

APPENDIX R
**Framework for Operations, Maintenance,
and Emergency Response Plan**

Appendix R

Framework for Operations, Maintenance, and Emergency Response Plan

Mountain Valley Pipeline Project

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Framework for Mountain Valley Pipeline Project Operations, Maintenance, and Emergency Response Plan

1.0 INTRODUCTION

Mountain Valley Pipeline, LLC (MVP), a joint venture between EQT Midstream Partners, LP and affiliates of NextEra Energy, Inc.; Con Edison Gas Midstream LLC; WGL Holdings, Inc.; and RGC Midstream, LLC (collectively referred to as MVP), is seeking a Certificate of Public Convenience and Necessity (Certificate) from the Federal Energy Regulatory Commission (FERC) pursuant to Section 7(c) of the Natural Gas Act authorizing it to construct and operate the proposed Mountain Valley Pipeline Project (Project) located in 17 counties in West Virginia and Virginia. MVP plans to construct an approximately 303-mile, 42-inch-diameter natural gas pipeline to provide timely, cost-effective access to the growing demand for natural gas for use by local distribution companies, industrial users, and power generation in the Mid-Atlantic and southeastern markets, as well as potential markets in the Appalachian region. Construction is anticipated to begin in 2017 and conclude in the fourth quarter of 2018. Construction on National Forest System lands will occur in 2018.

The proposed pipeline will extend from the existing Equitrans, L.P. transmission system and other natural gas facilities in Wetzel County, West Virginia to Transcontinental Gas Pipe Line Company, LLC's (Transco) Zone 5 compressor station 165 in Pittsylvania County, Virginia. In addition to the pipeline, the Project will include approximately 171,600 horsepower of compression at three compressor stations currently planned along the route, as well as measurement, regulation, and other ancillary facilities required for the safe and reliable operation of the pipeline. The pipeline is designed to transport up to 2.0 million dekatherms per day of natural gas.

A 3.5-mile long segment of the Project will cross portions of the Jefferson National Forest (JNF) in Monroe County in southern West Virginia and in Giles, Craig, and Montgomery counties in southwestern Virginia. The JNF is managed by the U.S. Forest Service (USFS) of the U.S. Department of Agriculture. Another 60-foot segment of the Project will cross the Weston and Gauley Bridge Turnpike Trail (Weston and Gauley Turnpike) in Braxton County, West Virginia, which is administered by the U.S. Army Corps of Engineers (USACE). Approval to cross land managed by two or more federal agencies is the responsibility of the U.S. Department of the Interior, Bureau of Land Management (BLM) through issuance of a Right-of-Way Grant. Project-wide construction environmental compliance will be the responsibility of the FERC. The USFS and USACE will also ensure compliance across lands managed or administered by those agencies. Because the majority of federal lands crossed are managed by the USFS, this plan focuses on the JNF, noting any additional or different requirements that are specific to the crossing of the Weston and Gauley Turnpike.

The USFS will be responsible for enforcement of the terms and conditions of the BLM's right-of-way Grant on National Forest System lands during the term of the right-of-way Grant for the Mountain Valley Pipeline project. Compliance will be monitored on the JNF portion of this project by the USFS Project Manager and the Authorized Officer's designated compliance monitors. USFS will have stop work authority per terms outlined in the BLM right-of-way grant. USFS will also have stop work authority if unsafe work conditions are encountered during construction.

1.1 Purpose

This Appendix R is a detailed framework for Operations and Maintenance once the pipeline is loaded and fully operational. Detailed and specific emergency response plans will be developed and implemented prior to the pipeline becoming in-service. These plans will be developed across the entire line once it has been constructed. This purpose of this plan is to ensure the following:

- Operations and maintenance (O&M) activities comply with applicable state and federal laws and policies;
- The Project is implemented consistently within the JNF;
- MVP or its designated contractor is able to access the pipeline and ancillary facilities and implement the necessary O&M activities in a timely, cost-effective, and safe manner;
- Impacts to the environment are avoided where practicable or are minimized; and
- MVP complies with applicable regulations as defined in Department of Transportation, 49 CFR Subtitle B, Chapter 1, Subchapter D “Pipeline Safety”.

2.0 REGULATORY COMPLIANCE

The Project facilities will be designed, constructed, operated, and maintained to meet or exceed the safety requirements set forth in the USDOT “Minimum Federal Safety Standards,” 49 CFR Part 192. The intent of the USDOT regulations for pipeline facilities is to provide the public with adequate protection from pipeline failures. Included in 49 CFR Part 192 are specifications for material selection and qualification, minimum design and construction requirements, and protection from internal, external, and atmospheric corrosion.

Areas near a pipeline are defined in 49 CFR § 192.5 based on population densities, with the most stringent requirements coinciding with the areas with the highest concentration of people. The definition for “class location unit” is the area that extends 220 yards (660 feet) on either side of the centerline of any continuous one-mile length of pipeline (sliding mile). Areas are broken down into four classifications:

- Class 1 – Class location unit with 10 or fewer buildings intended for human occupancy.
- Class 2 – Class location unit with more than 10 but fewer than 46 buildings intended for human occupancy.
- Class 3 – Class location unit with 46 or more buildings intended for human occupancy, or where the pipeline lies within 100 yards of any building, or small, well-defined outside area (such as a playground or recreation area) occupied by 20 or more people on at least five days a week for 10 weeks in any 12-month period (the days and weeks need not be consecutive).
- Class 4 – Class location unit where buildings with four or more stories aboveground are prevalent.

More stringent pipeline design, wall thickness, testing, and operation characteristics are required in more populated areas. Specifically, for a Class 1 location, pipelines must be installed at a minimum depth of 30 inches in normal soil and 18 inches in rock, whereas Class 2, 3, and 4 locations, as well as drainage ditches of public roads and railroads, require a minimum cover of 36 inches in normal soil and 24 inches of coverage in consolidated rock (49 CFR § 192.327). Design pressures, wall thickness, maximum allowable operating pressures (MAOPs), hydrostatic test pressures, weld testing and inspection, as well as frequency of leak surveys and patrols of the pipeline, are required to conform to higher standards in areas of greater population density. The Project incorporates these requirements. Table 2-1 provides the class locations at the Weston and Gauley Turnpike and the crossing of the JNF. Mountain Valley will install

Class 2 pipe buried at least 36 inches below the ground surface within the Jefferson National Forest; thus, there would be no restrictions on the use of heavy firefighting equipment by the USFS.

Table 2-1			
MVP Pipeline Class locations by State and Milepost			
Location	Class Location	Beginning Milepost	Ending Milepost
Weston and Gauley Turnpike	2	67.4	67.4
JNF	2	196.25	197.9
JNF	2	218.65	219.5
JNF	2	219.9	220.88

If population densities near the pipeline increase after construction resulting in a change in class location, 49 CFR §§ 192.609 and 192.611 require confirmation or revision to the MAOP to match the new class. If revisions are needed, they may be achieved by reducing the operating pressure, by pressure testing the segment of pipe using the applicable class location multiplier, or by replacing the segment of pipe for the class change, if required, with one that complies with the USDOT minimum PHMSA code for that class location.

Additionally, 49 CFR Part 192 provides the minimum standards for operation and maintenance of pipeline facilities, which includes a requirement for a written plan to govern these activities. The pipeline operator must also establish an Emergency Plan with written procedures to minimize the hazards from a natural gas pipeline emergency.

MVP will maintain frequent contact with PHMSA. PHMSA routinely exercises its oversight authority to ensure that facilities under its jurisdiction are safely designed, constructed, and operated. With regard to its role in public safety for natural gas pipelines PHMSA develops regulations and other approaches to risk management to assure safety in design, construction, testing, operation, maintenance, and emergency response of pipeline facilities. It also administers a national regulatory program to assure the safe transportation of natural gas, petroleum, and other hazardous materials by pipeline. PHMSA will routinely inspect MVP’s pipeline facilities and records for compliance with design, construction, testing, operations, maintenance, and integrity regulations.

MVP’s procedures and practices will meet or exceed the pipeline safety regulations and related risk-management requirements administered by PHMSA.

3.0 OPERATION AND MAINTENANCE

Personnel operating and maintaining the pipeline will meet the qualification requirements outlined in Subpart N of Part 192 (49 CFR §§ 192.801 – 192.809). The training program will ensure all personnel possess the knowledge and competency necessary to efficiently operate and maintain the pipeline in a manner that protects the environment, the public, and the health and safety of all employees. More specifically, personnel are trained to execute normal operating and maintenance procedures, recognize abnormal conditions and take appropriate corrective actions, predict consequences of malfunctions or

failures, recognize conditions likely to cause emergencies, respond to emergency situations, control accidental releases of gas, and recognize characteristics and hazards of natural gas.

MVP and/or its designated contractor perform a number of activities to keep pipelines operational and in good repair. Most of these activities, such as those for routine patrols, inspections, and scheduled maintenance, are planned in advance. However, there could be an occasional need for emergency response in cases where public safety and property are threatened, to prevent imminent damage to the pipeline and ancillary facilities.

The safety and reliability of the proposed Project will be based on safe design, appropriate equipment selection, code compliance, thorough review, careful construction, post-construction testing, and competent maintenance and operation. Measures will be incorporated according to approved design practices and standards that have been developed through industry-wide experience of pipeline construction projects. Measures to protect the public from inadvertent natural gas releases due to accidents or natural catastrophes can be grouped into three categories: passive protection, active controls, and procedural controls.

Routine, corrective, and emergency response activities will be conducted in accordance with this O&M Plan with previous notification to the BLM, USFS, or USACE, as applicable. Maintenance activities that are outside of the right-of-way, established access roads, or other Project-related ancillary facilities or that are not identified in this plan will not be conducted until approved by BLM, USFS, or USACE, as applicable. An exception to this would be when emergency action/maintenance is needed that requires outside right-of-way work to be completed to ensure safety and reliable delivery to customers.

Required inspection schedules for the O&M activities are provided below in Table 3-1. Equipment use could include light trucks, sport utility vehicles, all-terrain vehicles (ATVs), utility task vehicles, and earth-moving equipment; however, additional vehicles and equipment may be necessary depending on the terrain, site access, and necessary maintenance work. Work may also be conducted outside of the typical schedule; schedule changes may occur as a result of weather, manpower, equipment availability, budgets, and other factors.

Table 3-1	
Schedule for Major Components of the Project ^{a/}	
Pipe Class	Inspection/Patrol Interval
Highway and Railroad Crossings	
Class 1 and 2	7.5 months but at least twice each calendar year
Class 3	4.5 months but at least four times each calendar year
All Other Locations	
Class 1 and 2	15 months but at least once each calendar year
Class 3	7.5 months but at least twice each calendar year
<small>^{a/} Intervals comply with 49 CFR § 192.705. Regulations include intervals for Class 4 pipe; however, because there will be no Class 4 pipe locations on the MVP Project, they were not included.</small>	

3.1 Routine Operations and Maintenance

The pipeline control center for the Project will be staffed continuously by qualified pipeline operators. Operators will monitor key aspects of the pipeline including system pressures, temperatures, flows, and valve positions (open or closed). In case of an emergency at the pipeline control center, a secondary pipeline control center will be available at a second location.

The pipeline will be monitored for leaks continuously using the data acquisition system. Operators will use pressure, flow, and rate-of-change alarms to monitor for leaks or other abnormal operating conditions. In the unlikely case that a shutdown of the pipeline system is needed, the MVP pipeline system will be equipped with remotely controlled sectionalizing block valves to isolate the affected pipeline segment.

USDOT PHMSA 49 CFR Part 192 prescribes the minimum standards for operating and maintaining pipeline facilities, including the establishment of a written plan governing these activities. MVP will develop an O&M Manual for the facility during the construction phase, and this O&M Manual will be in effect prior to initial filling of the pipeline system with natural gas. The O&M Manual will include contingency plans for maintaining service or reducing downtime.

MVP will have field services crews to perform USDOT PHMSA 49 CFR Part 192 required operations, maintenance, and inspection tasks along the pipeline. All personnel will have the proper training and qualifications as required by Part 192.

Routine maintenance activities are conducted on a regular basis to identify and repair any deficiencies. These activities do not damage vegetation or disturb soil outside of the right-of-way, do not adversely impact sensitive resources (including known federal- and state-listed species, waters of the United States, and cultural resources), and do not require land manager approval. Personnel are generally present in any given area for less than one day. The following are examples of routine maintenance, which include both inspection and corrective activities:

- Procedures for testing, start-up, operation, purging, and training of operations and maintenance staff on operational procedures;
- Regularly scheduled preventative maintenance programs to meet government regulations for pipeline segments and metering stations;
- Launchers and receivers will be installed during construction at each of the compressor stations to facilitate the use of inline inspection tools (smart pigs) during operations and maintenance and used at intervals that meet or exceed the requirements in the pipeline safety regulations to monitor for corrosion and third-party damage that the system may encounter;
- Aerial surveillance flights, on-ground leak detection surveys, internal pipeline inspection with smart pigging equipment, and cathodic protection system inspection and maintenance;
- Routine ground patrols to inspect structural components. Such inspections generally require either an ATV or pickup and possibly additional support vehicles traveling on access roads and may rely on either direct line-of-sight or binoculars. In some cases, the inspector may walk the right-of-way. Patrols are typically conducted in the spring and fall. Follow-up maintenance is scheduled depending on the severity of the problem—either as soon as possible or as part of routine scheduled maintenance;
- Removal of individual trees or snags that pose a risk of falling into facilities or pipeline structure. Such trees or snags may be located off of the right-of-way. Personnel generally access hazard trees by truck, by ATV, or on foot from an access road and cut them with a chainsaw or similar tool.

Any felled trees or snags are left in place as sources of large woody debris or as previously directed by the land-management agency. Felled green trees are limbed to reduce fire hazard;

- Vegetation removal may be required on access roads to allow the necessary clearance for access and provide for worker safety. Field crews access the access roads by pickup or ATV and use chainsaws and hand tools to clear the vegetation. Where practicable and feasible, mechanical methods may be used; and
- Noxious weed control and vegetation management activities that include the use of herbicides. Herbicide use has been requested by USFS and is outlined in the Project's *Herbicide Use Plan* (Appendix T).

A Public Awareness Plan will be prepared and implemented to enable customers, the public, government officials, and those engaged in excavation to recognize a natural gas pipeline emergency and report it to appropriate public officials and the company. Since April 1982, operators have been required to participate in "One-Call" public utility programs in populated areas to minimize unauthorized excavation activities near pipelines.

3.2 Corrective Maintenance

Corrective maintenance could include any of the following activities:

- Non-cyclical vegetation clearing to remove saplings or larger trees in the right-of-way;
- Structural maintenance in which earth must be moved, such as the creation of a landing pad for construction or maintenance equipment;
- Road maintenance involving erosion control, water drainage installation or repair (such as culverts or rock crossings), road rehabilitation after major disturbances (such as slumping or a storm event), or other road maintenance requiring heavy equipment (not including routine blading or grading);
- Activities to address slip repairs, which may require heavy duty equipment and placement of materials to repair damage and stabilize slopes to prevent further slope failures;
- Follow-up restoration activities, such as seeding, noxious weed control, and erosion control; and
- Pipeline component repair or replacement, which requires the use of several types of trucks and equipment and grading to create a safe work area.

Personnel are generally present in any given location or area for a prolonged time, generally more than one day.

4.0 EMERGENCY SITUATIONS

MVP will follow 49 CFR Part 192, as applicable, and develop Emergency Plans in compliance with 49 CFR § 192.615. In the case of an emergency where life or substantial property is at risk or there is a potential or actual interruption in service, MVP or its designated contractor will promptly respond to the emergency and conduct any and all activities, including emergency repair requiring heavy equipment access to the pipeline or other ancillary facilities, needed to remedy the emergency and will implement feasible and practicable measures for environmental protection. Key features involved in emergency response planning include:

- Receiving, identifying, verifying, and classifying emergency events – leaks, fires, explosions, or natural disasters;

- Managing communications with emergency responders and public officials to establish incident command and coordinate response efforts;
- Making personnel, equipment, tools, and materials available for emergencies;
- Ensuring that response efforts focus on public safety first; and
- Ensuring emergency shutdown actions are taken in a timely manner.

4.1 Response Coordination

The amount of resources and coordination required for response to a specific hazard or emergency is determined by type, severity, location, and duration of the event. Most events require managing at the field operations level and will require increasing resource requirements to match the severity and duration of the event. Should the need arise, MVP will have field service personnel and repair contractors available that are capable of completing emergency repairs and restoration.

4.2 Emergency Communications

MVP's personnel involved with public awareness will ensure that appropriate liaisons and public education programs are established and maintained in the communities within which MVP operates. MVP will establish open relationships with local fire, police, and other governmental leaders in order to efficiently respond in a cooperative manner to pipeline emergencies. To accomplish this, MVP, as appropriate and in compliance with §§ 192.615 and 192.616, will:

- At the request of local fire departments, police departments, and/or other government agencies, MVP will conduct informational meetings and training sessions;
- Ensure appropriate operating personnel are knowledgeable and trained on emergency procedures; and
- The Operations, Maintenance, and Emergency Response Plan listing emergency contact phone numbers and other pertinent information will be provided to the BLM, USFS, and USACE.

In addition to maintaining contact with local governmental and emergency response agencies along the pipeline, MVP's liaison efforts will allow MVP to:

- Determine how local officials may be able to assist MVP during an emergency with the determination of jurisdiction and resources that may be involved in responding to an emergency;
- Familiarize local officials with how MVP responds to an emergency on its pipeline system;
- Verify notification preferences for pipeline emergencies; and
- Review with local officials the use of incident command system techniques and assist with response to an emergency.

Outreach to emergency responders will be conducted by MVP on a periodic basis. MVP's focus with these organizations is to review firefighting methods and techniques for natural gas fires and to conduct periodic emergency drills and exercises.

Effective communication and exchange of information is essential in every emergency response. Misdirected, incorrect, or untimely information can be detrimental and even increase the threat to life or property.

As an emergency event escalates, the rapid increase of information creates chaos and confusion. Simple communication diagrams can help to alleviate this situation.

In case of emergency, call 911 first. Additional potential emergency contacts are listed in Table 4-1 – Emergency Contact List, and should be contacted as appropriate, depending on the situation (e.g., fire, injury).

Table 4-1		
Emergency Contact List ^{a/}		
In Case of Emergency - Call 911		
Fire – Call 911 First		
Federal, State and County Government Representatives		
NF Divide Ranger District:	Giles County, VA:	Monroe County, WV:
	Montgomery County, VA:	
Weston and Gauley Turnpike	Braxton County, WV:	
State and Police and County Sheriffs		
Giles County, VA:	Montgomery County, VA:	Monroe County, WV:
Braxton County, WV:		
Virginia State Police: (540) 375-9500	West Virginia State Police (304) 436-2101	
Poison Control		
National Poison Control: (800) 222-1222 Provides connection to counties		
Hospitals And Clinics		
Giles County, VA: Carilion Giles Community Hospital (540) 921-6000	Montgomery County, VA: LewisGale Hospital Montgomery (540) 951-1111	Craig County, VA: Catawba Hospital (540) 375-4200
Raleigh County, WV: Raleigh General Hospital (304) 256-4100		
Hazardous Spill Response And Notification – Call 911		
Directly after 911 notification, the following mandatory notifications will be made by the Compliance Inspection Contractor. Select and notify the appropriate government agency(ies) based on geographic location of the spill site. Also refer to Appendix Y – Hazardous Materials Management Plan Framework.		
Giles County, VA:	Montgomery County, VA:	Monroe County, WV:
Braxton County, WV:		
Virginia Secretary of Safety and Homeland Security: (804) 786-5351	West Virginia Division of Homeland Security and Emergency Management:	Virginia Department of Environmental Quality: (804) 698-4000
West Virginia Department of Environmental Protection: (304) 926-0440	National Response Center: (800) 424-8802	
Other Relevant Contact Information		
Forest Access Authorized Officer or Designated Representative:	USACE Authorized Officer or Designated Representative:	

^{a/} To be completed by construction contractor prior to operation and maintenance activities.

This Emergency Contact List shall be verified at the beginning of the O&M activity and updated throughout the Project by the contractor or MVP to ensure accurate contact information.

4.3 Hazard Identifications and Key Response Criteria

The right-of-way for the Project can pose potential hazards or threats in association with O&M activities. The most effective response to any situation is awareness of the hazard, its potential effects and consequences, and an understanding of the resources and actions necessary to respond. It would be unreasonable to list all the potential hazards and detail each response. MVP will develop a Public Awareness Program as outlined in 49 CFR § 192.616, which will provide outreach measures to the affected public, emergency responders, public officials, and excavation businesses. This program will use multi-media channels (direct mail, e-mail, social networking, public service announcements, print advertisement, and public meetings, etc.) to engage these core audiences.

MVP's objective is to educate the public on how to recognize the presence of pipelines; understand the potential hazards and safe actions they should take; recognize and report abnormal conditions; and encourage the safe behavior of calling for buried facility location before digging. When MVP receives notification from a one-call center that someone intends to dig near its pipeline facilities, personnel will be dispatched to mark the location of the facilities in the vicinity of proposed digging or other earth disturbance activities and, if necessary, company employees will be on site when the excavation occurs.

Responses to different events may vary as the event evolves, but response methods and responsibilities will be essential for any possible situation. Effective Emergency Response training is based on plausible scenarios and then developing the understanding, elements, and actions necessary to respond. Scenarios to consider are electrocution, fatality, massive equipment failure, structure failure, weather/environment, etc.

5.0 ENVIRONMENTAL PROTECTION

Environmental protection as described below will be implemented by MVP or its designated contractor during routine and corrective O&M activities and, to the extent possible, during emergency situations. Environmental Protection Measures applicable to access and transportation, vegetation management, noxious weeds, soil and water quality, aquatic resources, wildlife, sensitive species, reclamation, and cultural resources will avoid or reduce impacts associated with O&M activities.

5.1 Access Management

Access roads are necessary for access to, and maintenance of, pipelines, structures, or ancillary facilities. MVP will utilize existing roads to the extent practicable. However, some of these roads may need maintenance prior to construction, and some new access roads may be needed in certain locations. No new access roads will be required on the JNF.

During routine operations, vehicular access may be needed to reach areas of the pipeline for periodic inspections and maintenance and to areas along the right-of-way where trees or shrubs may need removal for safe operation of the pipeline.

For non-routine maintenance requiring access by larger vehicles, greater disturbance to the access road footprint may result. Roads will be repaired, as necessary, but will not be routinely graded. In order to preserve the ability to enter rapidly, the road structure (cuts and fills) will be left in place. In an emergency (i.e., in the event of pipeline damage or failure), full emergency access, including cranes and other heavy equipment, will be needed.

Other roads may be travelled over by MVP during operations. However, these roads will not be maintained by MVP except as noted. These include:

- **Public roads, including state highways and county roads**—these roads are for public use, and the appropriate state or county entity maintains them.
- **Open roads on federal land**—the appropriate federal agency maintains these roads, which are open to the public. These roads, including drainage features, cuts, and fill slopes, will be repaired by MVP, if damaged during O&M activities, but will not be maintained on a routine basis.
- **Closed federal-land roads**—these roads are still needed for administrative or emergency functions, but they have been closed to the public because of management policies to protect natural resources or reduce maintenance costs. If utilized during O&M activities, MVP will assume some maintenance responsibilities proportionate to their use for O&M purposes.

MVP will follow the seasonal and spatial restrictions by time and location for wildlife and aquatic species (POD Appendix V – Plant and Wildlife Conservation Measures Plan) for O&M activities; however, emergency response activities may require activities outside of these restrictions.

5.2 Vegetation Management

MVP manages vegetation within its rights-of-way and along access roads to minimize interference with pipeline integrity, address safety issues, and facilitate O&M activities. MVP will adhere to the guidelines for vegetation management along the right-of-way as described in the FERC's *Upland Erosion Control, Revegetation and Maintenance Plan* and *Wetland and Waterbody Construction and Mitigation Procedures*.

Objectives of vegetation management for the right-of-way will be to provide stable, low-growing plant ecotypes that reduce fire risk and maintain safe access to the pipeline and associated facilities. In general, this involves removing tall-growing/deep-rooting tree species. Establishment of vegetation will also reduce the potential for noxious weeds to become established in the right-of-way.

5.3 Noxious Weed Control

Noxious weeds and invasive plants will be monitored and controlled during operation of the Project. MVP will eradicate any new population that is demonstrated to be the result of Project operation or maintenance. If operation of the Project causes an existing noxious weed infestation to exceed the extent identified and delineated within the right-of-way during preconstruction surveys, MVP will monitor and control the noxious weed infestation. However, MVP will not be responsible for the eradication of pre-existing noxious weed and invasive plant populations outside of Project-related areas of disturbance. In addition, MVP will not be responsible for noxious weeds and invasive plants introduced into the Project area by activities other than Project operations (e.g., recreational use, grazing, other construction projects, etc.); natural occurrences (e.g., fire); noxious weeds and invasive plants outside the Project right-of-way; or noxious weeds and invasive plants along existing access roads not improved by the Project.

Maintenance vehicles, ATVs, and equipment have the potential to transport weed seeds from one area to another via dirt and debris that inadvertently collects on the equipment. MVP will implement appropriate weed prevention measures prior to beginning O&M projects on federal or state land, establish vegetation promptly after disturbance, and monitor and control noxious weed and invasive plants.

5.4 Protection of Soils and Water Quality

Soil and water quality are crucial to a healthy environment and protected by numerous local, state, and federal laws and regulations. MVP is committed to protecting soil and water quality during O&M of the Project and will implement measures consistent with Appendix H – Restoration Plan and Appendix D – Spill Prevention, Containment, and Countermeasures (SPCC) Plan of the POD.

No permanent impacts to water supply or quality are expected due to the limited depth of excavation, the short duration of open trench, and typical depths to groundwater supplies,

5.5 Protection Measures for Aquatic Resources

Streams or watercourses with definable streambeds or stream banks, regardless of whether there is flowing water, are important because they provide habitat for a variety of animal and plant species. Of critical importance is the protection of habitat for sensitive plant and animal species, including aquatic species. Waterbodies considered fisheries of special concern are anticipated to be crossed by the Project.

Timing restrictions and best management practices (BMPs) will be followed for routine operation and maintenance activities. Restrictions may not be followed in an emergency response situation. In West Virginia, the West Virginia Department of Environmental Protection (WVDEP) requires that no in-stream work should occur in warmwater streams from April 1 to June 30 or in coldwater streams from September 15 to March 31, unless a waiver is obtained. These date ranges are based on WVDEP's Section 401 Water Quality Certification for the USACE's 2012 Nationwide Permit program. Should the WVDEP make any changes to these date ranges in the revised 2017 401 certification program, MVP will comply with those timing restrictions.

In Virginia, the Virginia Department of Game and Inland Fisheries (VDGIF) recommends that no in-stream work occur in warmwater streams from April 15 to July 15 or in coldwater streams from March 1 to June 30. The VDGIF also recommends that no in-stream work occur in streams containing wild brown and brook trout from October 1 to March 31 and in streams stocked with rainbow trout from March 15 to May 15. In addition, the VDGIF recommends that no in-stream work occur in streams containing freshwater mussels classified as long-term brooders (i.e., yellow lampmussel and green floater) from April 15 to June 15 (release of glochidia) or August 15 to September 30 (spawning). The VDGIF also recommends that no in-stream work should occur in streams containing freshwater mussels classified as short-term brooders (i.e., James spinymussel and Atlantic pigtoe) from May 15 to July 31.

MVP will take measures to protect aquatic habitats, such as coordinating with appropriate local, state, and federal resource agencies throughout the permitting process, as well as during implementation and maintenance. MVP will also adhere to timing restrictions for construction and O&M activities, select the most appropriate crossing methods, and restore disturbed areas according to FERC requirements and other federal and state permitting requirements.

5.6 Protection of Wildlife Species

MVP will take measures to protect wildlife species and to prevent accidental disruption or loss of wildlife resources along the right-of-way. MVP will coordinate with the USFS to determine BMPs and avoidance and minimization of disturbance to wildlife and special biological areas. Temporary and permanent work areas will be revegetated with native seed mixes in consultation with the USFS. Timing restrictions will be followed for construction and operation and maintenance activities to the extent practicable. Appendix V –

Plant and Wildlife Conservation Measures Plan presents measures proposed by the MVP for avoidance and minimization of impacts to plant and wildlife species. Should open trenching be required for emergency repairs wildlife fences will be used in coordination with escape ramps as a deterrent on the edges of both sides of the ROW. Mountain Valley environmental inspectors will check the trench each morning prior to the start of work to ensure that any animals that are trapped in the trench are removed.

5.7 Protection of Threatened, Endangered, and Sensitive Plant and Wildlife Species

MVP has taken a thorough, systematic approach in providing protection for threatened, endangered, and sensitive plant and animal species during the siting and routing of the Project. Additional O&M measures will apply throughout the life of the Project to prevent negative impacts to threatened, endangered, and sensitive species, including adherence to seasonal and spatial restrictions. Appendix V – Plant and Wildlife Conservation Measures Plan provides measures, including protection of sensitive wildlife or plant species if they are encountered during O&M activities, notification requirements, and education of O&M personnel with regard to federal and state protected species.

If an emergency occurs and access is immediately needed, the federal agency will be notified as soon as possible. Depending on the urgency, the agency may not have responded until after the repair work has begun. Timing restrictions may not be adhered to, but the other applicable measures listed in Appendix V will be followed to the extent possible.

5.8 Reclamation

Appendix H – Restoration Plan includes reclamation measures, agency-approved seed mixes, and methods for monitoring progress toward reclamation success standards once ground-disturbing activities are complete and an area to be reclaimed has been seeded. It combines MVP's BMPs with mitigation developed in consultation with the agencies. After ground-disturbing maintenance activities, MVP will adhere to erosion, revegetation, and sediment control measures identified in the WV and VA state-approved erosion and sedimentation control plans to ensure that appropriate reclamation is implemented and to prevent accidental introduction or transport of noxious weeds along the right-of-way.

5.9 Protection Measures for Cultural Resources

Prior to any ground-disturbing O&M activities, the location will be reviewed against previous 100 percent cultural resource surveys of the right-of-way and access roads. Maps that show all avoidance areas will be provided to maintenance crews to protect resources. If a previously unsurveyed area is to be disturbed, the area will have cultural resource surveys conducted on it prior to ground-disturbing activities. All cultural resources and historic or prehistoric sites or objects discovered by MVP or its designated contractor will be immediately reported. Additional surveys will not be conducted for O&M activities if the work area was previously surveyed prior to construction of the line and ancillary facilities.

If new probable historic or cultural resources are discovered during routine or corrective O&M activities, potentially destructive work within 200 feet of the find will be halted and the appropriate federal or state agency notified as described in the Unanticipated Historic Properties and Human Remains Plan (POD Appendix O).

All human interments will be treated with the respect accorded them by state and federal laws applying to human remains. If human remains are discovered during O&M activities, MVP will stop all work in the immediate area to protect the integrity of the find and notify the appropriate law enforcement agency and

the landowner or land-management agency as soon as possible. In addition, the location of the find will be flagged or fenced off to protect it from further impacts. The law enforcement agency or coroner will determine the age of the human remains. If the remains are not modern, then MVP will work with the federal or state agency to determine what mitigation is necessary and, once the mitigation is complete, resume work in the area.

5.10 Protection for Paleontological Resources

If significant fossil materials are discovered during O&M activities on the JNF, all surface-disturbing activities in the vicinity of the find will cease until notification to proceed is given by the USFS authorized officer. The site will be protected to reduce the risk of damage to fossils and context. MVP will follow the applicable measures in Appendix P – Plan for Unanticipated Discovery of Paleontological Resources to protect paleontological resources on the JNF.

5.11 Fire Protection

O&M activities will follow the requirements and procedures specified by the appropriate federal or state agency when conducted on federal or state lands and implement BMPs for fire prevention and suppression on all Project lands (refer to Appendix X – Fire Prevention and Suppression Plan, for BMPs and methods to prevent and suppress fires). Because Mountain Valley will install Class 2 pipe buried at least 36 inches below the ground surface within the Jefferson National Forest, there would be no restrictions on the use of heavy firefighting equipment by the USFS.

MVP and the federal or state land manager will work cooperatively to evaluate requests for Industrial Fire Precaution Level Waivers that would allow MVP and/or its contractors to continue working when certain fire restrictions are in place. If the federal or state land-management agency determines that it must use fire suppression techniques or prescribed burns, it will notify MVP of any and all fire suppression efforts or prescribed burns that could come into close proximity with the pipeline or associated structures prior to initiating those efforts.

If MVP becomes aware of an emergency situation caused by a fire that is on or threatening federal or state land that could damage the pipeline or its operation, it will notify the appropriate land-management agency contact. Likewise, if the federal or state land-management agency becomes aware of an emergency situation caused by a fire that is on or threatening federal or state land and that could damage the pipeline or its operation, it will notify MVP.

6.0 O&M PLAN AMENDMENTS

The O&M Plan is a living document, and changes are anticipated after the plan's acceptance. Amendments will include the date on which changes were made, a brief description of those changes, and the signatures of authorized representatives of MVP and the agency accepting the changes.

This plan and its updates will be distributed to the relevant USFS and USACE district and other agencies as applicable. Additionally, the plan will be made available, as appropriate, to MVP personnel and its contractors. MVP will be responsible for distributing updates when they are made. If the federal agencies identify additional parties that require a copy of the plan, they are responsible for distribution and ensuring that those parties have the current plan.

In addition, the following items will become part of this section of the O&M Plan:

- List of road closures and gate locations;
- Maps containing known locations of sensitive plant and animal species mapped as “sensitive areas” without specifying the resource; and
- Maps containing known locations of cultural features included on, or eligible for inclusion on, the National Register of Historic Places, mapped as “sensitive areas” without specifying the resource.