent with the natural form, lines, and scales in the in adjacent landscape. This alteration of the landscape would be obvious to the casual observer and the landscape would appear altered. It is not practical to modify the MVP construction methods and achieve consistency with High and Moderate SIOs due to the linear nature of pipelines and the need to remove the vegetation along the corridor, which creates an unnatural form on the landscape. Therefore, the Forest Service proposes to amend FW-184 for the MVP project.

Purpose - The purpose of modifying standard FW-184 is to allow to allow MVP to exceed one of the 20 Forest-wide standards for scenery. Therefore, the modification of the FW-184 standard is directly related to § 219.10(b)(1)(i) – sustainable recreation, including recreation setting, opportunities, access; and scenic character – due to the purpose of the amendment.

Effects - The effect of the modification of the FW-184 standards would be the degradation of scenic quality inconsistent with the 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 construction zone and ROW are found in the updated POD (Sec. 7.9). The project crossing of the ANST would retain vegetative cover 300 feet on either side of the ANST, thus mitigating foreground visual impacts. Additionally, the topography acts as a natural barrier to reduce potential visual impacts to the south of the ANST. Background and middle ground visual impacts would occur for the long-term with the ROW (22 acres) remaining in an early successional vegetative condition; however, on NFS lands the ROW would be managed in an early successional condition for only 10 feet rather than the entire 50-foot ROW and planting would be used to minimize the temporal impact to the scenic character. This would significantly reduce the visibility of the pipeline, especially in the background and middle ground. Vegetative growth would allow the corridor to meet the assigned SIO within five years following construction (FERC FEIS p. 4-338).

Modifying standard FW-184 through the proposed amendment would not cause a substantial lessening of plan protections. As stated above, the pipeline would go under the trail and a forest buffer 300 feet on either side of the ANST would remain. In addition the mitigation measure of managing the ROW in herbaceous cover for only 10 feet rather than the full 50 feet would minimize impacts to scenic character. Standard FW-184 would continue to apply across the Forest with 283,000 acres remaining in a high SIO with the MVP project only affecting 0.5 acres in Very High SIO, 6.2 acres in High SIO, and 242,000 acres remaining in a Moderate SIO with the MVP

project only affecting 14.5 acres in Moderate SIO. Exempting the MVP project from FW-184 would not constitute a substantial lessening of plan protections, and thus, no substantive requirements are directly related due to lessening of plan protections.

The proposed modification of FW-184 is directly related to § 219.10(b)(1)(i) – sustainable recreation, including recreation setting, opportunities, access; and scenic character. This substantive requirement is only directly related to the proposed amendment through the purpose of the amendment. None of the substantive requirements are directly related through substantial adverse effects, beneficial effects, or substantial lessening of plan protections.

Additional Effect

One additional effect of the proposed amendment not tied to the proposed modification of any particular 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.

Directly Related Substantive Requirements

Based on the criteria and analyses described above, the substantive requirements that are directly related were only through the purpose of the amendment except for § 219.8(b)(3) – multiple uses that contribute to local, regional, and national economies, which was directly related through beneficial effects. The substantive requirements that are directly related include:

- 219.8(a)(1) – Ecosystem integrity
- 219.8(a)(2)(ii) – Soils and soil 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
- 219.8(b)(3) – Multiple uses that contribute to local, regional, and national economies
- 219.9(a)(2) – Ecosystem diversity
- 219.10(a)(3) – Appropriate placement and sustainable management of infrastructure, such as recreational facilities and transportation and utility corridors
- 219.10(b)(1)(i) – Sustainable recreation, including recreation setting, opportunities, access; and scenic character
- 219.10(b)(1)(vi) – Appropriate management of other designated areas or recommended designated areas in the plan area, including research natural areas
- 219.11(c) – Timber harvest for purposes other than timber production

Table A-1. Summary of Plan Amendment Step 2.

Standard	Directly Related			Required Protection Measures in the POD
	Purpose	*Effect*	*Substantive Requirement*	
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 Forest Plan, p. 2-60).	Yes	No	• § 219.10(a)(3) – appropriate placement and sustainable management of infrastructure, such as recreational facilities and transportation and utility corridors	N/A
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 percent of the activity area and revegetation is accomplished within 5 years (JNF Forest Plan, p. 2-7).	Yes	No	• § 219.8(a)(2)(ii) – soils and soil productivity • § 219.8(a)(2)(iii) – water quality • § 219.8(a)(2)(iv) – water resources	• Appendix C-1 to C-3, Erosion and Sediment Control Plan • Appendix H, Restoration Plan • Appendix E – ANST Contingency Plan
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 Forest Plan, p. 2-7).	Yes	No	• § 219.8(a)(2)(ii) – soils and soil productivity • § 219.8(a)(2)(iii) – water quality • § 219.8(a)(2)(iv) – water resources	• Appendix C-1 to C-3, Erosion and Sediment Control Plan • Appendix H, Restoration Plan • Appendix E – ANST Contingency Plan
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 Forest Plan, p. 2-7).	Yes	No	• § 219.8(a)(2)(ii) – soils and soil productivity • § 219.8(a)(2)(iii) – water quality • § 219.8(a)(2)(iv) – water resources	• Appendix C-1 to C-3, Erosion and Sediment Control Plan • Appendix H, Restoration Plan • Appendix E – ANST Contingency Plan

Table A-1 (continued). Summary of Plan Amendment Step 2.

Standard	Directly Related			Required Protection Measures in the POD
	Purpose	*Effect*	*Substantive Requirement*	
Standard FW-13: Management activities expose no more than 10% mineral soil in the channeled ephemeral zone (JNF Forest Plan, p. 2-8).	Yes	No	• § 219.8(a)(2)(ii) – soils and soil productivity • § 219.8(a)(2)(iii) – water quality • § 219.8(a)(2)(iv) – water resources	• POD Appendix C-1 to C-3, Erosion and Sediment Control Plan
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 LRP, p. 2-8).	Yes	No	• § 219.8(a)(2)(iii) – water quality • § 219.8(a)(2)(iv) – water resources § 219.8(a)(3)(i) – ecological integrity of riparian areas • § 219.11(c) – timber harvesting for purposes other than timber production	• Appendix C-1 to C-3, Erosion and Sediment Control Plan
Standard 11-003: Management activities expose no more than 10 percent mineral soil within the project area riparian corridor (JNF Forest Plan, p. 3-182).	Yes	No	• § 219.8(a)(2)(ii) – soils and soil 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	• Appendix C-1 to C-3, Erosion and Sediment Control Plan • Winter Construction Plan – Appendix M
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 Forest Plan, pp. 3-82 to 3-83).	Yes	No	• § 219.8(a)(1) – ecosystem integrity • § 219.9(a)(2) – ecosystem diversity • § 219.11(c) – timber harvesting for purposes other than timber production	N/A

Table A-1 (continued). Summary of Plan Amendment Step 2.

Standard	Directly Related			Required Protection Measures in the POD
	Purpose	***Effect***	***Substantive Requirement***	
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 Forest Plan, p. 3-84)	Yes	No	• § 219.8(a)(1) – ecosystem integrity • § 219.9(a)(2) – ecosystem diversity	N/A
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 Forest Plan, p. 3-23).	Yes	No	• § 219.10(b)(1)(i) – sustainable recreation, including recreation setting, opportunities, access; and scenic character • § 219.10(b)(1)(vi) – appropriate management of other designated areas or recommended designated areas in the plan area, including research natural areas	• Appendix E, ANST Consistency Plan
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 Forest Plan, p. 2-48).	Yes	No	• § 219.10(b)(1)(i) – sustainable recreation, including recreation setting, opportunities, access; and scenic character	• Appendix H, Restoration Plan

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Step 3: Apply the Directly Related Substantive Requirement

The Forest Service must ensure that the JNF Forest Plan will contain components meeting the directly related substantive requirements even after the MVP project-specific amendment takes effect. Specifically, the amended plan must contain plan components that maintain or restore[32] ecosystem integrity and diversity (36 CFR § 219.8 and § 219.9), guide the plan area's contribution to social and economic sustainability (36 CFR § 219.10), and guide timber management within the plan area (36 CFR § 219.11). To "maintain" a resource is defined by the rule as "*to keep in existence or net continuance of the desired ecological condition in terms of desired composition, structure, and processes*" (36 CFR § 219.19). This does not infer that there must be *no net loss* to the resource in question across the plan area. The following descriptions of the application of the directly related substantive requirements to the JNF Plan standards are grouped by related resources.

§ 219.8(a)(1) – Ecosystem integrity and § 219.9(a)(2) – Ecosystem diversity

The substantive requirements § 219.8(a)(1) – Ecosystem integrity and § 219.9(a)(2) – Ecosystem diversity are directly related to the proposed amendment through the purpose of amending standards 6C-007 and 6C-026. The overarching goal of the substantive requirements related to § 219.8 and § 219.9 is to provide for the ecological conditions to both maintain the integrity and diversity of plant and animal communities and support the persistence of most native species in the plan area. The substantive requirements specific to ecosystem integrity and diversity are to include plan components to maintain or restore the integrity and diversity of ecosystems and habitat types throughout the plan area.

Scope

The scope of the amendment is the modification of the two old growth standards as they are applied to the MVP project, which is a 3.5-mile corridor across the JNF.

Scale

The scale of the project-specific amendment is the permanent loss of two acres of old growth of the approximately 30,200 acres of old growth across the JNF, or about 0.07% of the total old growth on the JNF.

Plan Components

Only two Management Prescription 6C standards (6C-007 and 6C-026) are directly related to the proposed project-specific amendment; the other 25 standards would not be affected and would remain in place. The limited scope of the variance is one reason why the amended Forest Plan direction, which includes an old growth management strategy (Appendix B of the Forest Plan) would meet the overarching goal of the substantive requirements related to § 219.9.

The FY 2015-2019 Monitoring Evaluation Report for the GWJ (Forest Service 2020b) indicates old growth on the JNF exceeds JNF Forest Plan objectives. Recommended changes for management of old growth from the monitoring report were a review of the survey process and exploring option and methodologies for analyzing impacts to old growth from mechanical treatments. Current plan components are sufficient to maintain and restore old growth habitats across the JNF.

[32] The process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed. Ecological restoration focuses on reestablishing the composition, structure, pattern, and ecological processes necessary to facilitate terrestrial and aquatic ecosystem sustainability, resilience, and health under current and future conditions (36 CFR § 219.19)

The substantive requirements § 219.8(a)(1) – Ecosystem integrity and § 219.9(a)(2) – Ecosystem diversity would be sufficiently applied to the scope and scale of the project-specific amendment, and no additional plan components are needed to ensure ecosystems and habitat types are maintained or restored the throughout the plan area because:

- the limited area the proposed modification of the two old growth standards would be applied to (about 2 acres),
- the continued application of 25 Management Prescription 6C unmodified standards and 58 other old growth standards in Management Prescriptions 6A and 6B across the remaining 30,200 acres of old growth, and
- the fact that current old growth habitat exceeds JNF Forest Plan objectives.

§ 219.8(a)(2)(ii) – Soils and soil productivity

The substantive requirement § 219.8(a)(2)(ii) – Soils and soil productivity is directly related to the proposed amendment through the purpose of modifying standards FW-5, FW-8, FW-9, FW-13, and 11-003. The overarching goal of the substantive requirements related to § 219.8 is for the plan 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.

Scope

The scope of the amendment for this substantive requirement is the modification of the five standards related to soils and soil productivity and the application of the modified standards to the MVP project 3.5-mile corridor across the JNF.

Scale

The scale of the project-specific amendment for this resource is the construction zone (54 acres) during the construction and restoration phases. After construction the scale would be limited to the ROW (22 acres) for the life of the pipeline.

Plan Components

Forest-wide Plan components to maintain and restore soils and soil productivity would remain in place on 99.99% of the JNF and on 99.99% of soils in Management Prescription 11. As such, the scale of the proposed amendment is negligible in context of the forest-wide (FW-5, FW-8, FW-9, and FW-13) or Management Prescription 11 (11-003) soil resource. Based on scale alone, existing Forest Plan direction for the JNF is sufficient to maintain the soil resource despite the allowance of the MVP project. Further, a variance for soils and soil productivity is only needed during the construction and restoration phase. After construction, operation of the ROW is expected to meet the Forest Plan direction for ‘maintaining or restoring’. Therefore, it is only during the construction and restoration phases that this project-specific amendment would be in place.

As stated previously, sedimentation modeling estimated that enhanced ECDs would be effective at minimizing sedimentation in waterways and associated soil loss. The model estimated that baseline sediment yields would vary from 0.15 to 0.43 tons/ac/yr at each HUC-12 watershed outlet, with a median of 0.35 tons/ac/yr for the study area. The model estimated that sediment yields during the tree clearing phase of the project would increase by less than 0.001 tons/ac/yr (median: less than 0.001 tons/ac/yr) above the baseline. The sedimentation modeling estimated that sediment yields during

construction would increase by less than 0.001 to 0.011 tons/ac/yr (median: 0.003 tons/ac/yr) above the baseline. This correlates to an increase of 0.1% to 2.6% (median: 1.1%) compared to the baseline scenario. One year after construction is completed sediment yields would be reduced to about 0.01% to 0.5% (median: 0.4%) above baseline. Comprehensive analysis of the modeling results and real-world data (see Section 3.3.2) indicates that the ECDs that were installed and maintained are effective at managing sediment yields. Corresponding impacts to the soil resources would not be substantial across the HUC-12 watersheds and even less substantial across the JNF.

Despite the soil compaction and displacement, the soil resource within the ROW would be maintained to the level sufficient to accommodate the Forest Plan desired conditions for soil resources across the project area. Mitigation measures identified in the POD would require regrading and recontouring of the ROW to approximate the original contours. The POD also requires the removal and storage of topsoil for later replacement during the regrading and recontouring phase of the project. Topsoil would be supplemented to mitigate any lost nutrients and ensure adequate productivity for revegetation. Although, at the project level, soils would be compacted and loss of porosity would occur, soils would be of sufficient structure and composition after revegetation to maintain desired soil processes of soil stability and production of desired vegetation of grass/forbs for the ROW. The allowance of the amendment for the MVP project would not hinder the attainment of Forest Plan desired conditions for the soil resource across the plan area because the project area would eventually sustain desired conditions and the unmodified standards would still be applied across the rest of the JNF. As stated above, the amended standard is only needed for construction; operation of the ROW is expected to meet Forest Plan direction. The proposed amended standard is geographically limited and does not affect other areas of the JNF or set precedence for other projects.

As stated in the determination of substantive requirements, there would not be a substantial lessening of plan protection for the soil resource. In addition, the soil structure and composition would be sufficient to maintain desired soil processes in the ROW, and over the long-term, soil loss would not be substantial within the ROW. Therefore, despite the modification of the five standards related to soil, the substantive requirement § 219.8(a)(2)(ii) would be sufficiently applied across the plan area (forest-wide) to maintain ecological sustainability of the soil resource and maintain the desired ecological condition for soil structure, composition, and processes.

The FY 2015-2019 Monitoring Evaluation Report for GWJ (Forest Service 2020) does not indicate problems with the protection of soils resources on the JNF within the context of ongoing activities. In addition, the Transcon inspection reports for the MVP provides an additional mechanism for the Forest Service to determine effects on soils resources. The inspection reports show that ECDs are effective at controlling erosion, runoff, and sedimentation under normal conditions when properly installed and maintained. The proposed MVP project, which includes minimization measures in the POD, would be consistent with acreages and associated impacts of historic activities on the JNF despite the need for an amendment.

The substantive requirement § 219.8(a)(2)(ii) – Soils and soil productivity would be sufficiently applied to the scope and scale of the project-specific amendment, and no additional plan components are needed to ensure soils and soil productivity are maintained or restored across the planning unit because:

- the limited area the proposed modification to the soil standards would be applied to (54-acre construction zone),
- the limited soil loss and displacement from the construction, operation, and maintenance of the pipeline,

- the mitigation measures and design criteria in the POD used to minimize loss of soil productivity,
- the ability for the soil in the impacted area (54-acre construction zone) over the approximately two-year construction period to maintain the desired ecological conditions in the existing unmodified JNF Plan,
- the continued application of the unmodified standards and other soil standards across the rest of the Forest, and
- that Forest Plan monitoring and Transcon inspections show the existing JNF Forest Plan has been adequate to protect the soil resource in context of ongoing activities, and the proposed MVP project is consistent with historic activities on the JNF.

§ 219.8(a)(2)(iii) – Water quality and § 219.8(a)(2)(iv) – Water resources

The substantive requirements § 219.8(a)(2)(iii) – Water quality and § 219.8(a)(2)(iv) – Water resources are directly related to the proposed amendment through the purpose of modifying standards FW-5, FW-8, FW-9, FW-13, FW-14, and 11-003. 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 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.

Scope

The scope of the project-specific amendment for the water quality and water resource substantive requirements is the modification of the six standards (FW-5, FW-8, FW-9, FW-13, FW-14, and 11-003) related to water quality and water resources.

Scale

The scale of the amendment is the nine affected HUC-12 watersheds out of 88 HUC-12 watersheds containing JNF lands. Eight of the affected HUC-12 watersheds include the pipeline corridor and one is downstream. These nine affected HUC-12 watersheds contain 61,826 acres of NFS lands; the 88 HUC-12 watersheds contain 537,748 acres of NFS lands. There are about 811 stream miles within these nine HUC-12 watersheds, of which about 155 miles of stream would experience increased sedimentation from the MVP project (Geosyntec Consultants 2020b).

Plan Components

The 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 Forest-wide soil and water standards (FW-5, FW-8, and FW-9) and two Forest-wide riparian standards (FW-13 and FW-14), seven additional Forest-wide water and soil quality standards and 17 Forest-wide channeled ephemeral (riparian) zone standards remain unchanged by the proposed amendment that would continue to protect water quality and water resources. In addition, specific water and soils standards associated with individual management prescriptions are provided in many of the individual prescriptions; and standards FW-5, FW-8, FW-9, FW-13, and FW-14 would continue to apply to the remaining 723,300 acres of the JNF, and standard 11-003 would continue to apply to the remaining 73,600 acres in management prescription 11 on the JNF. After construction, operation of the 22-acre authorized ROW is expected to meet the Forest Plan direction for ‘maintaining or restoring’. Therefore, it is only during the construction and restoration phases that this project-specific

amendment would be in place. Please see Table 8 for a list of Required Protection Measures in the POD for each amended standard.

As stated previously, sedimentation modeling estimated that enhanced ECDs would be effective at minimizing sedimentation in waterways. The model estimated that baseline sediment yields would vary from 0.15 to 0.43 tons/ac/yr at each HUC-12 watershed outlet, with a median of 0.35 tons/ac/yr for the study area. The model estimated that sediment yields during the tree clearing phase of the project would increase by less than 0.001 tons/ac/yr (median: less than 0.001 tons/ac/yr) above the baseline. The sedimentation modeling estimated that sediment yields during construction would increase by less than 0.001 to 0.011 tons/ac/yr (median: 0.003 tons/ac/yr) above the baseline. This correlates to an increase of 0.1% to 2.6% (median: 1.1%) compared to the baseline scenario. One year after construction is completed sediment yields would be reduced to about 0.01% to 0.5% (median: 0.4%) above baseline. Comprehensive analysis of the modeling results and real-world data indicates that the ECDs that were installed and maintained are effective at managing sediment yields (see Section 3.3.2). As disclosed in Section 3.3.2, effects on water resources in the HUC-12 watersheds during construction would be minor to moderate and, therefore, would not be substantial across the HUC-12 watersheds and even less substantial across the JNF.

The FY 2015-2019 Monitoring Evaluation Report for the GWJ (Forest Service 2020) includes long-term macroinvertebrate monitoring, which is an indicator of water quality and aquatic habitat conditions. Results of the macroinvertebrate monitoring indicate forest protection measures are adequate for protection of water resources and aquatic habitats on the JNF within the context of ongoing activities. The proposed MVP project would be consistent with acreages and associated impacts of historic activities on the JNF despite the need for an amendment. Based on the macroinvertebrate monitoring there was no change recommended for management of water resources in the FY 2015-2019 Monitoring and Evaluation Report. This recommendation indicates forest-wide protections are adequate for maintaining or restoring the desired conditions for the water resources on the JNF.

The substantive requirements § 219.8(a)(2)(iii) – Water quality and § 219.8(a)(2)(iv) – Water resources would be sufficiently applied to the scope and scale of the project-specific amendment, and no additional plan components are needed to ensure water quality and water resources are maintained or restored across the planning unit because:

- the limited area the proposed modification to standards associated with water quality and water resources would be applied to (54-acre construction zone),
- only nine HUC-12 watersheds would be affected by the MVP project out of 88 HUC-12 watersheds forest-wide,
- within the nine affected HUC-12 watersheds, only 155 of the 811 stream miles would experience increased sedimentation from the MVP project,
- the ability for water quality in the impacted area (54-acre construction zone) over the approximately two-year construction period to maintain the desired ecological conditions in the existing unmodified JNF Plan,
- the limited sediment delivery to streams, which would substantially decrease one year after construction,
- the mitigation measures and design criteria in the POD used to minimize sedimentation to streams,

- operation of the ROW is expected to meet the Forest Plan direction for 'maintaining or restoring'. Therefore, it is only during the construction and restoration phases that this project-specific amendment would be in place,
- the continued application of the unmodified standards and other standards across the rest of the Forest, and
- that Forest Plan monitoring and Transcon inspections show the existing JNF Forest Plan has been adequate to protect water quality and the water resource in context of ongoing activities as indicated by ongoing macroinvertebrate monitoring and the proposed MVP project is consistent with historic activities on the JNF.

§ 219.8(a)(3)(i) – Ecological integrity of riparian areas

The substantive requirement § 219.8(a)(3)(i) – Ecological integrity of riparian areas is directly related to the proposed amendment through the purpose of amending standards FW-5, FW-8, FW-9, FW-13, FW-14, and 11-003. 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 riparian areas is to include plan components to maintain or restore the ecological integrity of riparian areas in the plan area.

Scope

The scope of the project-specific amendment for the riparian area substantive requirements is the modification of the six standards (FW-5, FW-8, FW-9, FW-13, FW-14, and 11-003) related to the ecological integrity of riparian areas. Variances would be applied to the six standards for the MVP project's 3.5-mile corridor across the JNF, and the MVP project would only cross four streams on the JNF.

Scale

During construction, the scale of the amendment is 0.6 acres because the variance to the standards would be limited to the 0.6 acres of riparian areas within the construction zone. The scale during the operation and maintenance phase would be smaller, as riparian vegetation would be allowed to regrow within the ROW, except for a 10-foot-wide area of herbaceous cover over the pipeline, which would minimize riparian impacts to 0.05 acres in the long-term.

Plan Components

There are 55 riparian area standards for Management Prescription 11 that are not subject to variance as part of this proposed amendment. Forest-wide, there are about 73,600 acres of riparian areas (i.e., lands designated as Management Prescription 11). Short- and long-term impacts would affect only 0.6 and 0.05 acres, respectively, of those 73,600 acres. After construction, operation of the ROW is expected to meet the Forest Plan direction for 'maintaining or restoring'. Therefore, it is only during the construction and restoration phases that this project-specific amendment would be in place.

The substantive requirement § 219.8(a)(3)(i) – Ecological integrity of riparian areas would be sufficiently applied to the scope and scale of the project-specific amendment, and no additional plan components are needed to ensure the ecological integrity of riparian areas across the planning unit are maintained or restored because:

- the proposed modification would apply to only 0.6 acres during construction and 0.05 acres thereafter,

- the limited impact to riparian vegetation,
- the design criteria in the POD applied to the pipeline corridor to allow riparian vegetation to regrow within the ROW except for a 10-foot-wide area over the pipeline,
- operation of the ROW is expected to meet the Forest Plan direction for 'maintaining or restoring'. Therefore, it is only during the construction and restoration phases that this project-specific amendment would be in place,
- that Forest Plan monitoring and Transcon inspections show the existing JNF Forest Plan has been adequate to protect riparian areas in context of ongoing activities and the proposed MVP project is consistent with historic activities on the JNF, and
- the continued application of the unmodified Forest-wide standards and 55 other riparian standards across the remaining 73,600 acres of riparian areas across the Forest.

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

The substantive requirement § 219.8(b)(3) – Multiple uses that contribute to local, regional, and national economies is directly related to the proposed amendment based on the beneficial effects of the proposed action. 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.

Scope

The scope of the project-specific amendment for the economic substantive requirement is the modification of all 11 standards and the application of the modified standards for the MVP project's 3.5-mile corridor across the JNF.

Scale

The scale of the amendment is the contribution the MVP project has to the local, regional, and national economies.

Plan Components

The Forest Plan includes goals, objectives, desired conditions, and standards to ensure the JNF contributes to social and economic sustainability. The 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 to 11. Therefore, the amended Forest Plan would further meet the overarching goal of the substantive requirements related to §219.8, and no additional plan components are needed to guide the plan area's contribution to social economic sustainability.

§ 219.10(a)(3) – Appropriate placement and sustainable management of infrastructure, such as recreational facilities and transportation and utility corridors

The substantive requirement § 219.10(a)(3) – Appropriate placement and sustainable management of infrastructure, such as recreational facilities and transportation and utility corridors is directly related to the proposed amendment through the purpose of modifying standard FW-248. 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 utility corridors is consideration of appropriate placement and sustainable management of infrastructure, including utility corridors.

Scope

The scope of the project-specific amendment is the modification of the FW-248 standard as it is applied to the MVP project which is a 3.5-mile corridor across the JNF.

Scale

During construction, the scale of the amendment is the 54-acre construction zone and, after construction, the 22-acre authorized ROW. These acreages correlate to 0.007% of the total JNF during construction and 0.003% of the total JNF during operation.

Plan Components

The Forest Plan includes forest-wide goals, objectives, and standards for lands and special uses, which include utility corridors and ROWs. In addition, current management prescriptions of: 4A-Appalachian National Scenic Trail Corridor; 4J-Urban/Suburban Interface; 6C-Old Growth Forest; and 8A1-Mix of Successional Habitats and 11-Riparian Corridors would continue to apply to the MVP corridor. The amended Forest Plan direction provides sufficient direction for future placement of infrastructure, including utility corridors.

The substantive requirement § 219.10(a)(3) – Appropriate placement and sustainable management of infrastructure, such as recreational facilities and transportation and utility corridors would be sufficiently applied to the scope and scale of the project-specific amendment, and no additional plan components are needed to ensure appropriate placement and sustainable management of infrastructure, including utility corridors because:

- the limited footprint of the proposed MVP project accounts for about 0.007% of the entire plan area during construction, and
- Forest Plan direction for utility corridors and ROWs would continue to apply across the Forest along with other Forest Plan direction, which do not foreclose future placement of infrastructure.

§ 219.10(b)(1)(i) – Sustainable recreation, including recreation setting, opportunities, access; and scenic character

The substantive requirement § 219.10(b)(1)(i) – Sustainable recreation, including recreation setting, opportunities, access; and scenic character is directly related to the proposed amendment through the purpose of amending standard FW-184. 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 sustainable scenic character.

Scope

The scope of the project-specific amendment is the modification of the FW-184 standard as it is applied to the MVP project which is a 3.5-mile corridor across the JNF.

Scale

The scale of the amendment encompasses areas of Very High SIO (0.5 acres), High SIO (6.2 acres), Moderate SIO (14.5 acres), and Low SIO (1.8 acres), approximately 43% of the 54-acre construction zone or approximately 0.003% of the 723,300-acre JNF.

Plan Components

Only one Forest-wide scenery standard (FW-184) is directly related to the proposed project-specific amendment; the other 19 standards would not be affected and would remain in place.

MVP mitigation measures to reduce effects to scenery include reducing the appearance of the ROW from 50 feet wide to 10 feet wide on the JNF through the restoration and revegetation plan contained in Appendix H of the POD. Application of this mitigation measure in the ROW grant 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. As a result, the variance is needed only for the five-year period after construction. After the five years, operation of the ROW is expected to meet the Forest Plan direction for 'maintaining or restoring'. Therefore, it is only during the five-year period immediately following construction that this project-specific amendment would be in place.

The Forest Plan includes numerous forest-wide goals, objectives, and 19 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. The amended Forest Plan direction along with the application of the revegetation plan would provide for sustainable scenic character for the JNF.

The substantive requirement § 219.10(b)(1)(i) – Sustainable recreation, including recreation setting, opportunities, access; and scenic character would be sufficiently applied to the scope and scale of the project-specific amendment, and no additional plan components are needed to provide for sustainable scenic character because:

- the limited area the proposed modification to scenic standards would be applied to (0.5 acres of Very High SIO, 6.2 acres of High SIO and 14.5 acres of Moderate SIO),
- the mitigation measures to reduce the appearance of the ROW from 50 feet wide to 10 feet wide on the JNF,
- the variance would only apply to one out of 20 Forest-wide scenery standards in the Forest Plan and would only be needed for five years after construction, and
- the application of scenery standards across the remaining plan area.

§ 219.10(b)(1)(vi) – Appropriate management of other designated areas or recommended designated areas in the plan area, including research natural areas

The substantive requirement § 219.10(b)(1)(vi) – Appropriate management of other designated areas or recommended designated areas in the plan area, including research natural areas is directly related to the proposed amendment through the purpose of modifying standard 4A-028. The overarching goal of the substantive requirements related to § 219.10 is to provide for ecosystem services and multiples

uses within Forest Service authority and the inherent capability of the plan area. 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.

Scope

The scope of the project-specific amendment is the modification of the 4A-028 standard as applied to the MVP project which is a 3.5-mile corridor across the JNF.

Scale

The scale of the amendment is the one crossing of the pipeline under the ANST, which is about 2.5 acres of the ROW within 4A or 0.008% of the 30,700 acres of the JNF allocated to Management Prescription 4A.

Plan Components

Only one Management Prescription 4A standard (4A-028) is directly related to the proposed project-specific amendment; the other 29 standards would not be affected and would remain in place.

The ANST is approximately 2,190 miles long, running from Georgia to Maine; there is no reasonable alternative that avoids crossing the ANST. The MVP project would cross the ANST once near MP 196.3 through a 600-foot-long bore underneath the trail, effectively mitigating impacts within Management Prescription 4A for the reasons outlined below. After construction, operation of the ROW is expected to meet the Forest Plan direction for 'maintaining or restoring'. Therefore, it is only during the approximately 10-week-long construction phase that this project-specific amendment would be in place.

Appendix E "Contingency Plan for the Proposed Crossing of the Appalachian National Scenic Trail" in the POD contains measures to avoid and minimize impacts on the ANST, including avoiding trenching near the ANST and staging equipment away from the ANST. Direct impacts to users of the ANST would be limited to the noise and dust from the boring operations and would only occur during the approximately 10-week construction period. Visual impacts would be minor because of the 300-foot buffer on either side of the trail and because the topography acts as a natural barrier to reduce potential visual impacts to the south of the ANST.

The Forest Plan includes 29 other standards for recreation, including the ANST, in Management Prescription 4A, which are not subject to a variance from this proposed amendment. In addition, the Forest Plan includes specific recreational standards associated with other management prescriptions; these would not be subject to a variance, either. Management direction for Management Prescription 4A would continue to apply and continue to provide for protection of other designated areas, such as the ANST.

The substantive requirement § 219.10(b)(1)(vi) – Appropriate management of other designated areas or recommended designated areas in the plan area, including research natural areas would be sufficiently applied to the scope and scale of the project-specific amendment, and no additional plan components are needed to provide for protection of other designated areas, such as the ANST because:

- the limited impact to the single crossing of the pipeline and the fact that it would go under the ANST with 300 feet on either side of the trail to mitigate visual impacts. Additionally, the topography acts as a natural barrier to reduce potential visual impacts to the south of the

ANST. Appendix E of the POD also includes measures to avoid placing equipment and conducting trenching near the ANST,

- direct impacts to users of the ANST would be limited to the noise and dust from the boring operations only during the approximately 10-week construction period, and
- the variance would only affect one out of 30 Management Prescription 4A standards and would only be needed during the approximately 10-week construction period

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

The substantive requirement § 219.11(c) – Timber harvesting for purposes other than timber production is directly related to the proposed amendment through the purpose of modifying standard FW-14 and 6C-007. 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.

Scope

The scope of the project-specific amendment is modification of the two standards (FW-14 and 6C-007) as applied to the MVP project which is a 3.5-mile corridor across the JNF.

Scale

The scale of the amendment is the vegetation removal along the 54-acre construction zone.

Plan Components

The 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 Forest Plan. No additional components need to be added to the Forest Plan. After construction, operation of the ROW is expected to meet the Forest Plan direction for ‘maintaining or restoring’. Therefore, it is only during the construction phase that this project-specific amendment would be in place.

Compliance with the Planning Rule Regulations

The NFMA regulation at **36 CFR 219.13(a)** states:

> A plan may be amended at any time. Plan amendments may be broad or narrow, depending on the need for change, and should be used to keep plans current and help units adapt to new information or changing conditions. The responsible official has the discretion to determine whether and how to amend the plan and to determine the scope and scale of any amendment. Except as provided by paragraph (c) of this section, a plan amendment is required to add, modify, or remove one or more plan components, or to change how or where one or more

> plan components apply to all or part of the plan area (including management areas or geographic areas).

The responsible official utilized his discretion to propose an amendment to allow the MVP project to move forward consistent with the FERC's decision. The proposed amendment is narrow and is limited to the MVP project. The amendment modifies 11 standards and only applies to the MVP corridor. The proposed amendment is consistent with the direction at 36 CFR 219.13(a).

The NFMA regulation at **36 CFR 219.13(b)(1)** states:

> Base an amendment on a preliminary identification of the need to change the plan. The preliminary identification of the need to change the plan may be based on a new assessment; a monitoring report; or other documentation of new information, changed conditions, or changed circumstances. When a plan amendment is made together with, and only applies to, a project or activity decision, the analysis prepared for the project or activity may serve as the documentation for the preliminary identification of the need to change the plan.

The proposed amendment is a project-specific amendment, and the June 2017 FERC FEIS serves as the documentation for the need to change the plan. This is consistent with the direction at 36 CFR 219.13(b)(1).

The NFMA regulation at **36 CFR 219.13(b)(2)** states:

> Provide opportunities for public participation as required in § 219.4 and public notification as required in § 219.16. 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)).

Opportunities for public participation have been extensive for this project. The 2017 FERC FEIS Section 1.4 (pp. 1-27 to 1-39) describes the public involvement process used to develop the 2017 FERC FEIS and resulting first set of decisions. The 2020 Forest Service/BLM FSEIS Section 1.6 (pp. 8 to 10) describes the public involvement process used to develop the 2020 FSEIS and resulting 2021 Forest Service and BLM decisions. Section 1.6 of this DSEIS describes the public involvement process used thus far for the development of the third set of decisions for the Forest Service and BLM. The FERC, Forest Service, and BLM have utilized a wide variety of tools to engage the public, including mailings, public meetings, legal notices in local newspapers and the *Federal Register*, distribution of information on the internet, and intake of comments electronically and in writing. Federal agencies have outreached to affected landowners, public and private organizations, individuals, State and local governments, and Tribes. The FERC consulted with Federally recognized Tribes on a government-to-government basis that were interested and had a potential to affect their traditional cultural properties. The public participation process, which began in April 2015 and continues today, is consistent with 36 CFR 219.4.

This proposed amendment is a project-specific amendment; therefore, the notification requirements of 36 CFR 218 were followed per direction at 36 CFR 219.16(b). The notice of availability for this DSEIS serves as the required *Federal Register* notice for inviting comments on the proposed amendment (36 CFR 219.16(c)(3)). The public notification process is consistent with 36 CFR 219.16.

The initial notice for this proposed amendment was the notice of intent (87 FR 68996) for this DSEIS and it included information on which substantive requirements are likely to be directly related to the amendment. The public participation effort undertaken for this proposed amendment is consistent with 36 CFR 219.13(b)(2).

The NFMA regulation at **36 CFR 219.13(b)(3)** states:

> Amend the plan consistent with Forest Service NEPA procedures. The appropriate NEPA documentation for an amendment may be an environmental impact statement, an environmental assessment, or a categorical exclusion, depending upon the scope and scale of the amendment and its likely effects. Except for an amendment that applies only to one project or activity, a proposed amendment that may create a significant environmental effect and thus requires preparation of an environmental impact statement is considered a significant change in the plan for the purposes of the NFMA and therefore requires a 90-day comment period for the proposed plan and draft environmental impact statement (§ 219.16(a)(2)), in addition to meeting the requirements of this section.

This amendment applies only to the MVP project; therefore, the amendment is not considered a significant change in the plan for the purposes of the NFMA. A 90-day comment period is not required. This comment period for this proposed amendment is consistent with 36 CFR 219.13(b)(3).

The NFMA regulation at **36 CFR 219.13(b)(4)** states:

> Follow the applicable format for plan components set out at § 219.7(e) for the plan direction added or modified by the amendment, except that where an amendment to a plan developed or revised under a prior planning regulation would simply modify the area to which existing direction applies, the responsible official may retain the existing formatting for that direction.

This proposed amendment modifies 11 standards by describing where the standard would not apply, which is consistent with 36 CFR 219.7(e). Therefore, the proposed amendment is consistent with 36 CFR 219.13(b)(4).

The NFMA regulation at **36 CFR 219.13(b)(5)** states:

> Determine which specific substantive requirement(s) within §§ 219.8 through 219.11 are directly related to the plan direction being added, modified, or removed by the amendment and apply such requirement(s) within the scope and scale of the amendment. The responsible official is not required to apply any substantive requirements within §§ 219.8 through 219.11 that are not directly related to the amendment.

The "Step 2" section in this document describes which specific substantive requirement are directly related to the proposed amendment. Each standard proposed to be modified was reviewed for purpose and effect of the amendment. Modified standards that would result in an adverse effect were further reviewed to determine whether the effects were substantial or substantially lessen plan protections. Nine substantive requirements were found to be directly related due to purpose of the amendment; no substantive requirements were found to be directly related due to adverse effects; and one substantive requirement was found to be directly related due to beneficial effects. The determination of directly related substantive requirements is consistent with 36 CFR 219.13(b)(5).

The "Step 3" section in this document applies the directly related substantive requirements. The Forest Service must ensure that the JNF Forest Plan will contain components meeting the directly related substantive requirements even after the MVP project-specific amendment takes effect.

Specifically, the amended plan must contain plan components that maintain or restore[33] ecosystem integrity and diversity (36 CFR § 219.8 and 219.9), guide the plan area's contribution to social and economic sustainability (36 CFR § 219.10), and guide timber management within the plan area (36 CFR § 219.11). To "maintain" a resource is defined by the rule as "*to keep in existence or net continuance of the desired ecological condition in terms of desired composition, structure, and processes*" (36 CFR § 219.19). This does not infer that there must be *no net loss* to the resource in question across the plan area.

The NFMA regulation at **36 CFR 219.13(b)(6)** states:

> For an amendment to a plan developed or revised under a prior planning regulation, if species of conservation concern (SCC) have not been identified for the plan area and if scoping or NEPA effects analysis for the proposed amendment reveals substantial adverse impacts to a specific species, or if the proposed amendment would substantially lessen protections for a specific species, the responsible official must determine whether such species is a potential SCC, and if so, apply section § 219.9(b) with respect to that species as if it were an SCC.

The JNF Forest Plan was revised under the prior planning regulation and SCC have not been identified for the plan area. SCC are species, other than Federally recognized threatened, endangered, proposed, or candidate species, that are known to occur in the plan area and for there are substantial concern about the species' capability to persist over the long-term in the plan area (36 CFR § 219.9(c)). The NEPA analysis did not identify any substantial adverse impacts to a specific species (see FERC FEIS pp. 4-252 to 4-256) and did not identify any species that the proposed amendment would substantially lessen protections. Therefore, the amendment is consistent with 36 CFR § 219.13(b)(6).

[33] The process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed. Ecological restoration focuses on reestablishing the composition, structure, pattern, and ecological processes necessary to facilitate terrestrial and aquatic ecosystem sustainability, resilience, and health under current and future conditions (36 CFR § 219.19)

Appendix B – USGS Water Quality Monitoring Stations

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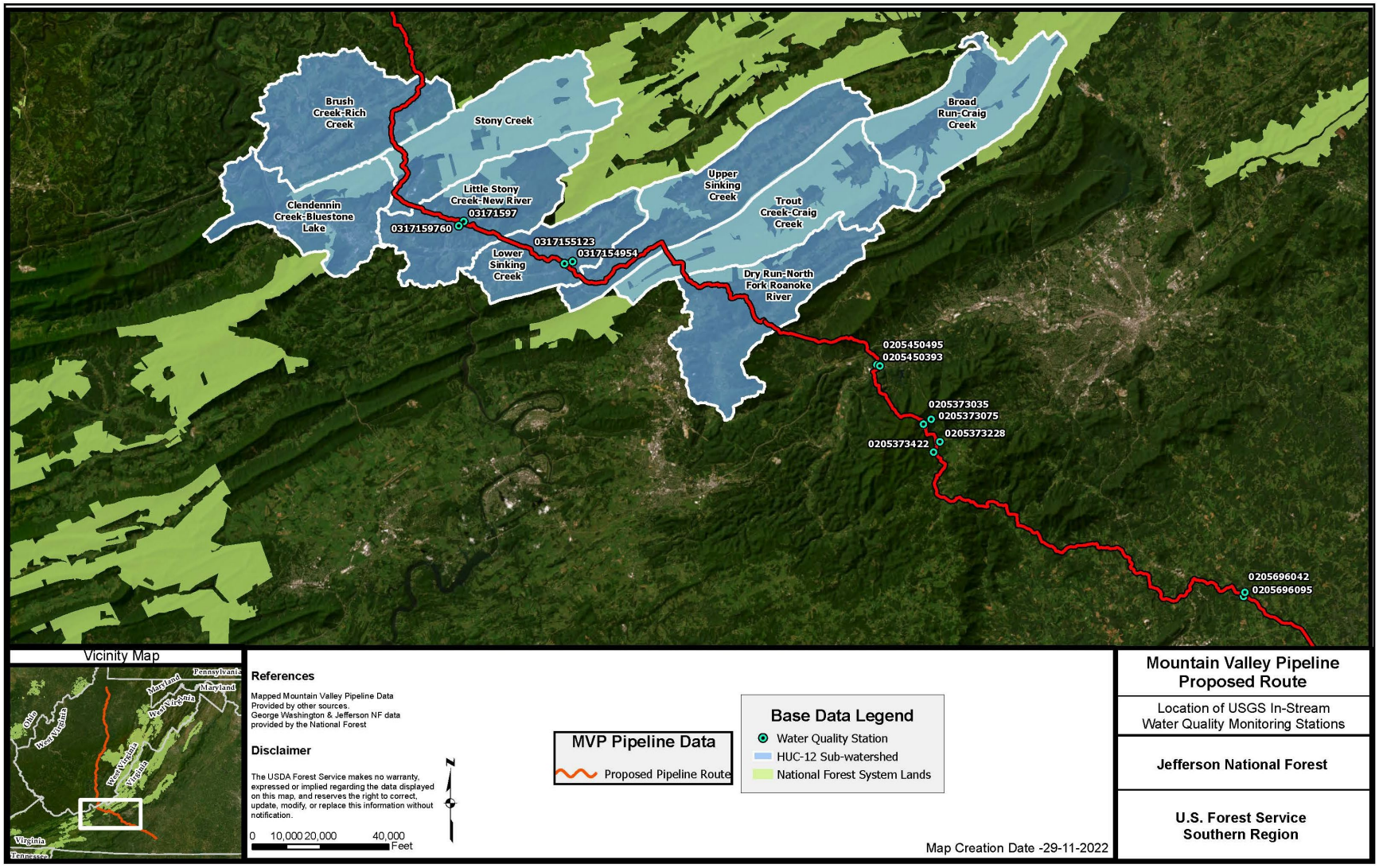
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Dry Run-North Fork Roanoke River
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Vicinity Map
Pennsylvania
Maryland
Maryland
West Virginia
Ohio
West Virginia
West Virginia
Virginia
Virginia
Tennessee
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George Washington & Jefferson NF data provided by the National Forest
Disclaimer
The USDA Forest Service makes no warranty, expressed or implied regarding the data displayed on this map, and reserves the right to correct, update, modify, or replace this information without notification.
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Proposed Pipeline Route
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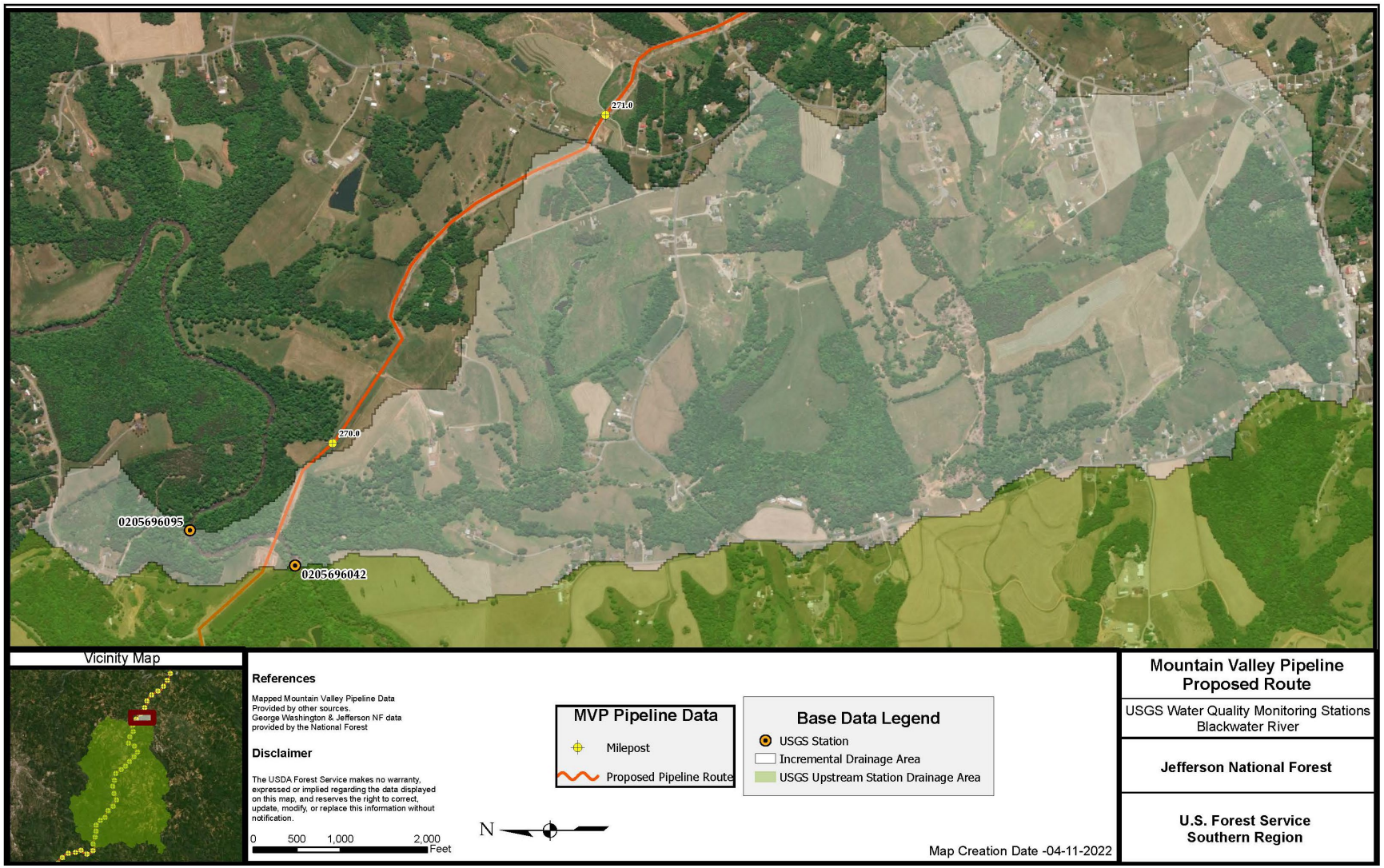
Jefferson National Forest
U.S. Forest Service
Southern Region



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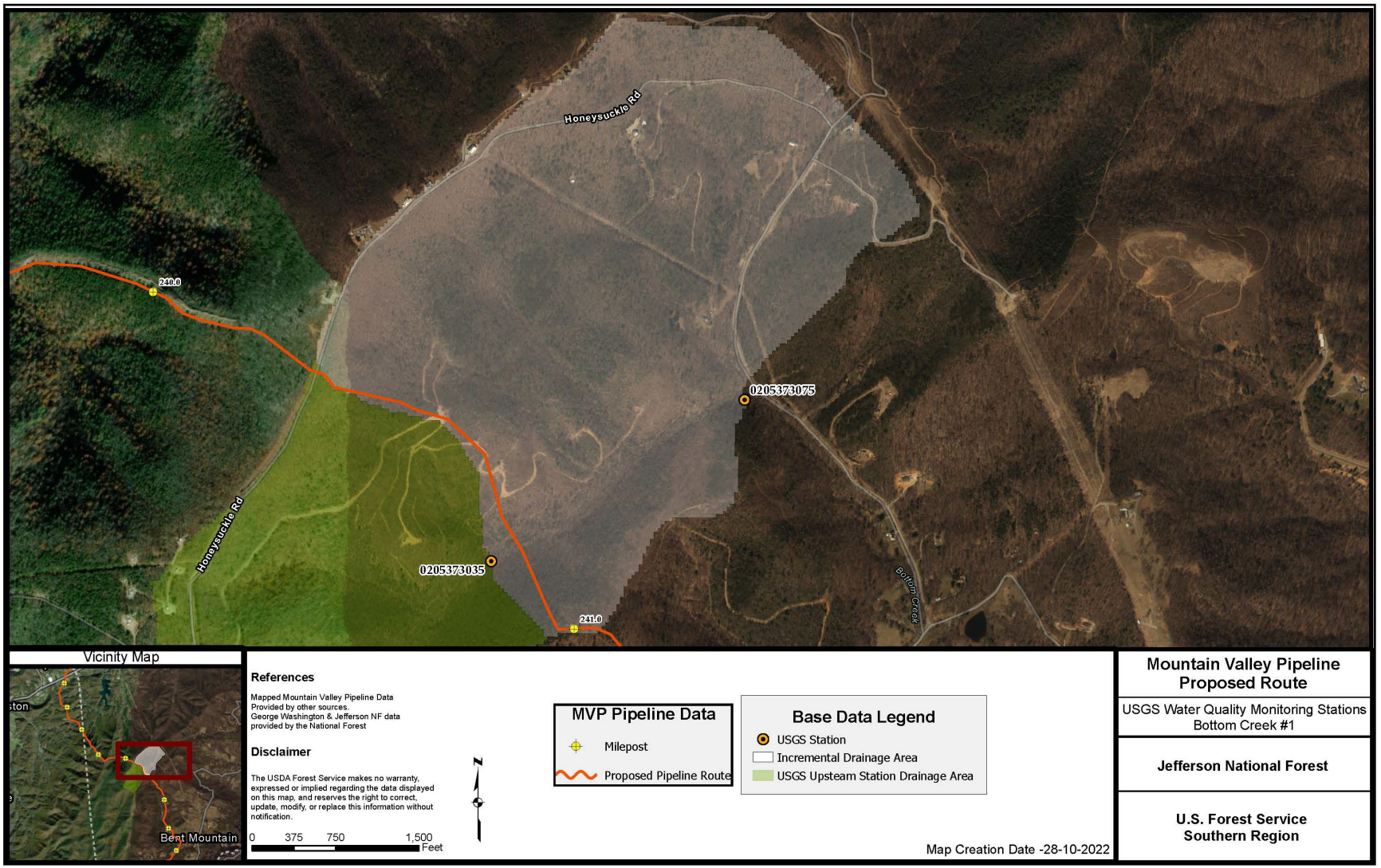
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Milepost
Proposed Pipeline Route
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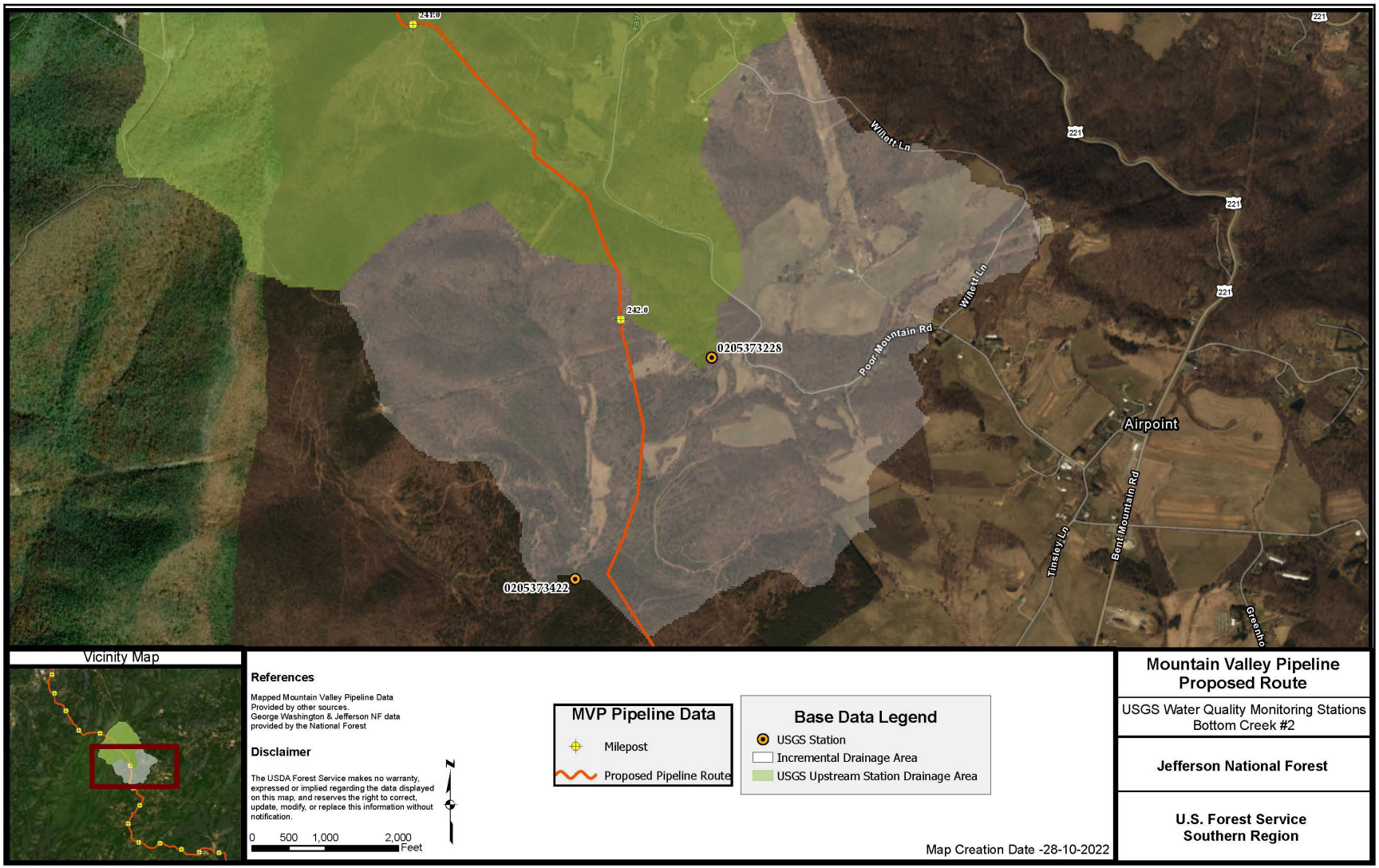
Bottom Creek #1
Jefferson National Forest
U.S. Forest Service
Southern Region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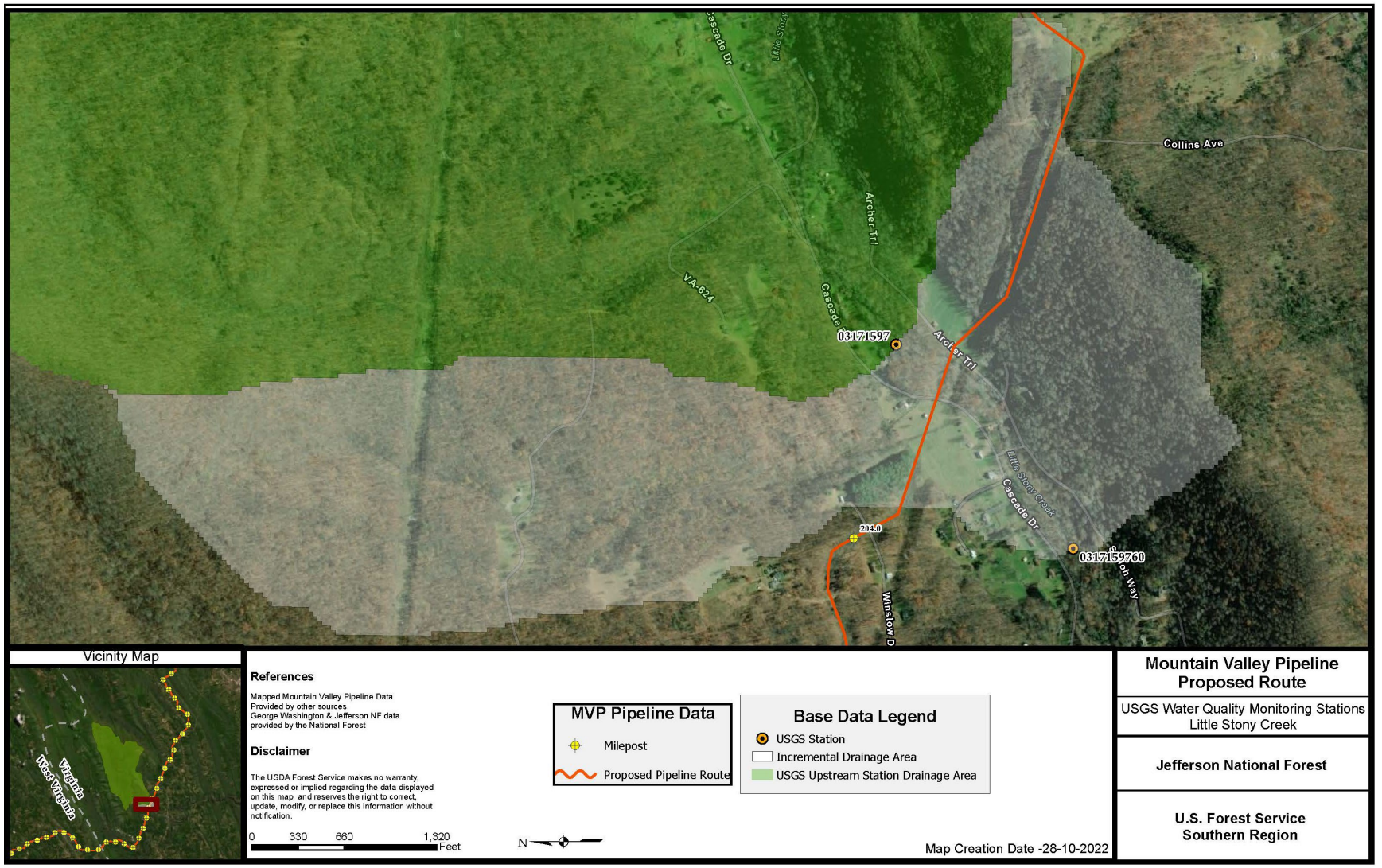
U.S. Forest Service
Southern Region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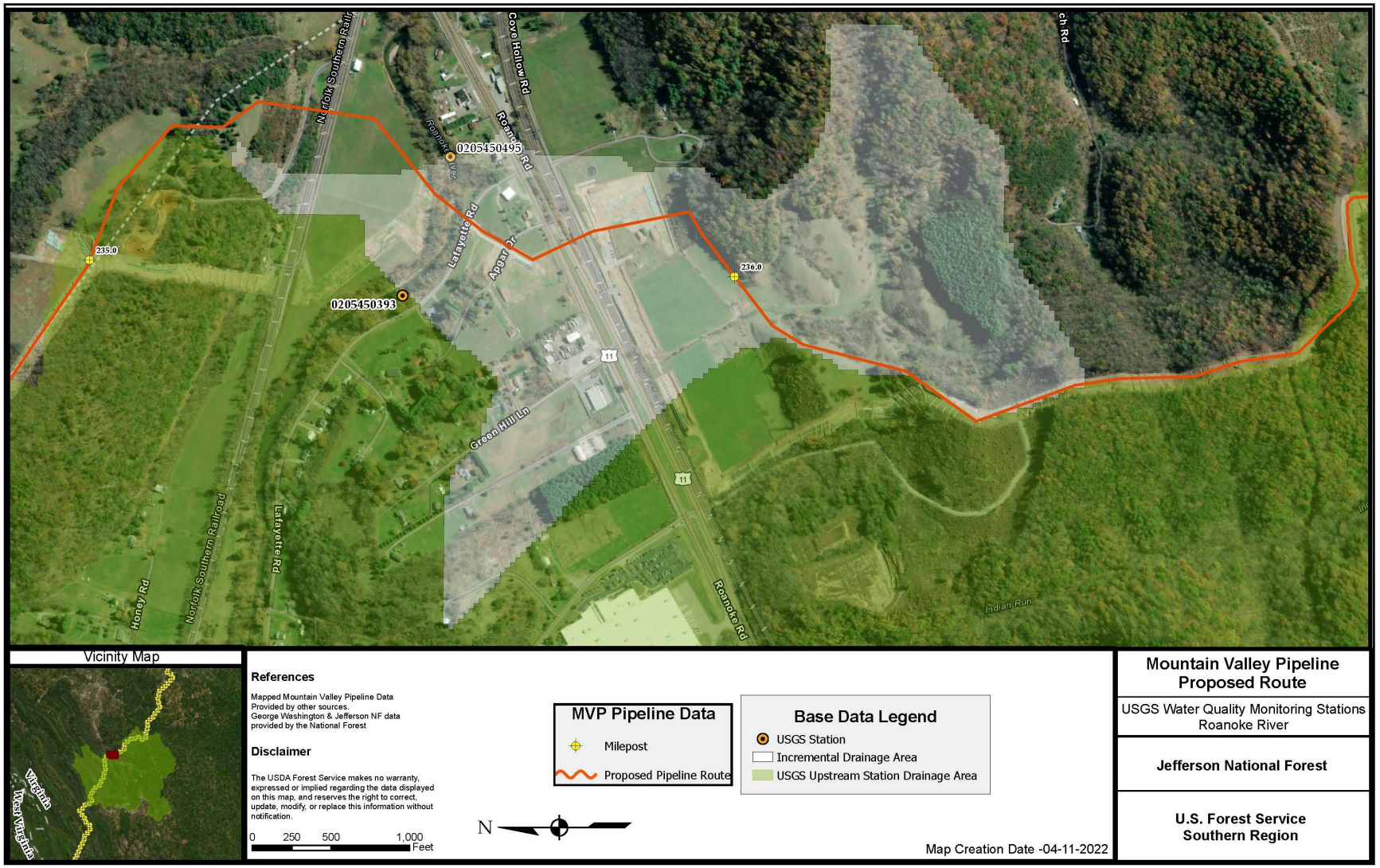
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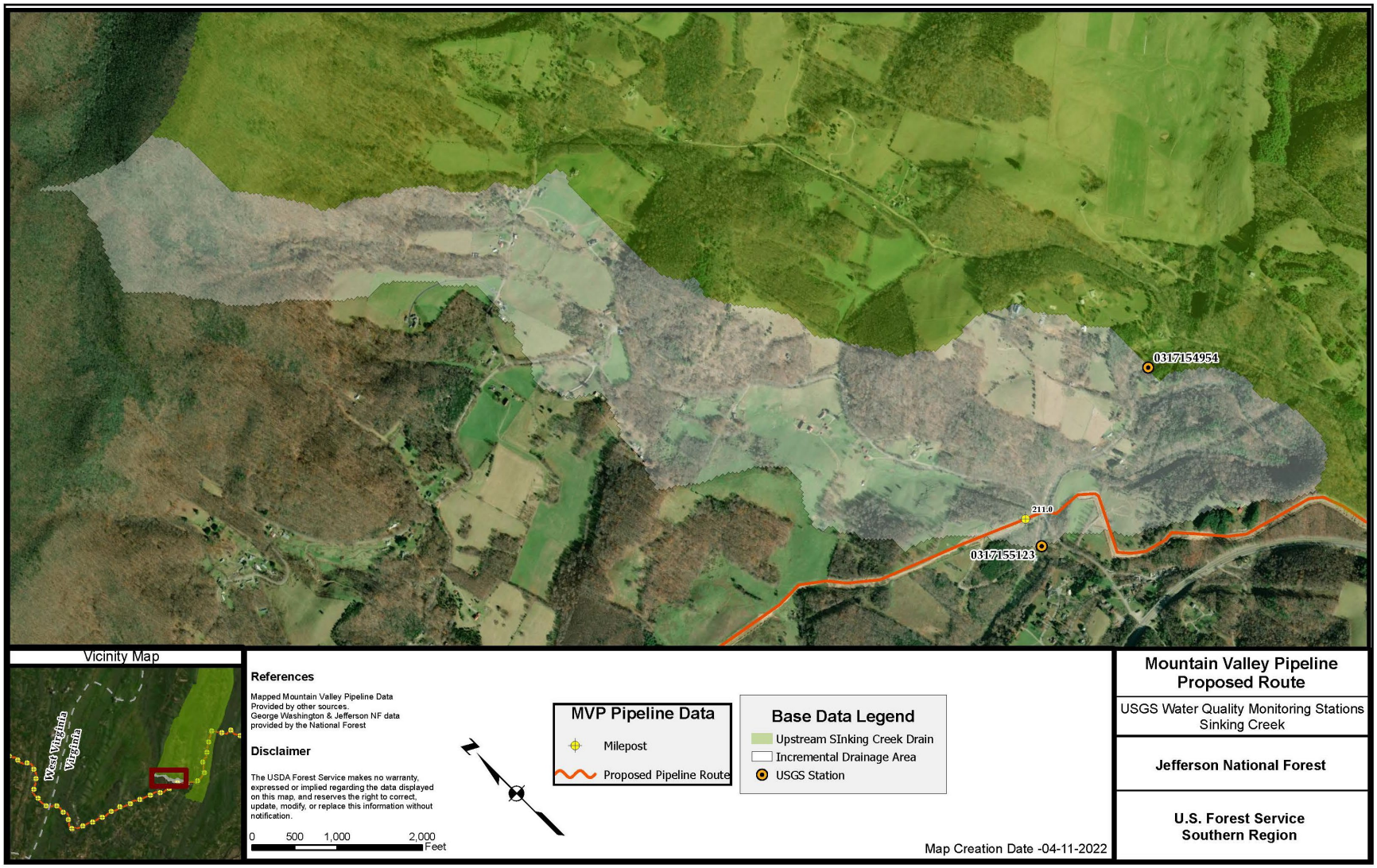
Southern Region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Proposed Route
USGS Water Quality Monitoring Stations
Sinking Creek
Jefferson National Forest
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Southern Region

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Appendix C – Conventional Bore Stream Crossing Method

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The Court ruled that the Forest Service improperly approved the use of the conventional bore method for crossing the four streams on the JNF without first considering FERC's analysis on assessing the potential environmental impacts of the change in the stream crossing construction method from the FERC 2017 FEIS.

This DSEIS provides a review of the 2021 FERC Boring EA analysis regarding conventional boring stream crossing methods and its applicability to stream crossings on the JNF. Specifically, see Sections 3.2.1 through 3.2.15, Section 3.3.2, and Section 3.3.3 for the Forest Service's independent agency analysis of conventional boring as it relates to the 2021 FERC Boring EA and the JNF. This appendix provides additional context regarding the proposed stream crossings.

The ROW alignment on NFS lands includes four stream crossings (see figure on following page). All crossings are of unnamed tributaries to Craig Creek. The 2017 FERC FEIS identifies the USACE flow regime of each stream:

- Stream PP22 (Sinking Creek Mountain) is an intermittent[34] stream
- Stream PP21 (Sinking Creek Mountain) is an ephemeral[35] stream
- Stream PP20 (Sinking Creek Mountain) is an intermittent stream
- Stream HH18 (Brush Mountain) is a perennial[36] stream

The following figures display each stream crossing. All photographs were taken in October 2022.

[34] Intermittent streams flow during certain times of the year when smaller upstream waters are flowing and when groundwater provides enough water for stream flow
[35] Ephemeral streams flow only after precipitation
[36] Perennial streams typically have water flowing in them year-round

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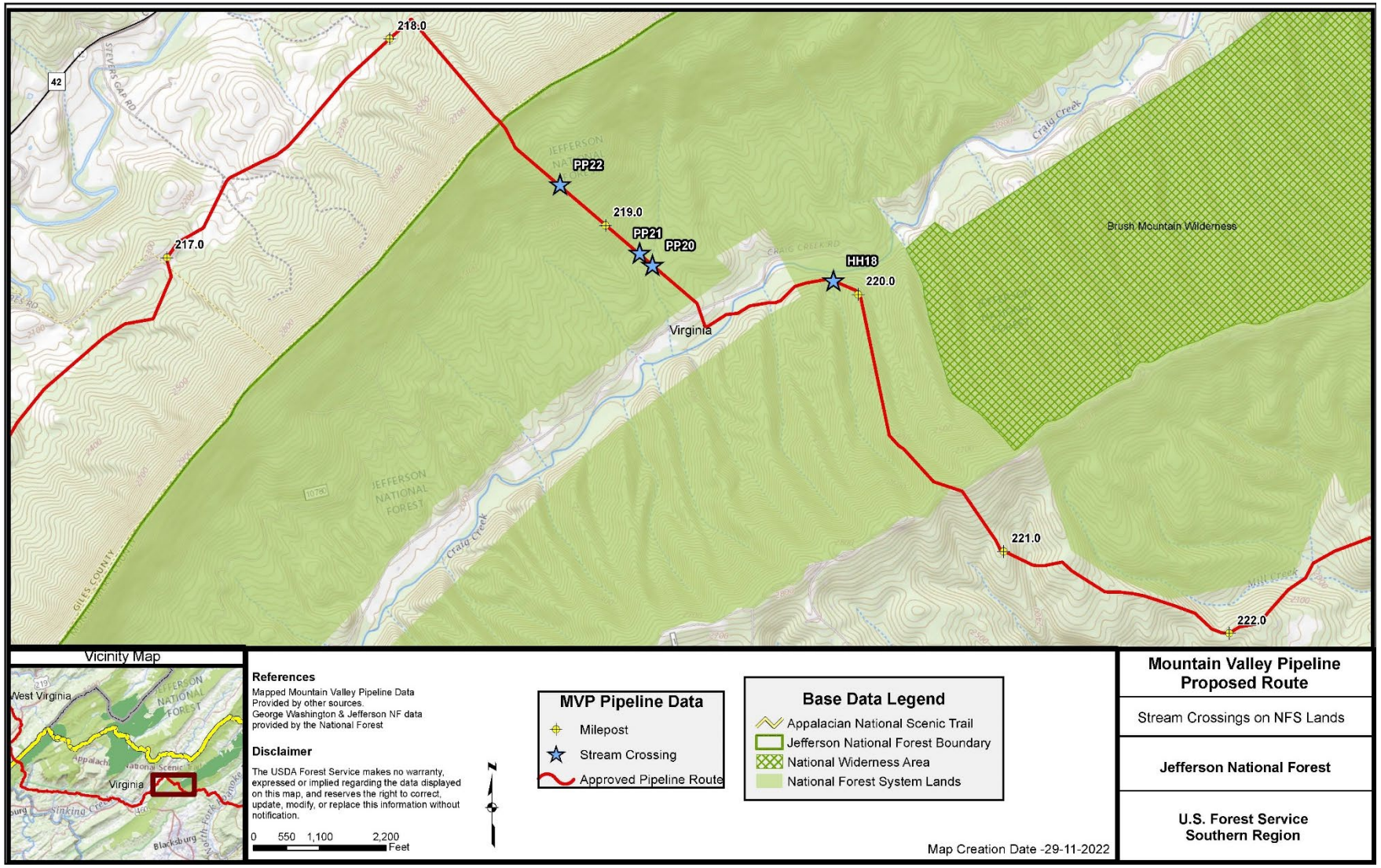

Location of Proposed Stream Crossings on NFS Lands

Jefferson National Forest

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Stream PP22 Crossing on Sinking Creek Mountain (October 2022).

Stream PP21 Crossing on Sinking Creek Mountain (October 2022).

Stream PP20 Crossing on Sinking Creek Mountain (October 2022).

Stream HH18 Crossing on Brush Mountain (October 2022).

The 2020 FSEIS assessed the effects of using a conventional bore method for stream crossings on NFS lands (pp. 57 to 58, pp. 74 to 75, p. 79, p. 92, pp. 95 to 96, and p. 123). In summary, the FSEIS found that conventional boring would result in less disturbance in and adjacent to water features, leading to a lower predicted sedimentation load for streams (compared to the originally proposed dry-ditch open cut crossing method); that there would be limited impacts within the riparian zone; conventional boring would limit potential release of sediment from the ROW to the riparian zone and/or stream channel; that adherence to industry BMPs in the POD would further reduce the risk of landslides; and that conventional boring is expected to result in further reduced effects on aquatic species.

In August 2021, the FERC issued an EA analyzing the use of trenchless methods (e.g., conventional bore) to cross 183 waterbodies and wetlands at 120 locations along the MVP route (FERC 2021).

The 2021 FERC Boring EA did not address the four stream crossings on NFS lands because the FERC had already issued partial approval for conventional bore stream crossings on the JNF (FERC 2020b). Although the 2021 FERC Boring EA did not include the NFS stream crossings, its analysis examines the general nature and type of impacts associated with conventional bore crossings. The FERC's analysis is incorporated by reference into this DSEIS. In summary, the FERC found that "conventional bore crossing methods would reduce environmental impacts on surface waterbodies, wetlands, and aquatic resources, as compared to [open-cut trench methods], because trenchless crossing methods do not result in impacts associated with constructing directly in waterbodies and wetlands, including increased turbidity and disruption to stream bank and wetland vegetation. [Trenchless] crossings would cause increases in air emissions and noise during the excavation and boring activities as compared to [open-cut trench methods]; however, these impacts would be temporary and would persist for only the short duration required to complete the bores" (FERC 2021 p. 92).

As provided in Sections 3.2.1 through 3.2.15, Section 3.3.2, and Section 3.3.3, the Forest Service performed an independent agency review of the 2021 FERC Boring EA. The Forest Service's review concluded that the FERC EA's analysis is consistent with the conclusions in the 2020 FSEIS and that, overall, conventional bore stream crossings would result in fewer adverse effects for stream crossings on NFS lands.

Air Quality, Climate, and Noise

The 2021 FERC Boring EA (pp. 67 to 88) analyzed the effects of conventional boring stream crossings on air quality, climate, and noise. In summary, the FERC found that conventional bore methods would lead to a temporary and short-term increase in construction emissions and construction noise. The Forest Service performed an independent agency review of the 2021 FERC Boring EA and determined that its effects analysis is consistent with effects anticipated on NFS lands because the nature and type of stream crossings on NFS lands would be similar to those analyzed in the 2021 FERC Boring EA for the MVP as a whole. Noise effects on NFS lands would be less than those elsewhere along the pipeline route because there are fewer sensitive noise receptors (e.g., residences, schools, hospitals, churches) on NFS lands than on private lands (including residential areas as discussed on p. 55 of the 2021 FERC Boring EA). Under the No Action Alternative, the pipeline would not cross streams and there would be no adverse effects.

Public Health and Safety

2021 FERC Boring EA (p. 89) concluded that effects on public health and safety from the use of conventional bore stream crossing methods would not differ from the originally proposed dry-ditch

open cut crossing method. The Forest Service agrees with this conclusion because the MVP must be designed, constructed, operated, and maintained in accordance with the DOT Minimum Federal Safety Standards in 49 CFR Part 192 and other applicable Federal and State regulations. Under the No Action Alternative, the pipeline would not cross streams and there would be no adverse effects.

Heritage Resources

The 2021 FERC Boring EA (pp. 57 to 67) analyzed the effects of conventional boring stream crossing methods on heritage resources, concluding that no changes to the PA are required and that Mountain Valley would adhere to its Discovery Plan for unanticipated discoveries. The Forest Service has determined that effects associated with conventional boring to cross streams on NFS lands would be the same as for dry-ditch open cut methods because both methods would be subject to the PA and its associated requirements for mitigating adverse effects. Under the No Action Alternative, the pipeline would not cross streams and there would be no adverse effects.

Mineral Resources

The 2021 FERC Boring EA (p. 22) concluded that the effects of conventional bore stream crossing methods on mineral resources would be the same as for dry-ditch open cut methods and that no further analysis was needed. The Forest Service has determined that this conclusion is accurate for NFS lands because there are no reasonably foreseeable future oil and gas wells within the MVP ROW. Under the No Action Alternative, the pipeline would not cross streams and there would be no adverse effects.

Socioeconomics

The 2021 FERC Boring EA (p. 22, p. 57) concluded that the effects of conventional bore stream crossing methods on socioeconomics and environmental justice would be the same as for dry-ditch open cut methods and that no further analysis was needed. The Forest Service determined that this conclusion is accurate for NFS lands because there would be no measurable difference in employment, taxes, or other indicators. Under the No Action Alternative, the pipeline would not cross streams and there would be no adverse effects.

Scenery

The 2021 FERC Boring EA (p. 55) concluded that impacts on scenery would be similar to those discussed in the 2017 FERC FEIS. The Forest Service determined that there would be fewer short-term effects on NFS lands because conventional boring methods would result in less surface disturbance. Long-term effects would be similar to those associated with a dry-ditch open cut crossing because the project area would be restored to as close to the pre-project condition as practicable or possible. Under the No Action Alternative, the pipeline would not cross streams and there would be no adverse effects.

Vegetation

The 2021 FERC Boring EA (pp. 43 to 44) concluded that conventional bore stream crossing methods would result in fewer impacts on vegetation because there would be less surface disturbance. The Forest Service determined that this conclusion is consistent with effects on NFS lands because vegetation has already been cleared and conventional boring would avoid impacts to vegetation between the boring pits. Under the No Action Alternative, the pipeline would not cross streams and there would be no adverse effects.

Silviculture

The 2021 FERC Boring EA (p. 19) discloses that trees have already been cut along the entire 303.5-mile pipeline. None of the four stream crossings on NFS lands are in areas where trees would need to be cut; therefore, there are no adverse effects associated with conventional bore stream crossings. Boring under the ANST on Peters Mountain would require a second round of tree clearing as described above. The effects of this tree clearing are consistent with those described in the 2017 FERC FEIS and 2020 FSEIS. Under the No Action Alternative, the pipeline would not cross streams and there would be no adverse effects.

Terrestrial Wildlife

The 2021 FERC Boring EA (pp. 45 to 48) concluded that the effects of conventional bore crossing methods would be similar to those disclosed in the 2017 FERC FEIS because work would be confined to previously authorized workspaces. The Forest Service determined that effects on NFS lands would be consistent with the FERC's analysis for the same reason. Under the No Action Alternative, the pipeline would not cross streams and there would be no adverse effects.

Aquatic Species

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. This conclusion is consistent with the 2021 FERC Boring EA (pp. 41 to 45) which found that conventional boring (compared to the dry-ditch open cut method) would avoid direct impacts associated with working directly within the aquatic resource, would result in reduced in-stream sedimentation, and would allow for uninterrupted existing streamflow and undisturbed wetland soils and scrub-shrub and herbaceous vegetation. Under the No Action Alternative, the pipeline would not cross streams and there would be no adverse effects. See Section 3.3.2 "Water Resources" and Section 3.3.3 "Threatened and Endangered Species" for additional analysis on aquatic species and their habitat.

Soils

The 2021 FERC Boring EA (pp. 22 to 26, p. 42) found that effects on soils from conventional boring would generally be similar to those described in the 2017 FERC FEIS and would allow for undisturbed wetland soils. Effects would be minimized by adherence to the POD, including Erosion and Sediment Control Plans to enhance stockpile stability and protect environmental resources downstream of bore pits and stockpiles. The Forest Service determined that effects on soils on NFS lands would be less than those associated with dry-ditch open cut crossings because conventional boring would result in less overall area of soil disturbance (including avoiding soils in stream channels) and would use Reinforced Filtration Devices (e.g., Priority 1 Silt Fence, Triple Stacked CFS, or Super Silt Fence) as specified in the 2020 Variance Request (MVP 2020a) to minimize the potential for sediment movement. Under the No Action Alternative, the pipeline would not cross streams and there would be no adverse effects.

Geology

The 2021 FERC Boring EA (pp. 22 to 26) analyzed effects of conventional boring on geological resources and concluded that effects would be minimized by using appropriate conventional bore tooling and technology. The Forest Service determined that the 2021 FERC Boring EA analysis is consistent with conclusions in the 2020 FSEIS. Under the No Action Alternative, the pipeline would not cross streams and there would be no adverse effects.

Land Use

The 2021 FERC Boring EA (pp. 54 to 55) found that there may be impacts on residential areas from some conventional bore stream crossings for the pipeline as a whole. The Forest Service determined that there would be negligible impacts on land use on NFS lands because there are fewer sensitive receptors near the proposed crossings on NFS lands. Effects of the Forest Plan amendment are discussed in Section 3.3.4 of this DSEIS. Under the No Action Alternative, the pipeline would not cross streams and there would be no adverse effects.

Recreation and Special Uses

The 2021 FERC Boring EA (p. 55) analyzed effects on recreation from conventional bore stream crossings and concluded that "with the exception of the possible exclusion of recreation in the immediate vicinity of construction, no impacts on waterbodies used as recreational resources is expected." The Forest Service determined that this analysis is consistent with findings in the 2020 FSEIS. Under the No Action Alternative, the pipeline would not cross streams and there would be no adverse effects.

Transportation

The 2021 FERC Boring EA (p. 55) found that there would be increased construction-related traffic on local roads during construction. This is consistent with conclusions in the 2017 FERC FEIS and the 2020 FSEIS. The Forest Service determined that conventional bore stream crossing methods would not affect transportation on NFS roads as all access would be via private roads. Under the No Action Alternative, the pipeline would not cross streams and there would be no adverse effects.

Appendix D – Federally Listed Species and Regional Forester Sensitive Species

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Table D-1. Endangered Species List Species and Regional Forester Sensitive Species Addressed in this DSEIS

Group	Listing (2022)	Species Name	Common Name	Screening / Survey Result	Survey status	2018 RFSS	2022 RFSS	2020 SBE	2022 SBE	2020 SBA	2022 SBA
Fish	Federal E	*Etheostoma osburni*	Candy darter	Suspected downstream of project/activity area. Within cumulative effects area	N/A					X	X
Fish	RFSS	*Notropis semperasper*	Roughhead shiner	Suspected downstream of project/activity area. Within cumulative effects area	N/A						
Fish	RFSS	*Noturus gilberti*	Orangefin madtom	Suspected downstream of project/activity area. Within cumulative effects area	N/A						
Fish	Federal E	*Percina rex*	Roanoke logperch	Suspected downstream of project/activity area. Outside cumulative effects area	N/A					X	X
Fish	RFSS	*Phenacobius teretulus*	Kanawha minnow	Suspected downstream of project/activity area. Within cumulative effects area	N/A	X	X	X			

Table D-1 (continued). Endangered Species List Species and Regional Forester Sensitive Species Addressed in this DSEIS

Group	Listing (2022)	Species Name	Common Name	Screening / Survey Result	Survey status	2018 RFSS	2022 RFSS	2020 SBE	2022 SBE	2020 SBA	2022 SBA
Mussel	Federal T	*Elliptio lanceolata*	Yellow lance	Suspected downstream of project/activity area. Outside cumulative effects area	N/A					X	
Mussel	Federal E	*Epioblasma triquetra*	Snuffbox	N/A	N/A					X	X
Mussel	Federal T	*Fusconaia masoni*	Atlantic pigtoe	Suspected downstream of project/activity area. Outside cumulative effects area	N/A					X	
Mussel	RFSS	*Lasmigona subviridis*	Green floater	Suspected downstream of project/activity area. Within cumulative effects area	N/A	X	X	X			
Mussel	Federal E	*Pleurobema clava*	Clubshell	No records on the JNF	N/A					X	X
Mussel	Federal E	*Parvaspina collina*	James spinymussel	Suspected downstream of project/activity area. Outside cumulative effects area	N/A					X	X

Table D-1 (continued). Endangered Species List Species and Regional Forester Sensitive Species Addressed in this DSEIS

Group	Listing (2022)	Species Name	Common Name	Screening / Survey Result	Survey status	2018 RFSS	2022 RFSS	2020 SBE	2022 SBE	2020 SBA	2022 SBA
Dragonfly	RFSS	*Hylogomphus viridifrons*	Green-faced clubtail	New R, Craig Ck, Pound R, Locust Spring	N/A	X	X	X			
Dragonfly	-	*Ophiogomphus incurvatus alleghaniensis*	Allegheny snaketail	No longer on RFSS List	N/A						
Butterfly	RFSS	*Atrytone arogos*	Arogos skipper	Historic records, Blacksburg area.	Assume presence	X	X	X			
Butterfly	RFSS	*Calephelis borealis*	Northern metalmark	Montgomery County and historical records from Giles County	Assume presence	X	X	X			
Butterfly	RFSS	*Danaus plexippus*	Monarch	Suitable habitat occurs	Assume presence	X	X	X			
Butterfly	RFSS	*Erora laeta*	Early hairstreak	Historical records from Giles, Montgomery Cos.	Assume presence	X	X	X			
Butterfly	RFSS	*Erynnis martialis*	Mottled duskywing	Historical records from Montgomery County	Assume presence	X	X	X			

Table D-1 (continued). Endangered Species List Species and Regional Forester Sensitive Species Addressed in this DSEIS

Group	Listing (2022)	Species Name	Common Name	Screening / Survey Result	Survey status	2018 RFSS	2022 RFSS	2020 SBE	2022 SBE	2020 SBA	2022 SBA
Butterfly	-	*Speyeria diana*	Diana fritillary	No longer on RFSS List	N/A						
Butterfly	RFSS	*Speyeria idalia*	Regal fritillary	Habitat present	Assume presence	X	X				
Bee	Federal E	*Bombus affinis*	Rusty patched bumble bee	Habitat present outside of Action Area	N/A					X	X
Bee	RFSS	*Bombus pensylvanicus*	American bumble bee	No records in VA	Assume presence		X		X		
Beetle	-	*Hydraena maureenae*	Maureen's shale stream beetle	No longer on RFSS List	N/A						
Liverwort	RFSS	*Plagiochila virginica*	A liverwort	Not observed	Survey completed; no individuals found	X	X	X			
Liverwort	RFSS	*Radula tenax*	A liverwort	Not observed	Survey completed; no individuals found	X	X	X			

Table D-1 (continued). Endangered Species List Species and Regional Forester Sensitive Species Addressed in this DSEIS

Group	Listing (2022)	Species Name	Common Name	Screening / Survey Result	Survey status	2018 RFSS	2022 RFSS	2020 SBE	2022 SBE	2020 SBA	2022 SBA
Mammal	Federal E	*Corynorhinus townsendii virginianus*	Virginia big-eared bat	No records on JNF	N/A					X	X
Mammal	Federal E	*Myotis grisescens*	Gray bat	No records on JNF	N/A					X	X
Mammal	RFSS	*Myotis leibii*	Eastern small-footed bat	Species in project area, outside of activity area	Assume presence	X	X	X			
Mammal	RFSS	*Myotis lucifugus*	Little brown bat	Habitat present	Assume presence		X		X		
Mammal	Federal E	*Myotis septentrionalis*	Northern long-eared bat	Habitat present, species not found previously	N/A					X	X
Mammal	Federal E	*Myotis sodalis*	Indiana bat	Habitat present, species not found previously	N/A					X	X
Mammal	Proposed Federal E	*Perimyotis subflavus*	Tricolored bat	Not captured on JNF	Assume presence	X	X	X	X		

Table D-1 (continued). Endangered Species List Species and Regional Forester Sensitive Species Addressed in this DSEIS

Group	Listing (2022)	Species Name	Common Name	Screening / Survey Result	Survey status	2018 RFSS	2022 RFSS	2020 SBE	2022 SBE	2020 SBA	2022 SBA
Vascular Plant	Federal E	*Arabis serotina*	Shale barren rock cress	No records on JNF	N/A					X	X
Vascular Plant	RFSS	*Berberis canadensis*	American barberry	Species in project area, outside of activity area	N/A						
Vascular Plant	RFSS	*Clematis coactilis*	Virginia white-haired leatherflower	Survey completed, no individuals found	Not observed	X	X	X			
Vascular Plant	RFSS	*Delphinium exaltatum*	Tall larkspur	Survey completed, no individuals found	Not observed	X	X	X			
Vascular Plant	Federal E	*Echinacea laevigata*	Smooth coneflower	Lack of suitable habitat	Not observed					X	X
Vascular Plant	Federal T	*Isotria medeoloides*	Small whorled pogonia	Lack of suitable habitat	N/A					X	X
Vascular Plant	RFSS	*Monotropsis odorata*	Sweet pinesap	Habitat present	Assume presence	X	X	X			
Vascular Plant	RFSS	*Scutellaria saxatilis*	Rock skullcap	Species located in activity area	N/A	X	X	X			

Table D-1 (continued). Endangered Species List Species and Regional Forester Sensitive Species Addressed in this DSEIS

Group	Listing (2022)	Species Name	Common Name	Screening / Survey Result	Survey status	2018 RFSS	2022 RFSS	2020 SBE	2022 SBE	2020 SBA	2022 SBA
Vascular Plant	Federal T	*Spiraea virginiana*	Virginia spiraea	Lack of suitable habitat	N/A					X	X
Vascular Plant	RFSS	*Talinum teretifolium*	Quill fameflower (Roundleaf fameflower)	Survey completed, no individuals found	Not observed	X	X	X			
Vascular Plant	delisted	*Trifolium stoloniferum*	Running buffalo clover	No records on JNF	N/A					X	

RFSS = Regional Forester Sensitive Species, Federal E = ESA-endangered, Federal T = ESA-threatened, SBA = Supplement to the Biological Assessment, SBE = Supplement to the Biological Evaluation.

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