AUTHORIZED WORK

1. The permittee understands and agrees that the Department of the Army (DA) permits have been issued based upon the permittee's intended purpose to construct and operate a new interstate natural gas pipeline infrastructure to meet the growing demand for natural gas by the electric generation, distribution, and end user markets in West Virginia and Virginia, and information supplied to the United States (U.S.) Army Corps of Engineers (Corps), Huntington (LRH), Pittsburgh (LRP) and Norfolk (NAO) Districts. This information includes the DA application, and all information and analyses submitted by the permittee to the Corps. The permittee recognizes its commitment to conduct work in waters of the U.S. as described in the submitted materials and comply with its local, state, including the Clean Water Act Section 401 Water Quality Certifications granted by the West Virginia Department of Environmental Protection on 30 December 2021 and reissued on 8 June 2023 (**Attachment 1**) and the Virginia Department of Environmental Quality on 20 December 2021 (**Attachment 2**) and federal approvals. In association with the Mountain Valley Pipeline (MVP) Project, as described in the submitted DA Individual Permit application and supplemental information, Tables 2 -3 (**Attachment 3**) and drawings (**Attachment 4**), and as indicated below, the permittee is hereby authorized to conduct the following within each district's area of responsibility.

Table 1 – Authorized Stream Discharges Within the DA Individual Permit Application (includes discharges currently in-place) associated with the MVP Project[1]

District	Project Activity	Temporary Impact (linear ft)	Permanent Impact (linear ft)	Temporary Impact Area (acres)	Permanent Impact Area (acres)	Number of Resource Crossings
LRH	Station	0	160	0.0000	0.0086	3
	Pipeline ROW[2]	15,776	0	3.6436	0.0000	246
	Other Activity[3]	2,216	730	0.3459	0.1428	69
	Total	**17,992**	**890**	**3.9895**	**0.1514**	**318**
LRP	Station	0	0	0.0000	0.0000	0
	Pipeline ROW[2]	1,633	0	0.3896	0.0000	27
	Other Activity[3]	169	192	0.0332	0.0461	10
	Total	**1,802**	**192**	**0.4228**	**0.0461**	**37**
NAO	Station	0	0	0.0000	0.0000	0
	Pipeline ROW[2]	14,921	0	2.9597	0.0000	242
	Other Activity[3]	839	63	0.2084	0.0101	23
	Total	**15,760**	**63**	**3.1681**	**0.0101**	**265**
All Districts	Station	0	160	0.0000	0.0086	3
	Pipeline ROW[2]	32,330	0	6.9929	0.0000	515
	Other Activity[3]	3,224	985	0.5875	0.1990	102
	Total	**35,554**	**1,145**	**7.5804**	**0.2076**	**620**

Notes:
1 Includes proposed discharge into streams as included in Individual Permit Application Table 2.
2 Includes project activity noted as Pipeline right-of-way (ROW), Pipeline ROW/Temporary Access Road, or Timber Mat Crossing in Individual Permit Application Table 2.
3 Includes project activity noted as Temporary Access Road, Permanent Access Road, or additional temporary workspace (ATWS) in Individual Permit Application Table 2.

Table 2 – Authorized Wetland Discharges Within the DA Individual Permit Application associated with the MVP Project[1]					
District	**Project Activity**	**Temporary Impacts (acres)**	**Temporary Impact Resulting in Permanent conversion Impact (acres)**	**Permanent Fill Impact (acres)**	**Number of Resource Crossings**
LRH	Station	0	0	0	0
	Pipeline ROW[2]	5.9787	1.5761	0.0564	143
	Other Activity[3]	1.3525	0.0188	0.3261	62
	Total	**7.3312**	**1.5949**	**0.3825**	**205**
LRP	Station	0	0	0	0
	Pipeline ROW[2]	1.4847	0.011	0	20
	Other Activity[3]	0.7393	0.1444	0	15
	Total	**2.2240**	**0.1554**	**0.0000**	**35**
NAO	Station	0	0	0	0
	Pipeline ROW[2]	3.6977	1.9155	0	87
	Other Activity[3]	0.1382	0.0307	0.0392	16
	Total	**3.8359**	**1.9462**	**0.0392**	**103**
All Districts	Station	0.0000	0.0000	0.0000	0
	Pipeline ROW[2]	11.1611	3.5026	0.0564	250
	Other Activity[3]	2.2300	0.1939	0.3653	93
	Total	**13.3911**	**3.6965**	**0.4217**	**343**

Notes:
1 Includes proposed discharge into wetlands as included in Individual Permit Application Table 3.
2 Includes project activity noted as Pipeline ROW, Pipeline ROW/Temporary Access Road, Pipeline ROW/Temporary Access Road/ATWS, Pipeline ROW/ATWS, or Timber Mat Crossing in Individual Permit Application Table 3.
3 Includes project activity noted as Temporary Access Road, Permanent Access Road, Anode Bed, or ATWS in Individual Permit Application Table 3.

Additionally, discharges of dredged and/or fill material into waters of the U.S. associated with completed crossings previously authorized under Nationwide Permit 12 Verifications issued by the Districts in December 2017 are described in Tables 3 and 4 below. Completed activities have resulted in the temporary discharge of dredged and/or fill material into 3,649 linear feet (0.6884 acre) of streams and

0.3771 acre of wetlands, the temporary discharge of dredged and/or fill material into 0.0725 acre of PFO/PSS wetlands resulting in a permanent conversion of PFO/PSS wetlands to PEM wetlands, and the permanent discharge of dredged and/or fill material into 868 linear feet (0.0881 acre) of streams and 0.0071 acre of wetlands.

Table 3 – Previously Completed Stream Discharges associated with the MVP Project [1]

District	Project Activity	Temporary Impact (linear ft)	Permanent Impact (linear ft)	Temporary Impact Area (acres)	Permanent Impact Area (acres)	Number of Resource Crossings
LRH	Station	189	868	0.0279	0.0881	9
	Pipeline ROW	1,657	0	0.3418	0.0000	18
	Other Activity	0	0	0.0000	0.0000	0
	Total	**1,846**	**868**	**0.3697**	**0.0881**	**27**
LRP	Station	0	0	0.0000	0.0000	0
	Pipeline ROW	351	0	0.1207	0.0000	4
	Other Activity	0	0	0.0000	0.0000	0
	Total	**351**	**0**	**0.1207**	**0.0000**	**4**
NAO	Station	0	0	0.0000	0.0000	0
	Pipeline ROW	1,452	0	0.1980	0.0000	17
	Other Activity	0	0	0.0000	0.0000	0
	Total	**1,452**	**0**	**0.1980**	**0.0000**	**17**
All Districts	Station	189	868	0.0279	0.0881	9
	Pipeline ROW	3,460	0	0.6605	0.0000	39
	Other Activity	0	0	0.0000	0.0000	0
	Total	**3,649**	**868**	**0.6884**	**0.0881**	**48**

Notes:

1 Includes completed discharge into streams that are completed open cut and station impacts in Individual Permit Application Table 10 and Table 11. This does not include completed bores where impacts were avoided or impacts avoided at stations.

Table 4 – Previously Completed Wetland Discharges associated with the MVP Project[1]					
District	**Project Activity**	**Temporary Impacts (acres)**	**Temporary Impact Resulting in Permanent conversion Impact (acres)**	**Permanent Fill Impact (acres)**	**Number of Resource Crossings**
LRH	Station	0.0104	0	0.0071	3
	Pipeline ROW	0.0983	0.0725	0	6
	Other Activity	0	0	0	0
	Total	**0.1087**	**0.0725**	**0.0071**	**9**
LRP	Station	0	0	0	0
	Pipeline ROW	0.1876	0	0	3
	Other Activity	0	0	0	0
	Total	**0.1876**	**0.0000**	**0.0000**	**3**
NAO	Station	0	0	0	0
	Pipeline ROW	0.0083	0	0	1
	Other Activity	0	0	0	0
	Total	**0.0083**	**0.0000**	**0.0000**	**1**
All Districts	Station	0.0104	0.0000	0.0071	3
	Pipeline ROW	0.2942	0.0725	0.0000	10
	Other Activity	0.0000	0.0000	0.0000	0
	Total	**0.3046**	**0.0725**	**0.0071**	**13**

Notes:

1 Includes proposed discharge into wetlands as included in Individual Permit Application Table 3.

2 Includes project activity noted as Pipeline ROW, Pipeline ROW/Temporary Access Road, Pipeline ROW/Temporary Access Road/ATWS, Pipeline ROW/ATWS, or Timber Mat Crossing in Individual Permit Application Table 3.

3 Includes project activity noted as Temporary Access Road, Permanent Access Road, Anode Bed, or ATWS in Individual Permit Application Table 3.

Table 5 below captures the impacts associated with the completed (discharges complete and restored and discharges in-place but not yet restored) crossings within each district. Completed and proposed activities have resulted in or would result in the temporary discharge of dredged and/or fill material into 39,203 linear feet (8.2688 acres) of streams and 13.6957 acres of wetlands, the temporary discharge of dredged and/or fill material into 3.7690 acres of PFO and PSS wetlands resulting in a permanent conversion of these PFO an PSS to PEM wetlands, and the permanent discharge of dredged and/or fill material into 2,207 linear feet (0.3494 acre) of streams and 0.4288 acre of wetlands. All completed and proposed impacts are evaluated in the Corps' cumulative effects evaluation, public interest review, as well as the Section 404(b)(1) Guidelines.

Table 5 – Completed and Proposed Discharges of Dredged and/or Fill Material into Waters of the U.S. associated with the MVP Project

District	Project Activity	Temporary Discharge into Streams (linear ft) (Completed/Discharge has Occurred)[1]	Temporary Discharge into Streams (linear ft) (Proposed/Discharge has not Occurred)[2]	Cumulative Temporary Discharge into Streams (linear ft) (Completed and Proposed)[3]	Permanent Discharge into Streams (linear ft) (Completed/Discharge has Occurred)[1]	Permanent Discharge into Streams (linear ft) (Proposed/Discharge has not Occurred)[2]	Cumulative Permanent Discharge into Streams (linear ft) (Completed and Proposed)[3]	Temporary Discharge into Wetlands (acres) (Completed/Discharge has Occurred)[1]	Temporary Discharge into Wetlands (acres) (Proposed/Discharge has not Occurred)[4]	Cumulative Temporary Discharge into Wetlands (acres) (Completed and Proposed)[3]	Permanent Discharge into Wetlands (acres) (Completed/Discharge has Occurred)[1]	Permanent Discharge into Wetlands (acres) (Proposed/Discharge has not Occurred)[4]	Cumulative Permanent Discharge into Wetlands (acres) (Completed and Proposed)[3]	Permanent Wetland Conversion (acres) (Completed/Discharge has Occurred)[1]	Permanent Wetland Conversion (acres) (Proposed/Discharge has not Occurred)[4]	Permanent Wetland Conversion (acres) (Completed and Proposed)[3]
LRH	Station	189	0	189	868	160	1,028	0.0104	0	0.0104	0.0071	0	0.0071	0	0	0
	Pipeline ROW[5]	1,657	15,776	17,433	0	0	0	0.0983	5.9787	6.077	0	0.0564	0.0564	0.0725	1.5761	1.6486
	Other Activity[6]	0	2,216	2,216	0	730	730	0	1.3525	1.3525	0	0.3261	0.3261	0	0.0188	0.0188
	Total	**1,846**	**17,992**	**19,838**	**868**	**890**	**1,758**	**0.1087**	**7.3312**	**7.4399**	**0.0071**	**0.3825**	**0.3896**	**0.0725**	**1.5949**	**1.6674**
LRP	Station	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Pipeline ROW[5]	351	1,633	1,984	0	0	0	0.1876	1.4847	1.6723	0	0	0	0	0.011	0.011
	Other Activity[6]	0	169	169	0	192	192	0	0.7393	0.7393	0	0	0	0	0.1444	0.1444
	Total	**351**	**1,802**	**2,153**	**0**	**192**	**192**	**0.1876**	**2.224**	**2.4116**	**0**	**0**	**0**	**0**	**0.1554**	**0.1554**
NAO	Station	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Pipeline ROW[5]	1,452	14,921	16,373	0	0	0	0.0083	3.6977	3.706	0	0	0	0	1.9155	1.9155
	Other Activity[6]	0	839	839	0	63	63	0	0.1382	0.1382	0	0.0392	0.0392	0	0.0307	0.0307
	Total	**1,452**	**15,760**	**17,212**	**0**	**63**	**63**	**0.0083**	**3.8359**	**3.8442**	**0**	**0.0392**	**0.0392**	**0**	**1.9462**	**1.9462**
All Districts	Station	189	0	189	868	160	1,028	0.0104	0	0.0104	0.0071	0	0.0071	0	0	0
	Pipeline ROW[5]	3,460	32,330	35,790	0	0	0	0.2942	11.1611	11.4553	0	0.0564	0.0564	0.0725	3.5026	3.5751
	Other Activity[6]	0	3,224	3,224	0	985	985	0	2.23	2.23	0	0.3653	0.3653	0	0.1939	0.1939
	Total	**3,649**	**35,554**	**39,203**	**868**	**1,145**	**2,013**	**0.3046**	**13.3911**	**13.6957**	**0.0071**	**0.4217**	**0.4288**	**0.0725**	**3.6965**	**3.7690**

Notes:

1 Completed discharge into streams or wetlands that are completed open cut and station impacts in Individual Permit Application Table 10 and Table 11. This does not include completed bores where impacts were avoided or impacts avoided at stations.

2 Proposed discharge into streams as included in Individual Permit Application Table 2. This does not include impacts that were or will be avoided.

3 Total cumulative impact including discharge that has occurred (completed) and discharge that has not occurred (proposed).

4 Proposed discharge into wetlands as included in Individual Permit Application Table 3. This does not include impacts that were or will be avoided.

5 Project activity noted as Pipeline ROW, Pipeline ROW/Temporary Access Road, Pipeline ROW/Temporary Access Road/ATWS, Pipeline ROW/ATWS, or Timber Mat Crossing in Individual Permit Application Table 2, Table 3, or Table 10.

6 Project activity noted as Temporary Access Road, Permanent Access Road, Anode Bed, or ATWS in Individual Permit Application Table 2, Table 3, or Table 10.

Additionally, the DA permit authorizes the following work in or under navigable waters of the U.S.

Table 6 - Section 10 Navigable Waters Crossed by the Proposed Project

Waterbody Name (ID)	Corps District	Mile Point, County, State	Original/Currently Certificated Crossing Method	Proposed Crossing Method	Notes
Elk River (S-68)	LRH	87.3, Webster County, West Virginia	Open-cut Dry	Guided Conventional Bore	Subject to Section 10 of the Rivers and Harbors Act of 1899
Gauley River (S-J29)	LRH	118.9, Nicholas County, West Virginia	Original-Open-cut Dry; Current-Microtunnel	Microtunnel	The FERC authorized the use of a microtunnel on 18 May 2020 per variance D-35; Subject to Section 10 of the Rivers and Harbors Act of 1899
Greenbrier River (S-I8)	LRH	171.4, Summers County, West Virginia	Open-cut Dry	Direct Pipe®	Subject to Section 10 of the Rivers and Harbors Act of 1899
Roanoke River (Two [2] crossings – S-NN16 and S-NN16- Braid)	NAO	235.4, Montgomery County, Virginia	Original: Open-cut Dry; Current: Microtunnel	Microtunnel	The FERC authorized the use of a microtunnel on 27 May 2020 per variance H-21; Subject to Section 10 of the Rivers and Harbors Act of 1899
Blackwater River (S-F11)	NAO	269.8, Franklin County, Virginia	Open-cut Dry	Open-cut Dry	Subject to Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act

Lastly, the DA permit authorizes the restoration of all affected wetlands and streams that were previously impacted by installed activities as wells as activities that are proposed. Should new information regarding the scope and/or impacts of the project become available that was not submitted to the Corps during our review of the proposal, the permittee will submit written information concerning proposed modification(s) to the Corps for review and evaluation, as soon as practicable.

2. The permittee is solely responsible for ensuring all authorized activities are performed in compliance with all of the DA permit terms and conditions.

3. The permittee shall require, as a material condition of its contracts and subcontracts, that all its contractors and their subcontractors at any tier comply with the DA permit. A copy of the DA permit shall be available at the construction site(s) at all times and the permittee shall ensure that all contractors and subcontractors are provided a copy of the permit and are familiar with the activities that have been authorized and familiar with all parts of the project area containing waters of the U.S. that shall be avoided.

OTHER PERMITS AND AUTHORIZATIONS

4. The Erosion and Sediment Control and Stormwater Management Plans approved by the Virginia Department of Environmental Quality dated 26 March 2018, is attached hereto (**Attachment 5**). All conditions attached to or contained therein pertaining to the protection of the aquatic environment are hereby incorporated by reference as being special conditions of the DA permit (33 CFR § 320.4(d).

5. The West Virginia Department of Environmental Protection issued an Oil and Gas Construction Stormwater General Permit on 13 May 2013. Mountain Valley Pipeline, LLC received registration under WVR310667 dated 14 July 2017, attached hereto (**Attachment 6**). This registration covers the discharge of stormwater associated with the disturbance of approximately 4,214 acres of land for the construction of approximately 196 miles of natural gas pipeline along with compressor stations, meter stations, access roads, and interconnects through Wetzel, Harrison, Doddridge, Lewis, Braxton, Webster, Nicholas, Greenbrier, Fayette, Summers, and Monroe Counties in West Virginia. On 10 April 2023, the West Virginia Department of Environmental Protection granted an extension until 24 June 2024. All conditions attached to or contained therein and any subsequent updates pertaining to the protection of the aquatic environment are hereby incorporated by reference as being special conditions of the DA permit.

6. The Annual Standards and Specifications for Erosion and Sediment Control and Stormwater Management approved by the Virginia Department of Environmental Quality on 1 August 2022, is attached hereto (**Attachment 7**). All conditions attached to or contained therein and any subsequent updates pertaining to the protection of the aquatic environment are hereby incorporated by reference as being special conditions of the DA permit.

7. The Clean Water Act Section 401 Water Quality Certification for Project activities in upland areas outside of the Corps' jurisdictional areas approved by the Virginia Department of Environmental Quality on 8 December 2017, is attached hereto (**Attachment 8**). All conditions attached to or contained therein and any subsequent updates are hereby incorporated by reference as being special conditions of the DA permit.

8. The Permit for Encroachment on State-Owned Submerged Lands issued by the Virginia Marine Resources Commission on 21 January 2018, and extension issued on 19 January 2021 is attached hereto (**Attachment 9**). All conditions attached to or contained therein and any subsequent updates are hereby incorporated by reference as being special conditions of the DA permit.

9. The Federal Energy Regulatory Commission's *Order Issuing Certificates and Granting Abandonment Authority* dated 13 October 2017 and subsequent four (4) year extension dated 23 August 2022, is attached hereto (**Attachment 10**). All environmental conditions attached to or contained therein and any subsequent updates are hereby incorporated by reference as being special conditions of the DA permit.

10. The Federal Energy Regulatory Commission's Order Amending Certificate dated 8 April 2022, is attached hereto (**Attachment 11**). All environmental conditions attached to or contained therein and any subsequent updates are hereby incorporated by reference as being special conditions of the DA permit.

11. The authorized activities must comply with applicable Federal Emergency Management Agency (FEMA) floodplain management requirements.

AVOIDANCE AND MINIMIZATION

12. The permittee will implement the measures outlined in its various resource-specific mitigation plans filed with its application to the Federal Energy Regulatory Commission, or included in various supplemental filings as listed below and does not prohibit and incorporates future changes, updates or alterations that are approved by the FERC and/or other agencies without requiring the need to revise this DA permit authorization:

    - *Karst Mitigation Plan*, *Revised Karst Hazards Assessment*, and *Karst-specific Erosion and Sediment Control Plan* to reduce impacts when crossing karst terrain;
    - *Revised Landslide Mitigation Plan* for reducing impacts when crossing steep topography;
    - *Mining Area Construction Plan* to reduce impacts when crossing coal mine areas;
    - *Unanticipated Mine Pool Mitigation Plan* to reduce impacts from mine pools;
    - *Acid Forming Materials Identification and Mitigation Plan* to reduce impacts from acid forming rocks;
    - *General Blasting Plan* to reduce impacts when crossing areas of shallow bedrock;
    - *Organic Farm Protection Plan* to reduce impacts when crossing organic farms;
    - *Water Resources Identification and Testing Plan*, *Vertical Scour and Lateral Channel Erosion Analysis*, *Spill Prevention Controls and Countermeasures Plan*, *Stormwater Pollution and Prevention Plan in West Virginia*, *Erosion and Sediment Control Plan* in West Virginia, *Erosion and Sediment Control Plan* in Virginia, *Unanticipated Discovery of Contamination Plan for Construction Activities* in West Virginia and *Storm Water Pollution Prevention Plan* in Virginia to reduce impacts on water resources;
    - *Revised Migratory Bird Habitat Conservation Plan* and *Exotic and Invasive Species Control Plan* to reduce impacts on birds, other animals, and plants and to control invasive plant species;
    - *Fire Prevention and Suppression Plan* to reduce the chance of wildfires;
    - *Traffic and Transportation Management Plan* to reduce impacts on local road users;
    - *Hazardous Materials Management Plan* to handle and dispose of hazardous materials to prevent entry into waters of the U.S.;
    - *Direct Pipe and Horizontal Directional Drilling Contingency Plan* to minimize impacts of an inadvertent return into water of the U.S. The measures in the contingency plan will be applied to the subterranean crossing methods.
    - *Fugitive Dust Control Plan* to reduce air quality impacts during construction; and
    - *Winter Construction Plan* to minimize effects to aquatic resources.

13. The permittee shall not discharge any dredged or fill material, place or stockpile any excavated dredged or fill material, equipment or other materials, operate, park or store any construction equipment or vehicles (whether temporarily or permanently), or engage in other ground disturbing activities in waters of the U.S. that have not been affirmatively authorized under the DA permit for those activities to take place. The "Aquatic Resources with Complete Avoidance within the Survey Corridor" (**Attachment 12**) provides a

consolidated list of all resources that were identified in the survey corridor of the preferred route and avoided through adjustments to the route and alignment. Aquatic resources within the limits of disturbance, which are to be avoided, must be clearly indicated on site drawings, demarcated in the field with highly visible markers, and protected with suitable materials prior to site disturbance to protect these resources. These materials must remain in place and be maintained throughout the construction process.

14. Following the demarcation of streams and wetlands that would not be affected by the discharge of dredged and/or fill material with suitable materials and prior to the initiation of any work authorized by the DA permit, the permittee shall install erosion control measures along the perimeter of all work areas to prevent the displacement of fill material outside the authorized work areas into waters of the U.S. Immediately after completion of the final grading of the land surface, all slopes, land surfaces, and filled areas shall be appropriately stabilized to prevent erosion. The erosion control measures shall remain in place and be maintained until all authorized work is completed and the work areas are stabilized. The permittee will implement several methods to reduce potential risks during stream crossings to isolate the work area and reduce sedimentation. These include, but are not limited to, open-cut stream crossings will not be started unless there are favorable weather conditions, the permittee will attempt to complete stream crossings during low flow, environmental monitors will be onsite during the stream crossings to evaluate any changing conditions, stream crossing crews will be required to have additional sandbags and erosion and sediment control devices, back-up pumps, and spill kits on-site prior to starting the stream crossings, additional erosion and sediment control devices, including turbidity curtains, will be deployed downstream if necessary, all fuel supplies and pumps will be required to be in secondary containment, the stream crossing team will complete the stream crossings as quickly as possible to eliminate the duration in the streams, and any temporary impacts to the stream banks and any adjacent areas from the crossing activity will be restored directly following the stream crossing.

15. All in-stream and wetland pipeline installation activities will be completed in accordance with the *Wetland and Waterbody Construction and Mitigation Procedures*, environmental conditions in the Federal Energy Regulatory Commission's Final Environmental Impact Statement and Supplemental Environmental Assessment (incorporated into the Federal Energy Regulatory Commission Certificate Order and Certificate Amendment, respectively), and applicable state requirements, whichever is more protective.

16. The width of the ROW will be reduced to 75 feet for a distance of 50 feet on either side of each stream crossing to the maximum extent practicable.

17. The discharge of dredged and/or fill material will be performed during periods of low surface flow within the stream reaches, to the greatest extent practicable, to minimize potential adverse effects to stream current velocities and turbulence associated with the discharge of dredged and/or fill material into waters of the U.S.

18. The streambed (upper 12 inches of substrate) and wetland (upper 12 inches of topsoil) material will be segregated and stockpiled, to the maximum extent practicable, to prevent mixing with other materials and will be used during restoration efforts. Excavated material not required for backfill will be removed and disposed of at an upland site in a manner to prevent its reentry into waters of the U.S.

19. Where access roads will be near a waterbody, the permittee will install silt fence and/or other erosion prevention measures along the edge of the access road to minimize adverse effects to the waterbody through erosion and sedimentation.

20. Permanent and temporary crossings of waterbodies will be suitably culverted, bridged, or otherwise designed and constructed to be countersunk as appropriate, to maintain substrate in the bottom, to maintain low flows to sustain the movement of aquatic species, to withstand expected high flows, and to not restrict or impede the passage of normal or high flows. During the open-cut stream installation process, stream-flow connectivity will be maintained between the upstream and downstream segments of the crossing through flumes and/or water pumps.

21. The permittee will minimize the impacts of in-stream construction by installing the pipeline as close to perpendicular to stream courses as practicable. Furthermore, where site conditions require that the ROW cross a stream at a relatively shallow angle, field adjustments to the placement of pipeline within the approved ROW will be made to increase the crossing angles for these streams to the maximum extent practicable considering the site conditions, thereby reducing or eliminating low-angle crossings.

22. After the stream flow is temporarily diverted around the crossing area, the work area will be dewatered by pumping standing water into an energy-dissipating dewatering structure in an upland area (including filter bags, where necessary) to minimize erosion and sedimentation, as required by the permittee's state-approved *Erosion and Sediment Control Plan*.

23. Wetlands within the construction corridor that will not be crossed by the pipeline will be timber matted to protect impact to the wetland and to minimize soil disturbance or avoided with erosion and sediment controls. Once construction is complete and access is no longer required, the timber mats will be removed as soon as practicable, and the affected areas will be de-compacted and returned to pre-construction elevations to the maximum extent practicable. Once disturbed areas are permanently stabilized with vegetation or other measures (e.g., gravel, where applicable), temporary erosion and sediment controls will be removed and properly disposed of at an approved waste disposal site.

24. Construction equipment fueling is prohibited within 100 feet of the waterbody banks (except for water pumps, which will be placed in secondary containment structures) and hazardous material storage will be prohibited within 100 feet of waterbodies. The permittee will repair any leaks and clean construction vehicles thoroughly to remove any residual dirt, mud, debris, grease, motor oil, hydraulic fluid, coolant, or other hazardous substances from construction vehicles. Inspections, repairs, cleaning, and/or servicing will be conducted either before the vehicle, equipment, or machinery is transported into the field or at the work site within the staging area. All wash-water runoff and/or harmful materials will be appropriately controlled to prevent entry into the waterbody, including the riparian zone.

25. No construction activities in West Virginia will occur within designated warm water streams and their adjacent tributaries during the fish spawning season of April 1 to June 30 and for trout waters and their adjacent tributaries during the trout water fish spawning season of September 15 to March 31 unless a waiver is obtained from the West Virginia Division of Natural Resources. No construction activities in Virginia will occur within waterbodies that contain wild brook and brown trout from October 1 through March

31 and in waterbodies that contain stocked trout from March 15 through May 15 unless a waiver is obtained from the Virginia Department of Wildlife Resources. Additionally, no work in trout streams shall occur on the days trout are stocked in Virginia or West Virginia.

26. To minimize erosion after the design grade is obtained, cut slopes will be stabilized immediately after completion of the crossing, and stream banks will be returned to as close to pre-construction conditions as possible. The stream bank elevation will be re-established to tie into existing grade. Bank and bed scour protection will be installed after the proposed pipeline is installed, as part of the trench backfilling. To protect stream banks and beds from scour erosion, site-specific best management practices will be implemented based on scour and erosion potential at each site. Routine inspections will be used to identify areas of erosion, exposed pipeline, and nearby construction activities, to allow for early identification of bank stability problems, and to minimize the potential for continuing environmental effects during pipeline operation.

27. The permittee will implement erosion and sedimentation control measures, such as installing trench breakers and water bars to inhibit water flow along the trench and ROW. Upon completion of construction, the permittee will restore the ground surface as closely as practicable to original contours and re-establish vegetation to facilitate restoration of pre-construction overland flow. The permittee must maintain, to the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters, unless specifically authorized otherwise by the Corps.

28. In consideration of property ownership, the permittee will implement the following measures to minimize impacts on residences located within 50 feet of the construction ROW:

    - Install safety fence at the edge of the construction ROW for a distance of 100 feet on either side of the residence or business establishment;
    - Install safety fence around all buildings;
    - Install safety fence and temporary end caps on the pipeline at the end of each workday to prevent overnight access to the trench and pipeline;
    - Fence the boundary of the construction work area to ensure that construction equipment and materials, including the spoil pile, remain within the construction work area;
    - Leave mature trees and landscaping intact within the construction work area unless the trees and landscaping interfere with the installation techniques or present unsafe working conditions;
    - Reduce temporary workspaces where possible;
    - Maintain access, including putting steel plates over the trench;
    - Use “drag-line” or “stove-pipe” construction methods where feasible;
    - Ensure piping is welded and installed as quickly as reasonably possible to minimize the amount of time a neighborhood is affected by construction;
    - Backfill the trench as soon as possible after the pipe is installed; and
    - Complete final cleanup, grading, and installation of permanent erosion control devices within 10 days after backfilling the trench, weather permitting.

29. All temporary stream construction entrances must be removed immediately upon project completion and the affected areas revegetated, as appropriate.

30. Rehabilitation of the construction ROW area will include the cleanup and proper disposal of the construction debris, such as timber mats, and the ROW will be contoured as close as possible to pre-construction conditions.

31. Withdrawal for hydrostatic testing will not be performed during low flow conditions. After hydrostatic testing is complete, the discharges will be directed to dewatering structures located in well-vegetated upland areas. In addition, during discharges the rate will be controlled, and water will be directed into energy dissipation devices to avoid potential secondary effects such as erosion.

COMPENSATORY MITIGATION REQUIREMENTS

32. The Corps has determined that the permittee's proposed compensatory mitigation is acceptable to offset the loss of waters of the U.S. and the permanent conversion of PSS and PFO wetlands to PEM wetlands. To compensate for the permanent discharge of dredged and/or fill material into 1,145 streams and 0.4217 acre of wetlands as well as the permanent conversion of 3.6965 PSS/PFO wetlands to PEM wetlands in West Virginia, based on calculations using the West Virginia Stream and Wetland Valuation Metric Version 2.1 (WVSWVM), and a 1:1 credit ratio, as applicable, the permittee has purchased 1,378 stream credits and 5.2787 wetland credits from approved mitigation banks, as indicated in **Tables 6-8** below. To compensate for the permanent discharge of dredged and/or fill material into 63 linear feet of streams based on calculations using the Unified Stream Methodology (USM) and 0.0392 acre of wetlands as well as the permanent conversion of 1.9462 acres of PSS/PFO wetlands to PEM wetlands in Virginia based on a 1:1 credit ratio, the permittee has purchased 358 stream credits and 7.236 wetland credits from approved mitigation banks, as indicated in **Tables 6-8** below. Supplemental compensatory mitigation at a rate of three (3) % per year for projected period of potential impact (i.e., sum of direct impacts during construction and post-construction restoration period) will also be provided by the permittee in the amount of 1,179.05 stream bank credits and 1.6327 wetland bank credits as indicated on **Tables 9** and **10** below.

Table 6 – Banking Credits Previously Purchased for Permanent Stream Impacts

	Impacts (feet)	Credits Required	Credits Purchased
Foster Run Mitigation Bank			
Primary	330	186	362
Hayes Run Mitigation Bank			
Primary	216	137	356
Kincheloe Mitigation Bank			
Primary	192	108	283
Spanishburg Stream and Wetland Mitigation Bank			
Primary	109	62	675
Secondary	235	138	
Thompson Place Farm, LLC			
Secondary	31	16	60
Graham and David Mitigation Bank, LLC			

Table 6 – Banking Credits Previously Purchased for Permanent Stream Impacts			
	Impacts (feet)	**Credits Required**	**Credits Purchased**
Secondary	32	44	298
Total	**1,145**	**691**	**1,736**

Table 7 – Banking Credits Previously Purchased for Wetland Conversion Impacts			
	Impacts (acres)	**Credits Required**	**Credits Purchased**
Beverly Mitigation Bank Site			
Secondary	0.4420	0.4420	1.3775
Kincheloe Mitigation Bank			
Primary	0.1554	0.1554	0.997
Secondary	0.1049	0.1049	
Spanishburg Stream and Wetland Mitigation Bank			
Primary	0.2020	0.2020	2.839
Secondary	0.8460	0.8460	
Banister Bend Mitigation Bank			
Primary	1.2847	1.2847	7.1
Secondary	0.6479	0.6479	
Thompson Place Farm, LLC			
Secondary	0.0136	0.0136	0.0136
Total	**3.6965**	**3.6965**	**12.3271**

Table 8 – Banking Credits Previously Purchased for Permanent Wetland Impacts			
	Impacts (acres)	**Credits**	**Purchased**
Beverly Mitigation Bank Site			
Secondary	0.1307	0.1307	1.3775
Kincheloe Mitigation Bank			
Primary	0.0115	0.0115	0.9770
Secondary	0.1078	0.1078	
Spanishburg Stream and Wetland Mitigation Bank			
Primary	0.0228	0.0228	2.839
Secondary	0.1097	0.1097	
Banister Bend Mitigation Bank			
Secondary	0.0392	0.0392	7.1
Total	**0.4217**	**0.4217**	**12.3787**

Table 9 – Existing Temporary Fill Mitigation and Proposed Temporal Mitigation for Streams and Wetlands for the MVP Project

Corps District	Streams			Wetlands		
	Existing Temporary Fill Mitigation (5 years @ 3%)	Proposed Temporal Mitigation (1 Year)	Total Temporal Mitigation	Existing Temporary Fill Mitigation (6 years @ 3%)	Proposed Temporal Mitigation (2 Years @ 3%)	Total Temporal Mitigation
Huntington	243.30 (FCU)	298.69 (FCU)	541.99 (FCU)	0.5515 (FCU)	0.2560 (FCU)	0.8075 (FCU)
Pittsburgh	50.78 (FCU)	25.06 (FCU)	75.84 (FCU)	0.2852 (FCU)	0.0384 (FCU)	0.3236 (FCU)
Norfolk	135.75 (USM)	425.46 (USM)	561.21 (USM)	0.4072 (acres)	0.0944 (acres)	0.5016 (acres)
Totals	**429.83**	**749.21**	**1,179.04**	**1.2439**	**0.3888**	**1.6327**

Table 10– Mitigation Banks Used to Offset the Existing Temporary Fill Mitigation and Proposed Temporal Losses of Streams and Wetlands for the MVP Project

HUC 8	Stream			Wetland		
	Existing Temporary Fill Mitigation (5 years @ 3%)	Proposed Temporal Mitigation (1 Year)	Total	Existing Temporary Fill Mitigation (6 years @ 3%)	Proposed Temporal Mitigation (1 Year)	Total
Middle Ohio-North	19.13	20.19	39.32	0.0452	0.0188	0.0640
West Fork	50.78	23.11	73.89	0.2852	0.0384	0.3235
Little Kanawha	121.50	42.74	164.24	0.1254	0.0324	0.1577
Elk	54.98	60.86	115.84	0.0558	0.0461	0.1019
Gauley	27.74	115.34	143.08	0.1964	0.1316	0.3281
Lower New	4.15	9.56	13.70	0.0000	0.0091	0.0091
Greenbrier	0.00	18.26	18.26	0.0160	0.0090 (FCU)	0.0250
Upper New	15.80	33.71	49.50	0.1128	0.0090	0.1218
Middle New	42.78	58.09	100.87	0.0046	0.0028	0.0074
Upper James	8.30	0.00	8.30	0.0000	0.0000	0.0000
Upper Roanoke	84.67	309.91	394.57	0.2362	0.0845	0.3206
Banister	0.00	57.47	57.47	0.1665	0.0071	0.1736
Updated Totals	**429.83**	**749.22**	**1,179.05**	**1.2439**	**0.3888**	**1.6357**

The permittee must submit confirmation of the credit purchase to the Corps' districts prior to the discharge of dredged or fill material into waters of the U.S.

RESTORATION OF TEMPORARILY AFFECTED WATERS OF THE U.S.

33. Temporarily impacted streams and wetlands will be restored to their approximate pre-construction contours in accordance with the permittee's *A Comprehensive Stream and Wetland Monitoring, Restoration and Mitigation Framework* (*Mitigation Framework*) dated 25 May 2023.

34. Permanent bank stabilization and erosion control devices will be installed as necessary to minimize sediment deposition into waterbodies. Areas with steep slopes may require additional grading to re-establish contours capable of supporting pre-construction drainage patterns. Special attention must be paid to the restoration of any riffles, pools, and riffle-pool complexes. Where the Baseline Assessment determined that these features (Reference **Attachment 13**) are present in the pre-crossing conditions, these data would be used to restore the stream physical characteristics/morphology, including the pattern, profile, and dimensions, as close as practicable to the pre-construction condition. This includes utilizing the pre-construction longitudinal profile to recreate riffle and pool sequences at slopes similar to those found pre-construction data. The cross-section data collected as part of the baseline assessment would be utilized to restore dimensions in the impacted reaches. This material would be utilized to restore the stream's substate.

35. All affected riparian areas will be revegetated in accordance with the Mountain Valley Pipeline Project Docket No. CP16-10-000 Restoration and Rehabilitation Plan Revised September 2017. Restored resources will be monitored and maintained based on established performance standards (Reference Special Condition 45).

36. Burial of the pipeline shall allow wetland vegetation to re-establish and surface flow to function naturally over the permanent ROW. To avoid a "French-drain effect" in wetlands trenched for the pipeline, trench breakers will be installed in the trench to stop water from flowing along the trench. Trench breakers will be water resistant and stabilized with material designed to resist water movement (e.g., sandbags, bentonite, non-toxic spray foam, etc.) so they will not be penetrated by water, eroded, or moved.

37. Wetland soils will be restored to their original profile to the extent possible. Up to 12 inches of topsoil will be segregated during construction through unsaturated wetlands. To reduce compaction and rutting, equipment will work on mats in wetlands, equipment will be limited to a single pass on a single travel lane through wetlands, and low-ground-pressure equipment will be used for construction through wetlands.

38. During restoration, topographic contours associated with aquatic resources similar to pre-construction conditions will be re-established without adding new drainage features that were not present prior to construction.

39. Invasive plant species are prohibited from use in the buffer zones along restored streams and in wetland restoration sites. Preventative measures will also be taken to inhibit invasive species from establishing in the vegetated buffer zones along the restoration areas during the monitoring period and until the permittee

is released from monitoring. Upon discovery of invasive species, the permittee will coordinate removal efforts with the Corps to determine and implement appropriate eradication techniques to ensure all invasive species are no more than 10% of the cumulative population within the tree, shrub, and herbaceous layer. The use of tubes (i.e., Tubex), chicken wire, hardware cloth, repellants, or other materials may be necessary to achieve succession requirements in areas with beaver, white tailed deer and other wildlife populations. Any placement of large woody debris will be native to the site or obtained locally (adjacent to the site).

THIRD-PARTY INSPECTOR

40. At the request of the U.S. Environmental Protection Agency (USEPA), the permittee will contract a qualified, third-party inspector(s) (Environmental Auditor) for work in the state of West Virginia to ensure monitoring, evaluation, and potential suggestions for remedial measures remain consistent throughout the entire project. The permittee will engage an Environmental Auditor to monitor the stream and wetland crossing activities and requirements following the same protocols and procedures as the Virginia requirement referenced by the USEPA. The permittee will submit a statement of qualifications for the Environmental Auditor to the WVDEP for its review and concurrence. The Environmental Auditor will be directed to submit an independent report to the WVDEP within 14 days after the completion of each wetland and waterbody crossing describing the in-stream biological conditions. The Environmental Auditor must be selected as described herein prior to conducting the regulated work otherwise authorized by this permit. The completed crossing reports will be available on the permittee's website. In addition to these requirements, the permittee will provide 48-hour advance notice to the WVDEP before beginning stream or wetland crossing activities.

41. As required by the VADEQ Virginia Wetlands Permit No. 21-0416 Special Condition K. 1., this permit incorporates by reference the conditions set forth in Section IV(b)(2) and Section IV(c) of the Consent Decree between Mountain Valley Pipeline, LLC and the VADEQ, dated December 11, 2019, requiring:
    a. An Environmental Auditor approved by the VADEQ to monitor stream and wetland crossing activities;
    b. An independent report submitted to the VADEQ by the Auditor within fourteen days after the completion of each wetland or waterbody crossing describing instream biological conditions;
    c. Posting of the report to the permittee's webpage;
    d. Forty-eight (48) hour advance notice to the VADEQ before any stream or wetland crossing activity.

    This condition does not prohibit and incorporated future changes, updates or alterations that are approved by the VADEQ without requiring the need to revise this DA permit authorization.

AS-BUILT RESTORED STREAMS AND WETLANDS

42. As-built channel surveys will be conducted to document the dimension, pattern and profile of the stream restoration areas. Permanent cross-sections will be established during this survey for use during future monitoring surveys. At a minimum, two (2) permanent cross-sections will be established in each stream restoration area. The as-built surveys will include photographic documentation at cross-sections and structures, and a plan view diagram.

43. As-built surveys will be conducted at each wetland restoration site to document the topography conditions, any inlet/outlet structures, and the location and extent of the designed plant community types. Within each community type, the survey will show the species planted. There will also be a soil profile description. This will be included in the first monitoring report and in subsequent reports if there are grading, soil modifications and/or additional plantings of different species in subsequent years.

MONITORING OF RESTORED STREAMS AND WETLANDS

44. The restoration monitoring period will commence after the first growing season following completion of the stream and wetland restoration activities. The restoration sites will be monitored for a minimum period of four (4) years or until data from successive monitoring periods indicate site stability and success criteria (performance standards) have been achieved.
    a. Baseline information will be collected on any streams where baseline information was not previously provided to the extent practicable.
    b. Annual evaluations will be performed to determine whether the restoration efforts are on track to meet performance standards, to allow for mid-course adjustments, and to report on any unanticipated benefits or problems as a result of the monitoring program. The information accumulated through this process will be used to adjust strategy periodically based on what has been learned;
    c. Monitoring reports must be submitted to and received by the Corps by December 31 of each year following the first full year of completion of the on-site restoration efforts;
    d. Annual monitoring reports must include details sufficient for an inspector to determine compliance with performance standards and to identify any required remedial actions. The reports must include the following information:
        i. Monitoring reports must be concise and effectively provide the information necessary to assess the status of the compensatory mitigation project. Reports must provide information necessary to describe the site conditions and whether the restoration activities are meeting the performance standards outlined in Special Condition 45;
        ii. Monitoring reports must include the Corps Permit Number;
        iii. Monitoring reports must include the name of party responsible for conducting the monitoring and the date(s) the inspection was conducted;
        iv. Monitoring reports must include a brief paragraph describing the purpose of the approved project, acreage and type of aquatic resources temporarily impacted and subsequently restored;
        v. Monitoring reports must include a written description of the location, any identifiable landmarks of each restoration area including information to locate the site perimeter(s), and coordinates of each restoration site (expressed as latitude, longitudes);
        vi. Monitoring reports must include dates the restoration activities commenced and/or were completed;
        vii. Monitoring reports will include an overview of site conditions and functions;
        viii. For stream hydrology, monitoring will be conducted to document that the flow maintains its pre-construction flow status (i.e., ephemeral, intermittent, and perennial). Wetland hydrology will be monitored to ensure that the site is inundated, or the water

table is less than or equal to 12 inches below the soil surface for 14 or greater consecutive days during the growing season.

ix. As indicated in the Mitigation Framework, additional inspection and restoration requirements are required for listed impaired streams in each state. Additionally, the permittee will apply the additional inspection and restoration requirements for streams that had a WVSCI score of 74.4 or less. The WVDEP currently uses a value of 72 (See West Virginia's Aquatic Life Use Assessment and Biological Stressor Identification Procedures – August 2021), but the 74.4 value has been suggested by the USEPA. **Attachment 14** (Table – list of Streams with WVSCI Scores below 74.4) includes those streams. Further, if additional streams crossed by the project are listed by the states during the duration of this project, these additional inspection and restoration requirements will also be applied to those newly listed streams.

x. Monitoring reports should list the monitoring requirements and performance standards, as specified in the approved *A Comprehensive Stream and Wetland Monitoring, Restoration and Mitigation Framework* dated 25 May 2023 and special conditions of the DA permit and evaluate whether each restoration site is successfully achieving the approved performance standards or trending towards success. A table is a recommended option for comparing the performance standards to the conditions and status of the developing restoration sites;

xi. Monitoring reports will also include appropriate supporting data to assist the Corps in determining how the restoration projects are progressing towards meeting the performance standards outlined in Special Condition 45 and/or potential challenges associated with the restoration activities. Photo documentation may be provided to support the findings and recommendations referenced in the monitoring report and to assist the Corps in assessing whether the restoration sites are meeting applicable performance standards for that monitoring period. Submitted photos should be formatted to print on a standard 8 ½" x 11" piece of paper, dated, and clearly labeled with the direction from which the photo was taken. The photo location points should also be identified on the appropriate maps;

xii. Maps should be provided to show the location each restoration site relative to other landscape features, habitat types, locations of photographic reference points, transects, sampling data points, and/or other features pertinent to the restoration plan. In addition, the submitted maps and plans should clearly delineate each restoration site perimeter(s), which will assist the Corps in locating the restoration area(s) during subsequent site inspections. Each map or diagram should be formatted to print on a standard 8" x 11" piece of paper and include a legend and the location of any photos submitted for review. As-built plans may be included.

xiii. A general statement should be included that describes the conditions of the restoration sites. If performance standards are not being met, a brief explanation of the difficulties and potential remedial actions proposed by the permittee, including a timetable, should be provided. The Corps will ultimately determine if each restoration site is successful for a given monitoring period;

xiv. If monitoring or other information indicates any of the restoration sites are not progressing towards meeting its performance standards as anticipated, the permittee must notify the Corps as soon as possible;

xv. The permittee must describe the observed problems at the restoration areas (i.e., any loss of wetland area from the baseline wetland extent, lack of defined stream bed and banks) and potential solutions and timetables to allow the restoration areas to reach their proposed functional status;

xvi. If an annual monitoring event identifies a stream or wetland that is not meeting the performance standards, the permittee will utilize adaptive management principles to develop a plan for remedial action. The proposed plan, including a description of the corrective actions and a timeline to implement them, will be included in the annual monitoring report submitted to the Corps, the WVDEP, and the VADEQ for review. If necessary, corrective actions and any associated supplemental monitoring may extend beyond the four (4)-year post-construction monitoring period. If it is determined that adaptive management has not been and is not likely to be successful in fully restoring an impacted resource, the permittee may propose, subject to approval by the Corps and relevant state agency, the WVDEP or the VADEQ, that additional compensatory mitigation credits or in-lieu-fee payments be provided.

xvii. Monitoring reports much include dates and descriptions of any recent corrective or maintenance activities conducted since the previous report submission. These actions may include, but are not limited to, removing debris, replanting, controlling invasive species, regrading the site, applying additional topsoil or soil amendments, adjusting site hydrology, etc. Remedial measures may be necessary to achieve or maintain achievement of the success criteria and otherwise improve the extent to which the restoration site(s) replace the functions and values lost due to project impacts;

xviii. Monitoring reports must include specific recommendations for any additional corrective or remedial actions'

xix. The Corps, in consultation with the permittee (and other federal, state and local agencies, as appropriate), will determine the appropriate measures (i.e., site modifications, design changes, revisions to maintenance requirements, and revised monitoring requirements) to ensure that the modified restoration efforts provide aquatic resource functions comparable to those described in the restoration plan objectives; and

xx. The permittee is responsible for implementing reasonable corrective measures recommended by the Corps.

e. Upon final wetland restoration, a delineation will be conducted at each restored wetland area using the Corps' 1987 Delineation Manual and applicable regional supplement to ensure hydrology, hydric soils, and hydric vegetation communities are similar to each original wetland.

PERFORMANCE STANDARDS FOR THE STREAM AND WETLAND RESTORATION AREAS

45. At the conclusion of the four (4)-year monitoring period, unless reduce due to performance measures being met earlier, the following performance standards must be met for the restoration areas.

Streams

a. Each restored stream must have similar physical characteristics to include substrate, pattern, profile, dimension, and embeddedness of each original stream channel.
b. The restoration stream segments, as listed below, must be successfully functioning at the level of ecological performance prescribed in the restoration plan (i.e., USEPA's Rapid Bioassessment Protocol [RBP], Hydrogeomorphic Method, West Virginia Stream Condition Index [WVSCI], WVSWVM, water quality parameters [i.e., dissolved oxygen, conductivity, pH]) and possess an ordinary high water mark, defined bed and bank, targeted flow regime and surface water connection to a tributary system of the U.S.
    i. Where baseline sampling is 100 microsiemens per centimeter (uS/cm) or less, the standard will be 300 uS/cm;
    ii. Where background or baseline sampling (from Mountain Valley's baseline sampling or from other reliable reference reach data) is under 500 uS/ cm, the standard will be 500 uS/cm;
    iii. Where background or baseline is over 500 uS/cm, the standard will be 110% of the existing baseline;
    iv. For pH, levels will meet the water-quality standards established at 47CSR2, 6.0-9.0 in all waters.
    v. For dissolved oxygen, levels will meet the water-quality standards established at 47CSR2, i.e., a minimum of 5.0 mg/l in B1 waters, a minimum of 6.0 mg/l in B2 waters, and a minimum of 7.0 mg/l in spawning areas of B2 waters.
    vi. Post-construction surveys for benthic macroinvertebrates will be conducted and compared to the West Virginia Stream Condition Index (WVSCI). It is anticipated that there will be variability in these results. However, the permittee would achieve baseline WVSCI scores by the fourth (4^{th}) annual monitoring event.
    vii. Sufficient stability, morphological characteristics and habitat, evidenced by increasing trend in RBP scores. The information collected from the first monitoring event will be compared to the second monitoring event to determine if RBP habitat scores are being maintained or improved based on baseline scores. The information collected from the second monitoring event will be compared to the third monitoring event and so forth to determine if RBP habitat scores are being maintained or improved based on baseline scores; and
    viii. The final WVSWVM score at the end of the four (4)-year monitoring period for each restored stream will be at least consistent with the pre-construction WVSWVM score. The post-construction WVSWVM score will be deemed consistent with the pre-construction score if the difference is attributable to a change in the value of one (1) or more input parameters that satisfy the respective performance standard for such parameters.
c. There must be little change in as-built cross sections. If changes do take place, they must be evaluated to determine if they represent a movement toward a more unstable condition (e.g., downcutting or erosion) or a movement toward increased stability (e.g., settling, vegetative changes, deposition along the banks, or decrease in width/depth ratio).

i. In the perennial streams, the stream cross-sectional area shall not increase or decrease by an amount greater than 25% of the baseline stream cross-sectional area.
ii. In the ephemeral and intermittent streams, the cross-sectional area shall be restored to a stable configuration based on the pre-construction contours and site conditions.

d. Longitudinal profiles will be completed to determine the stability of the bedform features. The pools must remain deep, with flat water surface slopes, and the riffles must remain steeper and shallower than the pools.
   i. The pool-to-pool spacing shall not increase or decrease by an amount greater than 25% of the baseline surveyed pool-to-pool spacing range when more than one (1) pool exists in the subject reach.
   ii. In the perennial streams, the maximum pool depth shall not increase or decrease by an amount greater than 50% of the baseline surveyed pool depth (measured to bankfull elevation).
   iii. In the ephemeral and intermittent streams, the maximum pool depth shall be restored to a stable configuration based on the pre-construction contours and site conditions.
   iv. The average slope of the riffle shall not increase or decrease by an amount greater than one tenth (0.1) of the slope determined by the baseline longitudinal survey or 0.4%, whichever is greater (e.g., a 4% baseline slope can allow a post-construction riffle slope of +/- 0.4%, or a range from 3.6% to 4.4%; a 1% baseline slope can allow a post-construction riffle slope of +/- 0.4%, or a range from 0.6% to 1.4%).
   v. The average slope of the reach shall not increase or decrease by an amount greater than one tenth (0.1) of the slope determined by the baseline longitudinal survey or 0.4%, whichever is greater.
   vi. Pebble count of each stream restoration area shall be the same category as the baseline conditions.
e. The permittee must maintain, to the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters (i.e., intermittent and perennial), unless specifically authorized otherwise by the Corps.
f. Buffer and riparian zones and other areas integral to the enhancement of the aquatic ecosystem must function as the intended type of ecosystem component and at the level of ecological performance prescribed in the restoration plan.
   i. Riparian areas having bare-root saplings planted must have a 70% survival rate. An enhanced 80% survival rate must be met at the areas having bare-root saplings planted at impaired waters crossings. Herbaceous vegetation by native non/invasive species shall achieve 70% coverage unless canopy coverage reaches 30%. Herbaceous vegetation by native non/invasive species achieving 80% coverage will be required at impaired waters crossings unless canopy coverage reaches 30%.
   ii. Invasive species shall be no more than 10% of the cumulative population within the tree, shrub, and herbaceous layer. The invasive species list for West Virginia is available on the West Virginia Division of Natural Resources website at http://wvdnr.gov/wp-content/uploads/2021/04/West-Virginia-Invasive-Species-Strategic-Plan-2014-FINAL.pdf. The invasive species list for Virginia is available at https://www.dcr.virginia.gov/natural-heritage/invsppdflist

Wetlands

a. The wetland restoration sites must be successfully functioning at the level of ecological performance prescribed in the restoration plan, i.e., hydric soils, hydrophytic vegetation, hydrology, and Lewis M. Cowardin et al. Classification.
b. More than 50% of all dominant herbaceous plant species shall be facultative (FAC) or wetter (facultative wetland [FACW] or obligate wetland [OBL]). Wetland vegetation dominance is defined as a vegetation community where more than 50% of all dominant species are FAC or wetter using "routine delineation methods" as described in the 1987 Manual and Regional Supplement to the Corps' Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0).
c. Invasive species shall be no more than 10% of the cumulative population within the tree, shrub, and herbaceous layer. The invasive species list for West Virginia is available on the West Virginia Division of Natural Resources website at http://wvdnr.gov/wp-content/uploads/2021/04/West-Virginia-Invasive-Species-Strategic-Plan-2014-FINAL.pdf. The invasive species list for Virginia is available at https://www.dcr.virginia.gov/natural-heritage/invsppdflist
d. Native or non-invasive herbaceous plant coverage shall be at least 70% by the end of the first growing season and subsequent monitoring years thereafter unless shrub and/or canopy/crown coverage is at least 30%.
e. For restored wetlands where wetland soils were previously sampled to a minimum depth of 12 inches, positive indicators of hydric soil formation (see Field Indicators of Hydric Soils in the United States, Version 8.2 (NRCS, 2018)) must be present by the conclusion of the monitoring period. For coarse-textured (sandy) surface soils, positive indicators of hydric soil formation must be demonstrated within six (6) inches of the soil surface. For fine-textured soils (silts, clays, loams), positive indicators of hydric soil formation must be demonstrated within 12 inches of the soil surface. Restored wetlands that had refusal at 12 inches or less should also exhibit hydric soil development by the conclusion of the monitoring period; however, as these locations can be seen as problematic, evaluation of wetland restoration should consider procedures found in Chapter 5 of the Regional Supplement to the Corps' Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0).
f. For all wetland restoration area, the hydric soil indicators will be based on the Eastern Mountains and Piedmont Regional Supplement.
g. The final WVSWVM score at the end of the four (4)-year monitoring period will be at least consistent with the pre-construction SWVM score. The post-construction SWVM score will be deemed consistent with the pre-construction score if the difference is attributable to a change in the value of one or more input parameters that satisfy the respective performance standard for such parameters, as determined by the Corps.

ON-SITE CORPS MEETING

46. The permittee will arrange an on-site meeting with the Corps during the growing season following submittal of the first (1st), third (3rd) and fourth (4th) year reports for the restoration areas, unless the permittee is released from monitoring earlier due to meeting performance standards. The purpose of the meeting is to determine if the restoration areas are functioning as expected.

47. The permittee's responsibility to complete the required stream and wetland restoration efforts will not be considered fulfilled until the permittee has demonstrated a sustainable level of restoration success and has received written verification from the Corps that the specific restoration areas meet the success criteria established in Special Condition 45 of the DA permit.

48. Following submittal of the fourth (4th) year monitoring report, unless reduced due to performance standards being met, a determination of the restoration success will be made by the Corps.
    a. If the performance standards have been achieved, the permittee will be released from future monitoring requirements. However, if success criteria have not been adequately met, the permittee may be required to implement contingency measure(s), including additional restoration, to ensure restoration efforts adequately restore temporarily affected streams and wetlands in association with the proposal as determined in the sole discretion of the District Engineer(s).
        i. Monitoring may be extended for a longer period if completed restoration is not functioning as predicted in the stream and wetland restoration plan.
        ii. Additionally, the permittee will purchase credits from an approved restoration bank/in-lieu fee program as determined by the Corps in the event the District Engineer determines that additional mitigation and monitoring would not ensure adequate restoration of temporarily affected waters of the U.S. The permittee assumes the primary financial responsibility for the implementation of the aforementioned mitigation requirements, and also for any corrective measures determined to be necessary.

MIGRATORY BIRD ACT AND FISH AND WILDLIFE COORDINATION ACT

49. Communication between the permittee and the Virginia Department of Wildlife Resources (VADWR) indicates that the closest observation of a peregrine falcon (*Falco peregrinus*) to the project area is over one (1) mile away. The VADWR noted this particular falcon, observed in the spring of 2015, was not likely to be breeding at the time. The VADWR conducted peregrine falcon surveys at the same location in 2016 and did not observe any falcons in the vicinity. Nonetheless, the VADWR has expressed concern regarding potential blasting by the permittee near the New River, where suitable peregrine falcon nesting habitat is present. The permittee must notify the VADWR of any plans for blasting within two (2) miles of the New River.

ENDANGERED SPECIES ACT

50. The permittee must follow conservation measures and refrain from clearing timber for construction of the MVP project as recommended by the U.S. Fish and Wildlife Service to avoid impacts on maternity colonies and non-flying juvenile little brown and tricolored bats.

51. The U.S. Fish and Wildlife Service (USFWS) Biological Opinion (BO) for the Mountain Valley Pipeline, LLC; Docket Number CP16-10-000; Project #05E2VA00-2016-F-0880 and #05E2WV00-2015-F-0046 dated 28 February 2023 (**Attachment 15**) contains mandatory terms and conditions to implement the reasonable and prudent measures that are associated with "incidental take" that is also specified in the USFWS BO. The DA permit are conditional upon its compliance with the BO, whose terms and conditions are special conditions, as listed below, of the DA permit. Section 7 obligations under the Endangered Species Act must be reconsidered if new information reveals the pipeline project may affect federally listed species or critical habitat in a manner not previously considered, the proposed pipeline project is subsequently modified to include activities which were not considered during Section 7 consultation with the USFWS, or new species are listed or critical habitat designated that might be affected by the subject pipeline project. The USFWS is the appropriate authority to determine compliance with the terms and conditions of its BO, and with the Endangered Species Act. This condition does not prohibit and incorporated future changes, updates or alterations that are approved by the USFWS without requiring the need to revise this DA permit authorization.

Table 11 – Listed species and critical habitat considered in the 2023 BO.

Species Name	Endangered Species Act Status	State
Virginia spiraea (*Spiraea virginiana*)	Threatened	West Virginia
Indiana bat (*Myotis sodalis*)	Endangered	Virginia West Virginia
Northern long-eared bat (*Myotis septentrionalis*)	Threatened[1]	Virginia West Virginia
Roanoke logperch (*Percina rex*)	Endangered	Virginia
Candy darter (*Etheostoma osburni*)	Endangered	Virginia West Virginia
candy darter critical habitat	Critical habitat	Virginia West Virginia

[1] On 30 November 2022, the Service published a final rule reclassifying the northern long-eared bat from threatened to endangered (87 FR 73488). The reclassification became effective 31 March 2023 (88 FR 4908). See the Environmental Baseline section in the 2023 BO for an explanation of treatment of northern long-eared bat.

Table 12 – Stream crossing locations and methods related to federally listed aquatic species.

Species	Stream Name	Stream ID	MP	County, State	Project Feature	Change in Crossing Location (ft)	Time of Year Restriction Start/End	2017 Biological Assessment Crossing Method	Current Crossing Method / Completion Status
Roanoke logperch	North Fork Roanoke River	S-G36	227.2	Montgomery, Virginia	Access Road 1	0	1-October / 30-Jun	fill/culvert	temporary, single-span bridge / installed
Roanoke logperch	North Fork Roanoke River1	S-G36	227.2	Montgomery, Virginia	Pipeline Centerline	0	1-October / 30-June	open-cut, dry-ditch	open-cut, dry- ditch crossing / completed in 2018
Roanoke logperch	Bradshaw Creek1	S-C21	230.9	Montgomery, Virginia	Pipeline Centerline	0	1-October / 30-June	open-cut, dry-ditch	conventional bore / pending
Roanoke logperch	Roanoke River	S- NN16	235.6	Roanoke, Virginia	Pipeline Centerline	0	15-March / 30-June	open-cut, dry-ditch	Microtunnel / pending
Roanoke logperch	Pigg River	S-E11	289.2	Pittsylvania, Virginia	Pipeline Centerline	16	15-March / 30-June	open-cut, dry-ditch	horizontal directional drilling / completed in 2019
Roanoke logperch	Harpen Creek1	S-C3	290	Pittsylvania, Virginia	Pipeline Centerline	9.8	15-March / 30-June	open-cut, dry-ditch	conventional bore / pending
Roanoke logperch	North Fork Roanoke River	S- GH16	231.7	Montgomery, Virginia	AR2	0	1-October / 30-June	temporary fill	single-span bridge / existing structure
candy darter	Gauley River	S-J29	118.9	Nicholas, West Virginia	Pipeline Centerline	0	1-July / 31-March	open-cut, dry-ditch	microtunnel / pending
candy darter	Stony Creek	S-S5	200.45	Giles, Virginia	Pipeline Centerline	0	15-August / 31-July	open-cut, dry-ditch	guided conventional bore/pending

Note:

1 ACMRR/IABO Working Party on Ecological Indices of Stress to Fishery Resources. 1976. Indices for measuring responses of aquatic ecological systems to various human influences. Fisheries Technical Paper 151,Rome, Italy.

a. **Reasonable and Prudent Measures**

<u>Indiana bat</u>

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

• Submit site-specific plans for all blasting activities proposed within 0.5 mile of any known or assumed occupied hibernacula.
• Conduct future tree removal activities outside of critical spring staging/fall swarming periods in unknown use spring staging/fall swarming habitat.

Northern long-eared bat

• Provide information to individuals involved in project construction on how to avoid and minimize potential effects to the northern long-eared bat.
• Submit site-specific plans for all blasting activities proposed within 0.5 mile of any known or assumed occupied hibernacula.
• Conduct future tree removal activities outside of critical spring staging/fall swarming periods in unknown use spring staging/fall swarming habitat.

Roanoke logperch

• Provide information to individuals involved in project construction on how to avoid and minimize potential effects to the Roanoke logperch.
• Conduct construction in a manner that minimizes disturbance to Roanoke logperch.
• Minimize and monitor incidental take caused by elevated suspended sediment concentration/turbidity and sedimentation due to construction activities.

Candy darter

• Provide information to individuals involved in project construction on how to avoid and minimize potential effects to the candy darter.
• Conduct construction in a manner that minimizes impacts to candy darter.
• Minimize and monitor incidental take caused by elevated suspended sediment concentration/turbidity and sedimentation due to construction activities.

b. **Terms and Conditions**

Indiana bat

1. Prior to initiation of on-site work, notify all prospective employees, operators, and contractors about the presence and biology of the Indiana bat, special provisions necessary to protect the Indiana bat, activities that may affect the Indiana bat, and ways to avoid and minimize these effects. This information can be obtained by reading Indiana bat-related information in this Opinion or a fact sheet containing this information can be created and provided by the FERC or the permittee.
2. A mechanism for preservation of the Braxton County conservation property must be in place prior to completion of project construction or on a date mutually agreed upon with the Service. Contact the West Virginia Field Office (FW5_WVFO@fws.gov) regarding Service approval.

3. Finalize the Memorandum of Understanding regarding federally listed bat mitigation prior to the completion of project construction. Contact the West Virginia Field Office (FW5_WVFO@fws.gov) and Virginia Field Office (sumalee_hoskin@fws.gov) regarding Service review and approval.
4. Prior to initiation of any blasting activities within 0.5 mile of any known or assumed occupied hibernacula, the permittee will provide site-specific blasting plans to the Service and the FERC for review and approval.
5. Avoid conducting future tree removal activities within unknown use spring staging/fall swarming habitat during April and October, whenever possible.
6. Adhere to the monitoring and reporting requirements for the Indiana bat detailed below.

Northern long-eared bat

1. Prior to initiation of on-site work, notify all prospective employees, operators, and contractors about the presence and biology of the northern long-eared bat, special provisions necessary to protect the northern long-eared bat, activities that may affect the northern long-eared bat, and ways to avoid and minimize these effects. This information can be obtained by reading northern long-eared bat-related information in this Opinion or a fact sheet containing this information can be created and provided by the FERC or the permittee.
2. A mechanism for preservation of the Braxton County conservation property must be in place prior to completion of project construction or on a date mutually agreed upon with the Service. Contact the West Virginia Field Office (FW5_WVFO@fws.gov) regarding Service review and approval.
3. Finalize the Memorandum of Understanding regarding federally listed bat mitigation prior to the completion of project construction. Contact the West Virginia Field Office (FW5_WVFO@fws.gov) and Virginia Field Office (sumalee_hoskin@fws.gov) regarding Service review and approval.
4. Prior to initiation of any blasting activities within 0.5 mile of any known or assumed occupied hibernacula, the permittee will provide site-specific blasting plans to the Service and the FERC for review and approval.
5. Avoid conducting future tree removal activities within unknown use spring staging/fall swarming habitat during April and October, whenever possible.
6. Adhere to the monitoring and reporting requirements for the northern long-eared bat detailed below.

Roanoke logperch

1. Prior to initiation of on-site work, notify all prospective employees, operators, and contractors about the presence and biology of the Roanoke logperch, special provisions necessary to protect the Roanoke logperch, activities that may affect the Roanoke logperch, and ways to avoid and minimize these effects. This information can be obtained by reading Roanoke logperch-related information in this Opinion or a fact sheet containing this information can be created and provided by the FERC or the permittee.
2. Use the most non-lethal technique first when removing fish from the instream workspaces.
3. Construct temporary dam structures (North Fork Roanoke River 1 (MP 227.2, Stream ID S-G36)) using non-erodible materials. Remove temporary dam structures in their entirety upon project completion. This requirement has been fulfilled.

4. Fill any sandbags used in temporary dam structures with clean sand and no other materials. All sandbags must be new with no prior use and must be removed at the time of temporary dam structure removal. This requirement has been fulfilled.
5. Build temporary dam structures to a height, strength, and configuration to resist no less than normal peak daily flows. All construction within suitable habitat for the species must take place outside of the Roanoke logperch time of year restrictions.
6. Minimize instream foot traffic in Roanoke logperch watersheds during construction.
7. Vehicles or construction equipment may not enter waterbodies with suitable Roanoke logperch habitat, except within temporary dam structures.
8. Inspect all vehicles for leaks immediately prior to instream or temporary dam structure work (North Fork Roanoke River 1 (MP 227.2, Stream ID S-G36). This requirement has been fulfilled.
9. Prior to work in Roanoke logperch watersheds, repair any leaks and clean construction vehicles thoroughly to remove any residual dirt, mud, debris, grease, motor oil, hydraulic fluid, coolant, or other hazardous substances from construction vehicles. Inspections, repairs, cleaning, and/or servicing will be conducted either before the vehicle, equipment, or machinery is transported into the field or at the work site within the staging area. All wash-water runoff and/or harmful materials will be appropriately controlled to prevent entry into the waterbody, including the riparian zone.
10. Adhere to the monitoring and reporting requirements for the Roanoke logperch detailed below.

Candy darter

1. Prior to initiation of on-site work, notify all prospective employees, operators, and contractors about the presence and biology of the candy darter, special provisions necessary to protect the candy darter, activities that may affect the candy darter, and ways to avoid and minimize these effects. This information can be obtained by reading candy darter-related information in this Opinion or a fact sheet containing this information can be created and provided by the FERC or the permittee.
2. Construct temporary dam structures in candy darter watersheds (Stony Creek and Gauley River) using non-erodible materials. Remove temporary dam structures in their entirety upon project completion.
3. Fill any sandbags used in temporary dam structures with clean sand and no other materials. All sandbags must be new with no prior use and must be removed at the time of temporary dam structure removal.
4. Build temporary dam structures to a height, strength, and configuration to resist no less than normal peak daily flows.
5. Minimize instream foot traffic in candy darter watersheds during construction.
6. Inspect all vehicles for leaks immediately prior to instream or cofferdam work in candy darter watersheds (Stony Creek and Gauley River). Repair any leaks and clean construction vehicles thoroughly to remove any residual dirt, mud, debris, grease, motor oil, hydraulic fluid, coolant, or other hazardous substances from construction vehicles. Inspections,
repairs, cleaning, and/or servicing will be conducted either before the vehicle, equipment, or machinery is transported into the field or at the work site within the staging area. All wash-water runoff and/or harmful materials will be appropriately controlled to prevent entry into the waterbody, including the riparian zone.
7. Adhere to the monitoring and reporting requirements for the candy darter detailed below.

c. **Monitoring and Reporting Requirements**

Care must be taken in handling any dead specimens of proposed or listed species to preserve biological material in the best possible state. In conjunction with the preservation of any dead specimens, the finder has the responsibility to ensure that evidence intrinsic to determining the cause of death of the specimen is not unnecessarily disturbed. The finding of dead specimens does not imply enforcement proceedings pursuant to the Endangered Species Act. The reporting of dead specimens is required to enable the Service to determine if take is reached or exceeded and to ensure that the terms and conditions are appropriate and effective. Upon locating a dead specimen, notify the Service's Virginia Law Enforcement Office at 804-771-2883 and Virginia Field Office at the phone number provided below or at 804-693-6694.

Indiana bat

1. The FERC or the permittee shall notify the Service regarding the projected and actual re-start dates, progress, and completion of the project and verify that the acres of clearing identified in Table 31 of the BO was not exceeded and all conservation measures were followed. Provide a report containing this information by 31 December of each year until construction is complete to the West Virginia Field Office (FW5_WVFO@fws.gov) and Virginia Field Office (sumalee_hoskin@fws.gov).
2. Monitor Indiana bat activity around Greenville Saltpeter Cave and Tawney's Cave to assess status of Indiana bats in the fall swarming/spring staging areas. Two weeks prior to the start of tree clearing place acoustic monitors outside the entrance of each cave (i.e., Greenville Saltpeter Cave, Tawney's Cave). Monitors will remain in place until completion of two (2) hibernating seasons post-construction. The raw acoustic monitoring data will be evaluated to identify bats to species using Service approved (https://www.fws.gov/media/automated-acoustic-bat-id-software-programs) acoustical detection software. All potential *Myotis* species detections shall be manually vetted by a qualified expert. A report of this analyzed acoustic data shall be provided to the Service that identifies bat calls to species at each hibernaculum, includes an analysis of trends in activity by all species (not only Indiana bat and northern long-eared bat) at the known hibernacula, and provides a discussion on the potential changes in bat activity trends and any potential causes. Provide a report, every year on 30 March to the West Virginia Field Office (FW5_WVFO@fws.gov) and Virginia Field Office (sumalee_hoskin@fws.gov). In the event additional time is necessary to complete manual vetting, inform the Service prior to the end of the reporting period how much additional time is needed to provide the report. Raw acoustic data shall be retained by the permittee for seven (7) years post-construction and made available to the Service upon request.
3. Raw acoustic monitoring data collected to date around Greenville Saltpeter Cave and Tawney's Cave in the fall swarming/spring staging areas shall be evaluated to identify bats to species using Service approved (https://www.fws.gov/media/automated-acousticbat-id-software-programs) acoustical detection software and all potential *Myotis* species calls/detections shall be manually vetted by a qualified expert. A report of this analyzed acoustic data shall be provided to the Service that identifies bat calls to species at each hibernaculum, includes an analysis of trends in bat activity by all species (not only Indiana bat and northern long-eared bat) at the known hibernacula, and provides a discussion on the potential changes in bat activity trends and any potential causes. The report shall be provided by

30 March 2024, to the West Virginia Field Office (FW5_WVFO@fws.gov) and Virginia Field Office (sumalee_hoskin@fws.gov).

Northern long-eared bat

1. The FERC or the permittee shall notify the Service regarding the projected and actual re-start dates, progress, and completion of the project and verify that the acres of clearing in Table 32 was not exceeded and all conservation measures were followed. Provide a report containing this information by 31 December of each year until construction is complete to the West Virginia Field Office (FW5_WVFO@fws.gov) and Virginia Field Office (sumalee_hoskin@fws.gov).
2. Monitor northern long-eared bat activity around Greenville Saltpeter Cave, Canoe Cave, Tawney's Cave, PS-WV3-Y-P1, Laurel Creek Cave, and Clover Hollow Cave to assess status of northern long-eared bats in the fall swarming/spring staging areas. Two weeks prior to the start of tree clearing place acoustic monitors outside the entrance of each cave (i.e., Greenville Saltpeter Cave, Canoe Cave, Tawney's Cave, PS-WV3-Y-P1, Laurel Creek Cave, and Clover Hollow Cave). Monitors will remain in place until completion of two (2) hibernating seasons postconstruction. The raw acoustic monitoring data will be evaluated to identify bats to species using Service approved (https://www.fws.gov/media/automated-acoustic-bat-idsoftware-programs) acoustical detection software. All potential *Myotis* species detections shall be manually vetted by a qualified expert. A report of this analyzed acoustic data shall be provided to the Service that identifies bat calls to species at each hibernaculum, includes an analysis of trends in activity by all species (not only Indiana bat and northern long-eared bat) at the known hibernacula, and provides a discussion on the potential changes in bat activity trends and any potential causes. Provide a report, every year on 30 March to the West Virginia Field Office (FW5_WVFO@fws.gov) and Virginia Field Office (sumalee_hoskin@fws.gov). In the event additional time is necessary to complete manual vetting, inform the Service prior to the end of the reporting period how much additional time is needed to provide the report. Raw acoustic data shall be retained by the permittee for seven (7) years post-construction and made available to the Service upon request.
3. Raw acoustic monitoring data collected to date around Greenville Saltpeter Cave, Canoe Cave, Tawney's Cave, and PS-WV3-Y-P1, Laurel Creek Cave, and Clover Hollow Cave in the fall swarming/spring staging areas shall be evaluated to identify bats to species using Service approved (https://www.fws.gov/media/automated-acoustic-bat-id-software programs) acoustical detection software and all potential *Myotis* species calls/detections shall be manually vetted by a qualified expert. A report of this analyzed acoustic data shall be provided to the Service that identifies bat calls to species at each hibernaculum, includes an analysis of trends in bat activity by all species (not only Indiana bat and northern long-eared bat) at the known hibernacula, and provides a discussion on the potential changes in bat activity trends and any potential causes. The report shall be provided by 30 March 2024, to the West Virginia Field Office (FW5_WVFO@fws.gov) and Virginia Field Office sumalee_hoskin@fws.gov).

Roanoke logperch

1. Any high water event that disturbs the construction site that introduces sediment or other materials, including failure or overtopping of temporary dam structures or disturbance of a bridge over Roanoke logperch occupied streams, must be reported to the Service (804) 824-2426 or within 24 hours.
2. Any spills of motor oil, hydraulic fluid, coolant, or similar fluids, not contained before entry into the action area, must be reported to the Service at the contact number/email provided below and National Response Center (800-424-8802) immediately.
3. Conduct a Roanoke logperch habitat assessment at North Fork Roanoke River crossings six (6) months after construction activities related to the crossing are completed to assess the status of the Roanoke logperch habitat. If the habitat assessment indicates Roanoke logperch habitat has not been restored, conduct an additional habitat assessment in six (6) months. Habitat assessments will be conducted within the ROW and 200 m upstream and 800 m downstream of the crossing site by a qualified surveyor(s). Provide a report containing raw data and summarized information from the habitat assessments at each site to the Virginia Field Office (sumalee_hoskin@fws.gov) within 30 days of completion of each habitat assessment. This requirement has been fulfilled.
4. Implement and adhere to the provisions of the monitoring plan detailed in Appendix F of the BO.
5. The FERC or the permittee shall notify the Service regarding the projected and actual start dates, progress, and completion of instream construction and verify that 503 m2 of river bottom disturbance was not exceeded and all conservation measures were followed. Provide a report containing this information by 31 December of each year until construction is complete to the Virginia Field Office at sumalee_hoskin@fws.gov.
6. After review and approval by the FERC and the Service, the permittee may discontinue monitoring, detailed in Appendix F of the BO, when sufficient vegetation has been re-established along the ROW within Roanoke logperch watersheds to prevent any likelihood of adverse effects on Roanoke logperch from suspended sediment/sedimentation (e.g., during the first growing season in the next calendar year after re-establishment of vegetation).
7. In addition to complying with the notification requirements detailed in the monitoring plan (Appendix F), the FERC or the permittee shall submit a monthly report to the Virginia Field Office at sumalee_hoskin@fws.gov, on or before the 15th of each month until the month after monitoring has been terminated, summarizing the prior month's activities under the monitoring plan and providing any monitoring data that has not previously been provided. The report shall document any refinements to the nephelometric turbidity unit conversions that will initially be based on Hyer et al. (2015) and shall identify the site-specific suspended sediment concentration data that form the basis for those refinements.
8. Within six (6) months of the termination of monitoring (Appendix F of the BO), the permittee shall submit a draft report to the FERC and the Service summarizing the monitoring data, with statistical analysis of the monitoring data. The FERC, the permittee, and the Service will agree to the contents of this report prior to submission of the draft report. A final report will be submitted within three (3) months following receipt of comments on the draft report.

Candy darter

1. Any high water event that disturbs the construction site that introduces sediment or other materials, including failure or overtopping of cofferdams, within the candy darter watershed must be reported to the Service at (804) 824-2426 or cindy_schulz@fws.gov within 24 hours.
2. Any spills of motor oil, hydraulic fluid, coolant, or similar fluids, not contained before entry into the action area, must be reported to the Service at the contact number/email provided below and National Response Center (800-424-8802) immediately.
3. Implement and adhere to the provisions of the monitoring plan detailed in Appendix F of the BO.
4. The FERC or the permittee shall notify the Service regarding the projected and actual start dates, progress, and completion of instream construction and all conservation measures were followed. Provide a report containing this information by December 31 of each year until construction is complete to the Virginia Field Office at jordan_richard@fws.gov.
5. After review and approval by the FERC and the Service, the permittee may discontinue monitoring, detailed in Appendix F, when sufficient vegetation has been re-established along the ROW within candy darter watersheds to prevent any likelihood of adverse effects on candy darter from suspended sediment/sedimentation (e.g., during the first growing season in the next calendar year after re-establishment of vegetation).
6. In addition to complying with the notification requirements detailed in the monitoring plan (Appendix F), the FERC or the permittee shall submit a monthly report to the Virginia Field Office at jordan_richard@fws.gov, on or before the 15th of each month until the month after monitoring has been terminated, summarizing the prior month's activities under the monitoring plan and providing any monitoring data that has not previously been provided. The report shall document any refinements to the nephelometric turbidity unit conversions that will initially be based on Hyer et al. (2015), and shall identify the site-specific suspended sediment concentration data that form the basis for those refinements.
7. Within six (6) months of the termination of monitoring (Appendix F), the permittee shall submit a draft report to the FERC and the Service summarizing the monitoring data, with statistical analysis of the monitoring data. The FERC, the permittee, and the Service will agree to the contents of this report prior to submission of the draft report. A final report will be submitted within three (3) months following receipt of comments on the draft report.

FRESHWATER MUSSELS

52. The proposed activity could potentially harm freshwater mussels inhabiting the project site (**Attachment 16**). To protect these mussel populations, prior to any in-water work, a professional malacologist must collect and relocate the mussels to suitable and similar habitat upstream of the project site. Should federal listed species be encountered, the work must cease and the FERC and the USFWS must be contacted for consultation. Any juvenile and adult specimens must be located to an acceptable location, as approved by the WVDNR, VADWR and the USFWS. Individual adult mussel specimens must be marked when relocated. Juveniles are not to be marked.

NATIONAL HISTORIC PRESERVATION ACT

53. The permittee shall comply with all stipulations and terms relevant to the permittee's responsibilities under the National Historic Preservation Act listed in the *Programmatic Agreement among the Federal Energy Regulatory Commission, U.S. Department of the Interior Bureau of Land Management And National Park Service, U.S. Department Of Agriculture Forest Service, U.S Army Corps Of Engineers, the State Historic Preservation Offices for West Virginia And Virginia, and the Advisory Council on Historic Preservation regarding the Mountain Valley Project (FERC Docket No. CP16-10-000)* (**Attachment 17**) executed on December 15, 2017 and any subsequent amendments to the programmatic agreement.

SECTION 10 ONLY

54. The permittee's activity must not interfere with the public's right to free navigation on navigable waters of the U.S. (Section 10 waters) except that temporary interference is authorized provided the permittee submit for Corps approval a plan to warn recreational boaters and fishermen of the location of the pipeline crossing and provide a location for safe portage around the crossing activities.

55. Clearing of riparian vegetation along the riverbanks of the Blackwater River, Elk River, the Gauley River, the Roanoke River and the Greenbrier River shall be minimized to the extent necessary to conduct the authorized activities.

56. The permittee must install and maintain, at the Permittee's expense, any safety lights and signals prescribed by the U.S. Coast Guard (USCG), through regulations or otherwise, on the Permittee's authorized facilities.

57. The permittee understands and agrees that, if future operations by the U.S. require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the U.S. No claim shall be made against the U.S. on account of any such removal or alteration.

AS-BUILT DRAWINGS AND ENVIRONMENTAL REVIEW MEETINGS

58. As-built drawings will be furnished to the Corps within sixty (60) calendar days of completion of construction showing the location and configuration, as well as all pertinent dimensions and elevations of each project component authorized under the DA permit. If construction spans over multiple years, annual as-built drawings showing increment progress over the preceding year will be submitted in conjunction with the annual reporting requirements of Special Condition 44.

59. The permittee shall submit a signed compliance certification to the Corps within sixty (60) calendar days following completion of the authorized work and any required mitigation. The certification will include: 1) A copy of this permit; 2) A statement that authorized work was done in accordance with the Corps authorization, including any general or specific conditions; 3) A statement that any required mitigation was

completed in accordance with the permit conditions; 4) The signature of the permittee certifying the completion of the work and mitigation.

60. The permittee shall be responsible for scheduling environmental review meetings with the Corps to periodically review the environmental compliance of the project with respect to the DA permit. Meetings shall be scheduled to occur annually and not later than June 30th of each year. No later than 30 days prior to the scheduled date of the environmental review meeting, the permittee shall provide a project status update to the Corps that contains the following information:

    a. A shapefile showing completed work at the project sites;
    b. Status of the project including details on discharges authorized by the permit as well as restoration of temporarily affected waters of the U.S.;
    c. Status of the permittee's compliance with special conditions of the DA permit; and
    d. Status of activities completed under state permits and any modifications, approvals, non-compliance, or other agency actions associated with these permits and/or approvals since the previous environmental review meeting.

61. When the structures or work authorized by this DA permit are still in existence at the time the property is transferred, the terms and conditions of this DA permit will continue to be binding on the new owner(s) of the property. The permittee shall notify the Corps' thirty (30) calendar days prior to any transfer of the DA permit.

62. Submittals to each respective Corps' district will be provided to the following addresses or emails:

    U.S. Army Corps of Engineers, Huntington District
    ATTN: Regulatory Division
    502 Eighth Street
    Huntington, West Virginia 25701-2070
    Phone: (304) 399-5610
    Fax: (304) 399-5805
    LRH.permits@usace.army.mil

    U.S. Army Corps of Engineers, Pittsburgh District
    ATTN: Regulatory Division
    William S. Moorhead Federal Building
    1000 Liberty Avenue
    Pittsburgh, Pennsylvania 15222-4186
    Phone: (412) 395-7155
    Fax: (412) 644-4211
    Regulatory.Permits@usace.army.mil

U.S Army Corps Of Engineers, Norfolk District
ATTN: Vincent Pero
Fort Norfolk
803 Front Street
Norfolk Virginia 23510-1011
Phone: (757)297-0011
CENAO-.REG_ROD@usace.army.mil

The documents submitted electronically must not exceed 10 megabytes (10MB) per email. Multiple emails may be required to transmit documents to ensure the 10MB limit is not exceeded. Alternatively, use of the Department of Defense Secure Access File Exchange (DoD SAFE) service to transfer large files may be requested in your email.

For tracking and processing purposes, the email should include the following:

o Email Subject Line: include the name of the permittee, and type of document submitted; and
o Email Body: 1) Brief description of the submitted information, and 2) contact information (phone number, mailing address, and email address) for the permittee and/or their agent.