WEST VIRGINIA GENERAL WATER POLLUTION CONTROL PERMIT FOR STORMWATER ASSOCIATED WITH OIL AND GAS CONSTRUCTION ACTIVITY
(WV PERMIT NO. WV0116815)

Dominion Transmission, Inc.
Stormwater Pollution Prevention Plan (SWPPP)

ATLANTIC COAST PIPELINE –
HARRISON, LEWIS, UPSHUR, RANDOLPH, AND POCAHONTAS COUNTIES,
WEST VIRGINIA

Planned Construction Start Date: November 2017

Planned Construction Completion Date: December 2019

Construction Supervisor: _____

Telephone: _____

Project Manager (signature): _____

Construction Contractor (signature): _____

Environmental Inspector (signature): _____

NOTE:
THIS PLAN MUST BE KEPT AT THE CONSTRUCTION SITE DURING WORKING HOURS

SWPPP Prepared:
March 2017
Prepared by: Environmental Resources Management, Inc.

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Section numbering corresponds to the online site registration application form.
Sections 1 through 7 are to be completed online.

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AASHTO	American Association of State Highway and Transportation Officials
ACP	Atlantic Coast Pipeline
Atlantic	Atlantic Coast Pipeline, LLC
ATWS	additional temporary workspace
BA	Biological Assessment
BE	Biological Evaluation
BIC	Best-in-Class
BMP	best management practice
BSRF	Belted Silt Retention Fence
COM Plan	Construction, Operations, and Maintenance Plan
CS	compressor station
DTI	Dominion Transmission, Inc.
EI	Environmental Inspector
EPA	U.S. Environmental Protection Agency
ERM	Environmental Resources Management, Inc.
ESC	Erosion and Sediment Control
ESCP	Erosion and Sediment Control Plan
FERC Plan	FERC Upland Erosion Control, Revegetation, and Maintenance Plan
FERC Procedures	FERC Wetland and Waterbody Construction and Mitigation Procedures
FERC	Federal Energy Regulatory Commission
GPP	Groundwater Protection Plan
HDD	horizontal directional drill
HUC	hydrologic unit code
IC	Incremental Controls
LOD	limit of disturbance
M&R	metering and regulating
MLRA	Major Land Resource Area
MNF	Monongahela National Forest
NOAA Fisheries	National Oceanic and Atmospheric Administration, National Marine Fisheries Service
NOT	Notice of Termination
NPDES	National Pollutant Discharge Elimination System
Project	Atlantic Coast Pipeline Project
RECP	Rolled Erosion Control Products
RFSS	Regional Forester Sensitive Species
ROW	right-of-way
SDS	Safety Data Sheet
SPCC	Spill Prevention, Control, and Countermeasures
SSD	Site-Specific Designs
SWPPP	Stormwater Pollution Prevention Plan
TD	Typical Designs
TMDL	Total Maximum Daily Load
TRM	Turf Reinforcement Mat
USFS	U.S. Forest Service

USFWS	U.S. Fish and Wildlife Service
WV BMP Manual	West Virginia Erosion and Sediment Control Best Management Practice Manual
WVDCH	West Virginia Division of Culture and History
WVDEP	West Virginia Department of Environmental Protection
WVDNR	West Virginia Division of Natural Resources

EXECUTIVE SUMMARY

The purpose of this Stormwater Pollution Prevention Plan (SWPPP) with Site-Specific Erosion and Sediment Control Plan (ESCP) is to present procedures that will be followed during the Atlantic Coast Pipeline (ACP or Project) construction activities to minimize adverse impacts due to sedimentation and potential environmental pollutants resulting from stormwater runoff, and to reduce potential sediment and environmental pollutant runoff after Project completion. Atlantic Coast Pipeline, LLC (Atlantic) is proposing to develop, own, and operate approximately 600 miles of interstate natural gas transmission pipeline and associated laterals in West Virginia, Virginia, and North Carolina as shown in Figure 1 of Appendix A. Atlantic is seeking authorization from the Federal Energy Regulatory Commission (FERC) under Section 7(c) of the Natural Gas Act to construct, own, operate, and maintain the proposed facilities for the ACP system.[1]

This plan was prepared in accordance with guidelines for the West Virginia General Water Pollution Control Permit for Stormwater Associated with Oil and Gas Related Activities (Permit No. WV0116815), the *West Virginia Erosion and Sediment Control Best Management Practice Manual* (WV BMP Manual) (2016), as amended, and the West Virginia Department of Environmental Protection's (WVDEP) Construction Stormwater Web Site, accessed online at: http://www.dep.wv.gov/WWE/Programs/stormwater/csw/Pages/home.aspx. In geographic areas where multiple overlapping regulatory requirements and guidelines apply, Dominion Transmission, Inc. (DTI) selected the more stringent or protective of the requirements and guidelines set forth by FERC, WVDEP, and where applicable, the U.S. Forest Service (USFS). In addition, incremental controls above and beyond regulatory requirements will be implemented during construction in steep slope terrain to mitigate hazards associated with potential slope instability. Appendix B provides a table indicating the FERC regulatory requirements and where more stringent or protective requirements will be used during construction.

This SWPPP, with ESCP, was prepared by Environmental Resources Management, Inc. (ERM). Personnel at all levels of responsibility will be trained regarding the components and goals associated with this SWPPP and Groundwater Protection Plan (GPP), addressing topics including spill response, good housekeeping, and routine inspection. The initial training is to be conducted at the Project kick-off meeting and refreshed quarterly for the length of the Project. Training records will be maintained on site for review by the WVDEP director or representative. Records will be kept for a minimum of two years after the Notice of Termination (NOT) has been submitted and accepted by WVDEP. Company personnel must be identified to inspect the Project as set forth under Section G.4.e.2.D of the Permit. A tracking procedure must be used to ensure that adequate corrective actions have been taken in response to deficiencies identified during an inspection. Records of inspection must be maintained on site for review by the director or the director's representative. Incidents such as spills, leaks, and improper dumping, along with other information describing the quality and quantity of stormwater discharges will be

[1] Atlantic is also requesting a Blanket Certificate of Public Convenience and Necessity pursuant to Part 284, Subpart G, of FERC's regulations authorizing open-access transportation of natural gas for others with pre-granted abandonment authority, and a Blanket Certificate of Public Convenience and Necessity pursuant to Part 157, Subpart F, of the FERC's regulations authorizing certain facility construction and operation, certain certificate amendments and abandonments.

included in the records. A GPP has been prepared and is included in Appendix C of this SWPPP.

All SWPPPs and GPPs required under this permit are considered public domain reports and will be made available for review by the public within a reasonable timeframe upon request. Nothing in this SWPPP shall be construed as relieving the responsibility for compliance with all applicable federal, state, or local statutes, ordinances or regulations.

The SWPPP has a specific role in protecting the State's waters, promoting the proper management of on-site materials, and serves as a resource document for emergency response and pollution prevention, as well as a technical resource for SWPPP training. This SWPPP covers two primary areas of responsibility. These responsibilities are:

1. Compliance Responsibilities – involve the overall responsibility to implement this SWPPP and includes areas such as training, maintenance, and inspection programs mandated by the SWPPP and permit regulatory requirements. This responsibility also includes the permitting, inspection, and documentation identified in this Plan.

2. Release Response Responsibilities – involve the development of a release response organization, release response procedures, and identification of specified actions to be taken by employees in the event of a release.

The purpose of the SWPPP is to establish management and technical practices designed to avoid or minimize the contact between pollutants and surface water as a result of a release or improper waste disposal. Furthermore, the specific goals in developing the SWPPP components are:

1. to identify potential sources of pollution and source materials on site which may reasonably be expected to affect the quality of stormwater discharges associated with construction activity;

2. to describe and ensure that practices are implemented to eliminate and/or reduce pollutants from source materials in stormwater discharges associated with construction activity; and

3. to promote compliance with the terms and conditions of the General Water Pollution Control Permit for Stormwater Associated with Oil and Gas Related Construction Activities.

The SWPPP provides procedures and practices to be implemented during the construction phase of the Project. A separate SWPPP will be developed, as necessary, for post-construction operation of aboveground facilities in compliance with applicable stormwater regulatory requirements associated with industrial activities.

If at any time the WVDEP notifies DTI that minimum SWPPP requirements are not met, DTI will have 30 days to make the necessary changes and certify in writing to the WVDEP that the changes have been made. Additionally, the SWPPP must be modified as necessary to

include additional or modified best management practices (BMPs) designed to correct specific problems identified. These adaptive management requirements are designed to result in permit compliance and prevent or minimize stormwater discharges that could cause a violation of state water quality or groundwater protection standards. The SWPPP must also be modified whenever there is a change in design, construction, operation, or maintenance at the construction site that has, or could have, a significant effect on the discharge of pollutants to waters of the state. A SWPPP revision form is included as Appendix D.

A copy of this SWPPP must be available on site at all times for the review by WVDEP personnel. If requested, WVDEP personnel will be afforded access to the construction premises to review practices and operations regulated under the General Permit and review records required to be maintained by this permit.

8.0 RECEIVING STREAM(S)[2]

The proposed Project will cross several watersheds within West Virginia. Table 8-1 lists the watersheds crossed by the 8-digit hydrologic unit code (HUC). The location of all waterbodies located within and adjacent to the Project footprint is shown on the Construction Alignment Sheets, Drawing Set #1.

TABLE 8-1

Watersheds Crossed by the Atlantic Coast Pipeline in West Virginia

Pipeline Segment/Regional Watershed/ Sub-Region	Hydrologic Unit Code (HUC) - 8/ Subbasin Name	Approximate Mileposts [b]	County/City and State
ATLANTIC COAST PIPELINE			
AP-1			
Ohio Regional Watershed			
Monongahela	05020002/West Fork	0.0 – 21.1, 24.9 – 25.0, and 26.3 – 27.1	Harrison, Lewis, Upshur, and Randolph Counties, WV
	05020001/Tygart Valley	21.1 – 24.9, 25.0 – 26.3, 27.1 – 56.2, and 64.6 – 66.1	
Kanawha	05050007/Elk	56.2 – 63.6, 66.1 – 71.6	Randolph and Pocahontas County, WV
	05050003/Greenbrier	71.6 – 83.9	

The proposed ACP facilities in West Virginia are located within the Monongahela and Kanawha sub-regions of the Ohio Regional Watershed. The name, milepost crossing point, flow regime, crossing width, crossing method, and stream classifications for waterbodies crossed by the ACP in West Virginia are included in Appendix E. The name, milepost, 6-digit HUC and 8-digit HUC codes for receiving streams of the ACP in West Virginia are included in Appendix F. The locations of the facilities and waterbodies are shown on maps, included in Figure 2 and Figure 3 of Appendix A, with details provided on the Construction Alignment Sheets, Drawing Set #1.

If receiving waters are identified as having a U.S. Environmental Protection Agency (EPA) Total Maximum Daily Load (TMDL), additional monitoring or BMPs will be implemented as required by WVDEP. Table 8-2 summarizes the identified impaired waterbodies crossed by the Project in West Virginia. There are thirteen (13) identified 303(d) impaired streams crossed by the ACP in West Virginia. Figure 3 of Appendix A shows an overview map identifying these streams with details provided on the Construction Alignment Sheets, Drawing Set #1. DTI is evaluating the contaminants listed within these waterbodies for the probability to encounter contaminated water or sediments during construction, or to exacerbate impairments during construction. None of the waterbodies crossed has an identified established and approved TMDL for (i) sediment or a sediment-related parameter (i.e., total suspended solids or turbidity), or (ii) nutrients (i.e., nitrogen or phosphorus).

[2] Section numbering corresponds to the online registration application form. Sections 1 through 7 are to be completed online.

The only Tier 3 waterbody associated with the Project in West Virginia is Slaty Fork which is crossed by an access road (ID AR #05-001-C 009.AR1) near its headwaters. No impacts are anticipated to Slaty Fork as a result of the access road. DTI will implement additional BMPs exceeding minimum requirements as necessary to reduce or eliminate potential impacts to the Tier 3 waterbody.

TABLE 8-2

Impaired Waterbodies Crossed by the Atlantic Coast Pipeline in West Virginia

County/State [a]	Milepost	Waterbody Name	Proposed Crossing Method [b]	Impairment Cause
Harrison County, WV	1.1	Kincheloe Creek	Dam and pump/flume	Iron and Fecal Coliform
Lewis County, WV	1.5	Sand Fork	Dam and pump/flume	Conditions Not Allowable (CNA)-Biological
Lewis County, WV	8.2	West Fork River	Cofferdam	CNA-Biological, Fecal Coliform, and Polychlorinated Biphenyls (PCB)
Lewis County, WV	12.6	West Run	Dam and pump	CNA-Biological, Iron, and Fecal Coliform
Lewis County, WV	14.3	Lifes Run	Flume/dam and pump	Fecal Coliform and CNA-Biological
Lewis County, WV	18.1	Laurel Lick	Flume/dam and pump	CNA-Biological, Iron, and Fecal Coliform
Lewis County, WV	20.3	Buckhannon Run	Dam and pump	CNA-Biological, Iron, and Fecal Coliform
Upshur County, WV	26.6	Fall Run	Open cut (wetland)	CNA-Biological, Iron, and Fecal Coliform
Upshur County, WV	29.2	Cutright Run	Dam and pump/flume	pH
Upshur County, WV	31.1	French Creek	Cofferdam	Iron
Upshur County, WV	36.8	Laurel Run	Dam and pump/flume	CNA-Biological
Upshur County, WV	41.3	Right Fork Middle Fork River	Flume/cofferdam	Iron
Randolph County, WV	52.1	Beech Run	Dam and pump	pH

[a] West Virginia Department of Environmental Protection. 2012. Water and Waste Management – 2012 GIS Shapefiles – 303D_TMDL_Impaired streams in West Virginia. Available online at: http://www.dep.wv.gov/WWE/watershed/IR/Pages/303d_305b.aspx. Accessed February 2015.

[b] West Virginia Department of Environmental Protection. 2012. 2012 West Virginia Integrated Water Quality Monitoring and Assessment Report. EPA approved. Available online at: http://www.dep.wv.gov/WWE/watershed/IR/Pages/303d_305b.aspx. Accessed February 2015.

9.0 PROJECT DESCRIPTION

DTI is proposing to construct approximately 98.7 miles of pipeline, new metering stations, and a compressor station (CS) within the state of West Virginia for transmission of natural gas to markets in Virginia and North Carolina. Descriptions of each component of the Project are provided in the following sections. The locations of the facilities are shown in Figure 2 of Appendix A, with details provided on the Construction Alignment Sheets, Drawing Set #1.

The approximate original contours of the Project site will be restored to promote the preservation of the preconstruction drainage patterns and features, and the disturbed area will be re-vegetated or otherwise stabilized with pervious material. Cut and fill totals within the AP-1 mainline are expected to balance following the restoration of the disturbed area.

9.1 PROPOSED FACILITIES

9.1.1 Pipeline Facilities

The AP-1 mainline, which will consist of 98.7 miles of 42-inch outside diameter transmission pipeline, will originate at a new interconnect with ACP facilities in Harrison County, West Virginia. From the Harrison County interconnect point, the pipeline will extend southeast through West Virginia, crossing Harrison, Lewis, Upshur, Randolph, and Pocahontas Counties to the Virginia state line, where the pipeline will continue through Virginia and into North Carolina.

9.1.2 Compressor Station

CS1 (Marts) will be built at approximate milepost 7.6 of the AP-1 mainline in Lewis County, West Virginia. The station will take natural gas from the outlet of the proposed Kincheloe metering and regulating (M&R) Station and discharge into the AP-1 mainline. CS1 (Marts) will contain four gas-driven turbines that will provide a combined 55,015 horsepower of compression. The station will include approximately eight structures (compressor (two), auxiliary, office, utility gas, drum storage, and electrical (two) buildings), with a chain-link security fence installed around the perimeter of the site. Equipment at the station will include gas coolers, inlet air filters, exhaust silencers, tanks, blowdown silencers, heaters, and auxiliary generators. Specific site construction plans and calculations for post construction stormwater management for CS1 are attached as Drawing Set #2.

9.1.3 Metering and Regulating Stations

Two new M&R stations will be associated with the AP-1 mainline in West Virginia: the Kincheloe M&R Station and the Long Run M&R Station located in Lewis and Randolph Counties, respectively. The Kincheloe M&R Station will be built on the same site and within the same fence line as CS1 (Marts). The Long Run M&R Station will be built at a delivery point to discharge into an existing Columbia Gas WB pipeline. Each M&R station will contain two dekatherm buildings (used to house equipment such as gas chromatographs, communications equipment, etc.), a meter building, and possibly a regulation building. Equipment at each station will include gas filter/separators, gas meters, and may include gas heaters, regulators, and/or

odorization equipment. Each station will be surrounded by a chain-link security fence. Specific site construction plans and calculations for post construction stormwater management for Kincheloe M&R Station and Long Run M&R Station are attached as Drawing Set #2. The Kincheloe M&R Station site plans are included within the CS1 site plans.

9.1.4 Valve Sites

Seven valve sites will be located along the AP-1 mainline in West Virginia as shown in Table 9.1.4-1.

TABLE 9.1.4-1

Valve Site Locations Along the Atlantic Coast Pipeline in West Virginia

Valve Site Name	County	Approximate Milepost
Valve Site 1	Lewis	7.5
Valve Site 2	Upshur	24.3
Valve Site 3	Upshur	41.3
Valve Site 4	Randolph	47.3
Valve Site 5	Randolph	59.6
Valve Site 6	Pocahontas	69.2
Valve Site 7	Pocahontas	81.0

Valves will be installed below grade, with aboveground valve operators, risers, blowdown valves, and crossover piping connected on each side of the valve. A chain-link security fence will be installed around the perimeter of each valve site. The area within the fence line will be covered with gravel. The valves will allow DTI, as the operator, to segment the pipeline for safety, operations, and maintenance purposes.

9.1.5 Pig Launcher

One pig launcher will be installed along the AP-1 mainline in West Virginia, in Harrison County, at a site called Marts Junction. The pig launcher will be used to run pipeline inspection tools, called pigs, through the pipeline system.

9.1.6 Telecommunications

A network of microwave towers will be used to facilitate system communications during operation of the ACP. A total of two new microwave towers will be installed within the footprint of CS1 and the Long Run M&R Station. A new antenna will also be constructed in leased space on an existing microwave tower owned and operated by other parties. The footprint of the two new microwave towers will not include additional land disturbance outside of the proposed facilities covered under this SWPPP and are included within the limit of disturbance (LOD) at those facilities (i.e. CS1 and Long Run M&R Station). Three microwave towers will be located along the AP-1 mainline within West Virginia as shown in Table 9.1.6-1.

TABLE 9.1.6-1

Communication Towers for the Atlantic Coast Pipeline in West Virginia

Pipeline Segment/Facility	County/City, State	Milepost	Scope of Work
Wilsonburg	Harrison County, WV	NA	Located 13 miles north-northeast of Compressor Station 1. Construct new megawatt antennas on an existing tower.
Compressor Station 1	Lewis County, WV	7.6	Construct new tower and shelter.
Long run M&R Station	Randolph County, WV	47.3	Construct new tower

9.1.7 Contractor Yards

Temporary pipe storage and contractor yards will be needed to store equipment and stage construction activities for the proposed pipelines and other facilities. DTI attempted to identify and select yards that have been previously disturbed by human activities and do not have an on-going land use that precludes use of the site during construction of the Projects. Where previously disturbed sites are not available, DTI selected sites with level terrain in mostly cleared areas. This was done to minimize the amount of clearing, grading, and filling necessary at each site. Generally, yard preparation will be limited with minimal clearing, grading, leveling, and filling in upland areas. Following construction, yards will be restored in accordance with the FERC *Upland Erosion Control, Revegetation, and Maintenance Plan* (Plan) and *Wetland and Waterbody Construction and Mitigation Procedures* (Procedures), along with other federal and state agency requirements and landowner stipulations.

Two temporary contractor yards will be used to support construction activities along the ACP in West Virginia. Contractor Yard 1 is located in Upshur County and Contractor Yard 2 is located in Randolph County. Site plans for the contractor yards to be located in West Virginia are provided in Appendix G.

9.1.8 Cathodic Protection

Cathodic protection will be provided by an impressed current system on the AP-1 pipeline. Based on preliminary design, the system is proposed to include approximately 12 ground beds at various points along the proposed AP-1 pipeline across West Virginia. The ground beds will contain arrays of sacrificial anodes to provide a path with low resistance to ground. Construction of the ground beds will occur in areas measuring approximately 500 feet in length by 25 feet in width. Following construction, DTI will retain an easement for operation of the ground beds measuring approximately 500 feet in length by 10 feet in width. The locations of the ground beds are provided on the Construction Alignment Sheets, Drawing Set #1.

9.1.9 Water Impoundments

DTI will utilize aboveground water impoundment structures to temporarily store water needed for hydrostatic testing. Water for hydrostatic testing will be withdrawn from adjacent surface waters and/or municipal sources and will be pumped to the water impoundments gradually over a 30-90 day period without impacting downstream users of water or exceeding allowable water withdrawal rates. The water impoundments will be constructed in additional

temporary workspaces (ATWS) and will be circular in configuration with a diameter of approximately 190 feet and a height of approximately 15 feet. Specific BMPs will be detailed on the Construction Alignment Sheets, Drawing Set #1.

Five water impoundments will be erected to support activities along the AP-1 mainline for the ACP in West Virginia. One structure will be located in each of the following counties: Lewis County, Randolph County, and Upshur County. Two structures will be located in Pocahontas County.

9.2 EXISTING SITE CONDITIONS

The Project site contains vegetated right-of-way (ROW), wooded, meadow, and residential areas, and is set within topography that is hilly and mountainous.

9.2.1 Vegetation

Types of vegetation at any point along the ACP pipeline depend on the land-use type (i.e. agriculture, woodland, wetland, etc.). Refer to Appendix H for details on the land use types affected by construction and operation of the AP-1 ROW and aboveground facilities in West Virginia. More specifically, land-use types can be determined from Construction Alignment Sheets, Drawing Set #1. In addition, the location of stream crossings and special vegetative communities, such as wetlands, are also identified on the Construction Alignment Sheets.

The AP-1 Pipeline will be located in the ecoregions of the Central Appalachians, Ridge Valley, and Western Allegheny Plateau.

The Central Appalachians is dominated by forested lands, which account for approximately 89 percent of land cover and contribute to high biodiversity in the region. Northern hardwoods, such as red maple, sugar maple, beech, black cherry, and yellow birch are characteristic of the middle elevations of the Central Appalachians. A distinct characteristic of this ecoregion are red spruce ecosystems which are unique and globally rare. Red spruce ecosystems only exist this far south at higher elevations of the Central Appalachians. Red spruce forests support sensitive plant species in the Monongahela National Forest (MNF).

The Ridge Valley ecoregion consists predominately of forest, 56 percent, in rocky terrain. Much of the remaining areas consist of agricultural, 30 percent, and developed land, 9 percent. Climate in the Ridge Valley is mild, supporting vegetation communities with high biodiversity, including over one thousand plant species. The most common vegetation forest complexes are Appalachian oak Forest, oak-hickory-pine forest, and northern hardwood forest.

The Western Allegheny Plateau ecoregion is characterized by broad valleys, ridges, and rounded hills, with lakes, marshes, and bogs located throughout the region. This ecoregion is approximately 72 percent forested with a combination of oak and mixed temperate forests. Wet hemlock forests are also present within this ecoregion.

In West Virginia, the AP-1 Pipeline will cross 0.3 miles of coniferous forests, 6.2 miles of deciduous forests, 70.7 miles of mixed forests, 1.6 miles of deciduous savanna and glade, and 0.1 miles of floodplain and riparian vegetation. Coniferous forests have cone-bearing trees with

needle-like leaves and are mostly evergreen. These forests are commonly found in locations with cooler summers and long winters. The most common coniferous trees within the Central Appalachians and Ridge Valley regions include spruce, fir, pine, and hemlock. Deciduous forests typically consist of broadleaf trees, shrubs, perennial herbs, and mosses. The most common species found in the ACP Project area are red oak, white oak, and hickory. Mixed forests are dominated by longleaf pines, which have replaced hardwoods in many areas due to lumber production. Deciduous savanna and glade communities are primarily found where shallow soils exist at higher elevations. Lower elevations of the savanna are typically surrounded by fragmented agriculture. Floodplains and riparian communities crossed by the ACP typically consist of, black willow, Christmas fern, and sneezeweed and other more hydric species.

9.2.2 Soils

Soils within the proposed AP-1 pipeline ROW and associated aboveground facilities are located within the Central Allegheny Plateau, Eastern Allegheny Plateau and Mountains, and Northern Appalachian Ridges and Valleys Major Land Resource Areas (MLRA) designated by the Natural Resources Conservation Service. Soil classifications for the West Virginia portion of the ACP are included on the Construction Alignment Sheets, Drawing Set #1.

The physiography of the Central Allegheny Plateau MLRA is characterized by a dissected plateau with narrow valleys and ridgetops separated by long and steep side slopes. The dominant soil orders are Alfisols, Ultisols, and Inceptisols. These shallow to very deep, skeletal to clayey soils have a mesic temperature regime, an udic moisture regime, and mixed mineralogy. Typical soil groups in these orders include Dystrudepts, Hapludults, Hapludalfs, Fragiudults, Endoaquepts, Eutrudepts, and Udorthents. These soils formed mainly in residuum on ridges and hillsides; colluvium on foot slopes; alluvium along streams; and material derived from surface mining of coal.

The physiography of the Eastern Allegheny Plateau and Mountains MLRA is characterized by a deeply dissected plateau terminating in a high escarpment. Steep slopes are prevalent as well as level to gently rolling plateau remnants. The dominant soil orders are Ultisols and Inceptisols. These moderately deep to very deep, loamy soils have a mesic or frigid temperature regime, an udic moisture regime, and mixed or siliceous mineralogy. Typical soil groups in these orders include Fragiudults, Endoaquults, Dystrudepts, Hapludults, Frigid, Fragiudepts, and Udorthents. These soils formed mainly in colluvium on footslopes; residuum and till on hills and ridges; and material derived from the surface mining of coal.

The physiography of the Northern Appalachian Ridges and Valleys MLRA is characterized by a folded and faulted region of ridges and valleys carved out of synclines, anticlines, and thrust blocks. The western side of the MLRA is hilly to very steep and is typically rougher and steeper than the eastern side, which is primarily rolling and hilly. The dominant soil orders are Inceptisols, Ultisols, and Alfisols. These shallow to very deep, loamy or clayey soils have a mesic temperature regime, an udic moisture regime, and mixed or siliceous mineralogy. Typical soil groups within these orders include Dystrudepts, Hapludalfs, Hapludults, Fragiudults, Paleudults, and Eutrudepts. These soils formed mainly in residuum and colluvium on ridges, side slopes, footslopes, and valleys; and in alluvium on floodplains.

The specific types of soil crossed by the AP-1 Pipeline within West Virginia are provided in Appendix I.

9.3 ADJACENT AREAS

Adjacent areas to the Project include forested, agricultural, and residential areas. The Project is located in the Monongahela watershed for the portion of AP-1 located in Harrison, Lewis, Upshur, and a portion of Randolph Counties and within the Kanawha watershed for the AP-1 segment located in the remaining portion of Randolph County and for Pocahontas County. Adjacent waterbodies were field delineated and are shown on the Construction Alignment Sheets, Drawing Set #1.

9.4 CRITICAL AND SENSITIVE AREAS AND SPECIES

DTI has been in consultation with the U.S. Fish and Wildlife Service (USFWS) and West Virginia Division of Natural Resources (WVDNR). DTI also received data from the West Virginia Natural Heritage Program regarding potential sensitive communities and species that are crossed by the Project. In addition, the ACP route was reviewed to assess special considerations needed for federally and state-owned lands, karst regions, and historic preservation areas.

9.4.1 Endangered Species Consultation

As required under Section 7 of the Endangered Species Act of 1973 (as amended), projects that require Federal authorization must undergo consultation with the USFWS and the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries) to evaluate that any action they authorize is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat. DTI has consulted with the USFWS West Virginia Ecological Services Field Office to identify federally listed endangered, threatened, and proposed species as potentially occurring in the Project area. Nine federally listed species have been identified as having the potential to occur within the ACP footprint:

1. Cheat Mountain salamander;
2. Indiana bat;
3. northern long-eared bat;
4. little brown bat (not federally listed, but included in consultations and surveys at the request of the USFWS);
5. clubshell mussel;
6. snuffbox mussel;
7. running buffalo clover;

8. small whorled pogonia; and

9. Virginia spirea.

DTI has prepared a Biological Assessment (BA) at the request of the FERC, to initiate formal consultation with the USFWS and NOAA Fisheries. As part of consultations with the USFWS, species-specific field or habitat surveys have or will be completed for several species as identified by USFWS West Virginia Ecological Services Field Office. Additional steps for avoidance, or mitigation will be discussed as part of the consultations with the USFWS as applicable. If appropriate and applicable, specific BMPs will be used to address identified potential rare, threatened and endangered, species as part of this SWPPP and will be identified on the Construction Alignment Sheets, Drawing Set #1.

Additionally, the USFS maintains Regional Forester Sensitive Species (RFSS) lists for the MNF in accordance with FSM 2670.32, for the management of sensitive species. DTI has prepared a Biological Evaluation (BE) to examine potential impacts on the RFSS on USFS lands. Several RFSS listed species were evaluated as part of the BE. As part of consultations with the MNF, species specific field or habitat surveys have or will be completed for several species as identified by the MNF. Additional steps for avoidance, or mitigation will be discussed as part of the consultations with the MNF as applicable. If appropriate and applicable, specific BMPs will be used to address identified potential RFSS as part of this SWPPP and will be identified in on the Construction Alignment Sheets, Drawing Set #1.

The WVDNR does not have a state threatened and endangered species program, but defers to the USFWS' list of federally listed threatened and endangered species. In accordance with the WVMSP, all native freshwater mussels are protected in the state. If appropriate and applicable, specific protection measures or BMPs required by the WVDNR will be noted on the Construction Alignments Sheets, Drawing Set #1.

9.4.2 Historic Preservation

A Phase I archaeological survey was performed for the Project. The survey study area included a 300-foot-wide corridor centered on the centerlines of the proposed AP-1 mainline through West Virginia, as well as aboveground and ancillary facilities, including CSs, M&R stations, valves, pig launcher/receiver sites, access roads, contractor yards, and other work areas. Aboveground historic resources surveys have been conducted to document and record standing structures and other aboveground resources greater than 50 years in age within the survey corridor or within the viewshed of the proposed ACP facilities.

Survey results to date revealed that archeological and cultural resource sites and aboveground historic resources occur within the West Virginia study area. Copies of the survey reports have been provided to the West Virginia Division of Culture and History (WVDCH) for review and have been filed with FERC. If applicable, avoidance measures will be addressed as part of DTI's consultations with the WVDCH.

9.4.3 Federally Owned Lands

The proposed AP-1 pipeline route crosses approximately 5.2 miles of the MNF in Pocahontas County, respectively. The MNF is owned and managed primarily by the USFS. The proposed AP-1 route crosses the Greenbrier Ranger District, and does not cross lands designated by the USFS as roadless areas, wilderness areas, or recommended wilderness study areas. The MNF is managed under a Land and Resources Management Plan, which is a comprehensive planning document that guides land management decisions within the MNF boundaries. DTI has prepared a Construction, Operation, and Maintenance Plan (COM Plan), which specifies the terms under which a ROW access in the USFS would be granted. The COM Plan consists of several individual topics, plans, and appendices applicable to the construction of the ACP on USFS lands. During the planning and building of the ACP, changes to the COM Plan may occur, as the COM Plan is intended to be the repository and reference for new and amended permits, approvals, clearances, and plans that may be issued during that time frame.

9.4.4 State-Owned Lands

The AP-1 pipeline route crosses approximately 4.8 miles of the Seneca State forest in Pocahontas County. Seneca State Forest is owned by West Virginia Division of Forestry.

9.4.5 Karst Regions

The proposed ACP route crosses karst terrain in Randolph and Pocahontas counties in West Virginia. DTI has developed and will implement a Karst Terrain Assessment Construction, Monitoring and Mitigation Plan (Appendix J**)**, which identifies construction and restoration practices in karst areas. In accordance with this plan, erosion and sediment controls (ESC) will be installed prior to construction along the edge of the ROW and in other work areas upslope of known sinkholes or other identified karst features with a direct connection to the phreatic zone of the karst. Karst terrain within the AP-1 mainline will be identified on the Construction Alignment Sheets, Drawing Set #1, as "geologic sensitive areas."

Refueling activities and the handling of fuel and other materials in the vicinity of these features will be conducted in accordance with the written Spill Prevention, Control, and Countermeasures (SPCC) Plan prepared by DTI's contractors, if required**.** In addition to conducting surveys prior to construction to identify and map visible karst features, DTI will monitor clearing, grading, and trenching activities to identify potential karst features that may have been unidentifiable on the surface during the preconstruction survey. If karst features are uncovered, they will be evaluated. An example mitigation method for a sinkhole would be to excavate the feature to expose its throat, and then plug the throat using graded rock fill to allow drainage and minimize alteration of flow patterns. DTI will monitor karst features in accordance with its Karst Terrain Assessment Construction, Monitoring and Mitigation Plan. Further, the horizontal directional drill (HDD) method will not be used in areas where karst features exist, due to the potential for drilling fluids to enter aquifers through pre-existing voids or conduits in limestone or dolomite bedrock. Concrete coating activities will not be conducted within 100 feet of karst features, unless the location is an existing industrial site designated for such use.

9.4.6 Waterbodies

Waterbodies are defined by the FERC as "any natural or artificial stream, river, or drainage with perceptible flow at the time of crossing, and other permanent waterbodies such as lakes and ponds." The FERC categorizes surface waters as major, intermediate, or minor waterbodies based on the width of the water's edge at the time of crossing. Major waterbodies are greater than 100 feet wide, intermediate waterbodies are between 10 feet and 100 feet wide, and minor waterbodies are 10 feet wide or less.

Waterbodies were avoided where possible. All waterbodies crossed and crossing methods within West Virginia are show in Appendix E. The erosion and sediment controls implemented in waterbodies can be found in Section 14.1.3. The only major waterbody crossed by the AP-1 in West Virginia is Greenbrier River. The river could potentially receive overland flow from construction activities. A site specific construction plan for the major waterbody is located in Appendix K. In addition to the one major waterbody crossed, two additional site specific plans that were submitted to the U.S. Army Corps of Engineers are also included in Appendix K.

9.4.7 Wetlands

During the routing phase of the Project, Fish and Wildlife Service (FWS) National Wetland Inventory (NWI) data, was used to provide a preliminary analysis of wetland resources and to assess where wetland impacts could be avoided or minimized. NWI data was also used to estimate the number, size, and locations of wetlands along the proposed pipeline routes prior to conducting wetland delineations in the field.

DTI began conducting field surveys during the 2014 field season, on properties where survey permission was granted by the landowner, to identify and delineate wetlands within the ACP pipeline construction corridors and other work areas. The wetland delineation study area for the ACP consisted of a 300-foot-wide corridor centered on the proposed pipeline centerlines, a 50-foot-wide corridor centered over access roads, and the construction footprints at aboveground facility sites. The wetland delineation for the Project encompassed potential areas required for installation of the proposed pipelines (i.e., the construction ROW, ATWS, staging areas, and access roads) and the aboveground facilities (i.e., compressor and M&R stations and other facilities). Within West Virginia, the survey progress is 99% complete for the mainline pipeline, 100% for the M&R and pig launcher/receiver sites, 90% complete for the compressor station, 78% complete for the Contractor Yards, and 88% complete for the access roads.

Wetland crossings were avoided when possible; however, the data summarizing the number of wetlands crossings are based on field surveys conducted to date. In areas where a survey has not yet been completed due to access not being granted, NWI data was used to estimate the potential impact to wetlands. The location of wetlands crossed and crossing methods along the pipeline route are shown in Appendix L and the Construction Alignment Sheets included as Drawing Set #1.

DTI will avoid permanent impacts on wetlands and minimize temporary impact to the maximum extent practicable for crossing wetlands for access and otherwise avoiding use of wetland areas within contractor yards.

9.4.8 Residential Areas

In residential areas, construction activities will be completed as expediently as practicable to minimize disturbance to residents. While constructing in these areas, DTI will maintain access to the residences for the duration of construction activities. Where the pipeline will cross roads necessary for access to residential properties and no alternative entrances exist, DTI will implement measures, such as plating over the open portion of the trench, to maintain passage for landowners and emergency vehicles.

In general, DTI will reduce the width of the construction ROW or adjust the pipeline centerline to avoid occupied structures. For any residences within 50 feet of a construction work area, DTI will implement the following mitigation measures during construction:

- Orange safety fence will be installed at a minimum of 15 feet from the residence, and 100 feet along the construction corridor, each direction from the residence.
- Avoid the removal of mature trees and landscaping within the construction work area, unless necessary for safe operation of equipment, or as specified in the landowner agreements.
- Restore all lawn areas and landscaping immediately following cleanup operations or as specified in landowner agreement.
- During landowner negotiations, identify location of septic system and avoid or develop a replacement plan with landowner during construction.
- For this project, the following notes will also be applied:

    a. Where the pipeline centerline is within 25 feet of a residence, the trench will not be excavated until the pipe is ready for installation.

    b. Landowner will be notified one week prior to construction on his/her property

    c. No refueling or storage of hazardous materials will occur within 200 feet of a private well.

    d. Steel plating or other effective means will be provided to allow landowner access to his/her residence should construction or other ground disturbances occur at egress points, landowner driveways, or other private access ways.

    e. On public roads, DTI will follow the traffic management plans that are filed as part of the road-use permit.

f. Construction will be limited to daylight hours.

g. DTI will:

i. Ensure piping is welded and installed as quickly as possible to minimize the amount of time a neighborhood is affected by construction;

ii. Complete final cleanup, grading, and installation of permanent erosion control devices within 10 days after backfilling the trench, weather permitting. If seasonal or other weather conditions prevent compliance with this time frame, maintain temporary erosion controls (sediment barriers and mulch) until conditions allow completion of restoration; and

iii. During landowner negotiations, will work with landowner on restoration procedure. These procedures will include seeding mix, tree/shrub planting and hardscape replacement.

DTI has prepared site-specific construction plans for residences located within 50 feet of the construction work areas for the Project, see Appendix M. The plans identify the mitigation measures DTI will implement at each residence to control erosion and sedimentation and to promote safe and efficient pipeline installation with minimal impact on residents.

9.4.9 Winter Construction

DTI has developed and filed a project-specific winter construction plan with the FERC application. The plan addresses:

- Winter construction procedures (e.g., snow handling and removal, access road construction and maintenance, soil handling under saturated or frozen conditions, topsoil stripping);
- Stabilization and monitoring procedures if ground conditions will delay restoration until the following spring (e.g., mulching and erosion controls, inspection and reporting, stormwater control during spring thaw conditions); and
- Final restoration procedures (e.g., subsidence and compaction repair, topsoil replacement, seeding).

9.4.10 Agricultural Areas

Special construction procedures and best practices for activities within actively cultivated or rotated land used for the production of crops including but not limited to corn, grains, orchards, vineyards and hayfields may be needed in agricultural areas. These activities will be implemented according to the FERC Plan.

In actively cultivated and rotated croplands, pastures, orchards, nurseries, and residential areas, topsoil will be removed and segregated in accordance with the FERC Plan. DTI will maintain water flow in crop irrigation systems, unless shutoff is coordinated with affected parties. Typically, topsoil will be removed over the entire width of the construction ROW (with the exception of areas beneath topsoil stockpiles). Following pipeline installation, the subsoil will be returned to the ditch and the topsoil replaced in the area from which it was removed. As necessary, the working side of the ROW will be de-compacted prior to final grading and restoration.

Where livestock fences (including electric fences) need to be cut to access the construction ROW, DTI will brace and secure the fencing prior to construction and repair the fences to preconstruction condition or better during the restoration phase of the Project. Further, DTI will work with landowners to remove livestock to alternate fields during construction or maintain adequate temporary fencing in grazing areas. If cattle or other livestock are present during construction, DTI will install temporary fencing around the ROW in areas where the pipe trench is left open overnight. Additionally, DTI will confer with landowners regarding a potential grazing deferment to allow vegetation to establish within the ROW after construction of the Project is complete.

DTI will work with landowners to identify drain tile systems in advance of construction, and mark the locations of any tile broken during pipeline trenching operations. DTI will contact landowners and local soil conservation authorities to determine the locations of future drain tiles that are likely to be installed within three years of the ACP construction. DTI will implement temporary tile line repairs to maintain the functionality of tile drainage systems during construction. Prior to backfilling the trench, DTI will employ a qualified tile contractor for permanent tile repairs. DTI will probe all drainage tile systems within the area of disturbance to check for damage, and will repair damaged drain tiles to their original or better condition. DTI will not use filter-covered drain tiles unless the local soil conservation authorities and the landowner agree. Following completion of construction and restoration, DTI will work with landowners to repair or correct tile drainage problems due to construction of the Projects. DTI will engage a qualified drain tile specialist, as needed, to conduct or monitor repairs to drain tile systems affected by construction.

In agricultural lands, the pipelines will be buried at depths sufficient to provide a minimum of 4 feet of cover to avoid potential impacts associated with typical agricultural activities, such as plowing. In consultation with landowners, the pipeline may be buried deeper in certain locations to facilitate the passage of heavy equipment, such as logging equipment.

9.5 POTENTIAL EROSION PROBLEM AREAS

Streams will be protected by Belted Silt Retention Fence (BSRF), and Rolled Erosion Control Product (RECP). Critical slopes will be protected by BSRF, Turf Reinforcement Mat (TRM), RECP, and slope breakers. Critical slopes include areas that would be prone to slips or sloughing. Special attention will be given to those slopes that are near surface waters. The discharge of soils from failed slopes into surface waters is a serious occurrence and may result in environmental non-compliance.

9.5.1 Slopes

Portions of the AP-1 mainline in West Virginia will be constructed in steep, mountainous terrain. Slope instability in the form of landslides, landslips, or surficial slumping can present a significant hazard to pipeline routing, design, construction, and operation in steep slope areas if proper planning and mitigation is not considered in advance. When routing the ACP, the goal was to do so perpendicularly to topographic contours and to minimize routing on steep slopes to the extent practicable, in accordance with DTI's program for steep slopes, which includes considerations for slips associated with pipeline construction during routing as well as engineering design, preconstruction planning, construction, and post construction.

Construction typical details and cross-sectional diagrams of general construction techniques are provided as Appendix N. BMP installation details along the proposed ACP are shown on the Construction Alignment Sheets, Drawing Set #1. DTI's Best-in-Class (BIC) Program was designed to proactively address slopes greater than 30 percent and greater than 100 feet in length and to identify mitigation measures beyond standard practices. Details of the BIC Program are provided in Appendix O and Section 15.13 of this SWPPP.

The proposed ACP facilities are located in the Kanawha and Allegheny Mountain sections of the Appalachian Plateau physiographic province and in the Middle section of the Valley and Ridge physiographic province.

The Kanawha Section, which is also referred to as the Unglaciated Allegheny Mountains, features undulating low, broad ridges and swells parallel to the mountains to the east, reducing in amplitude as the plateau slopes to the west. Throughout the Allegheny Mountain Section, rocks are mildly folded, and erosion of the folds has resulted in anticlinal, synclinal, and monoclonal topographic belts, similar to the Valley and Ridge Province to the east. However, the mountains within this area are separated by strips of eroded plateau formations, not the deeply dissected valley lowlands of the adjacent province. The Middle Section, which is also referred to as the Great Valley, is characterized by transverse streams and trellised drainage patterns. Unlike the Hudson Valley and Tennessee Sections of the province, the Middle Section has a comparative lack of mountain ridges along its southeastern margin.

In West Virginia, the proposed AP-1 mainline will be constructed in steep, mountainous terrain. Generally, the pipeline alignment will run along ridgelines and up and down slopes (as opposed to crossing laterally on side slopes). Installation along the ridgelines may require the pipeline to be buried deeper than normal (i.e., with greater than 3 feet of cover over the pipeline, which is typical in non-agricultural uplands). This is due to the techniques needed to construct along narrow ridgelines. The surface of ridgelines may need to be temporarily lowered to create a level construction ROW. Excavation of the trench will begin from the leveled work area.

9.5.2 Seeps

In the event that subsurface flow is encountered, a subsurface drain or under drain will be utilized, as necessary, to divert water outside of the LOD. If encountered, seeps can be mitigated by using seep collectors placed down-slope of areas showing seepage. Armored fill placed at the toe of the slope may be used in areas of steep slopes in addition to a perforated drain pipe to divert subsurface water away from the cut slope. The use of subsurface drains in steep slope

areas is addressed by the BIC Program and the project-specific control recommendations provided in Appendix O.

9.6 PROJECT ACCESS POINTS/ACCESS ROADS

DTI has identified roads which will be used to provide access to the proposed ACP ROW and other facilities during construction and operation of the Project. DTI will utilize existing roads to the extent practicable, but some new roads will need to be built in remote areas. The ACP Project proposes to utilize a total of 136.13 miles of access roads within West Virginia during construction. An estimated 2.57 miles of new roadway within West Virginia will be constructed. The Project will involve 4.86 miles of hybrid existing/new access roads within West Virginia (this includes access roads where a portion of the road is existing and a portion is new, to-be-constructed). In some cases, existing roads will require improvement (such as grading, gravelling, replacing or installing culverts, minor widening, and/or clearing of overhead vegetation) to safely accommodate construction equipment and vehicles. Roadwork on public lands will conform to the design standards of the land managing agency. If existing roads are damaged during construction by DTI Contractors or representatives, DTI may be required to restore these roads to preconstruction condition or better.

Each access road site must have a stone construction entrance at exit drives and parking areas to reduce the tracking of sediment onto public or private roads. Except for haul roads, all unpaved roads on the site carrying more than 25 vehicles per day must be graveled. All public and private roads adjacent to a construction entrance site must be inspected and cleared of debris originating from the construction site.

9.7 POTENTIAL POLLUTANTS

Typical material storage at pipeline construction sites includes diesel fuel, hydraulic oil, and welding gases (oxygen and acetylene). Construction for the Project will require the use of lubricating oils, aerosol spray lubricants, paint, gasoline/diesel fuels, and solvents. A mobile fueling truck will be used to transport gasoline/diesel fuels. Other oils and/or chemicals are expected to be delivered in 5-gallon steel containers or 55-gallon drums. Table 9.7-1 outlines potential pollutants and their associated BMPs. Materials will be stored on pallets, located inside one or more secondary containment areas, as needed. There are no materials known to be used, stored, or disposed of at the proposed construction sites that are considered hazardous under the Resource Conservation and Recovery Act regulations; therefore, a discharge of hazardous materials is not considered likely. If potentially hazardous materials are used, their use will be minimized to that necessary for the required task and will be managed following the guidelines outlined in Section 18.4.

Table 9.7-1

Potential Pollutants and Best Management Practices

Pollutant Name	Source	Associated BMP(s)
Sediment	Erosion	Site-specific erosion and sedimentation controls; BIC Steep Slopes controls; FERC Plan and Procedures.
Oil	Hydraulic oil, lubrication oil, greases, etc. associated with equipment and vehicles	Proper application, following manufacturer recommendations. Store minimum quantities necessary in tightly sealed containers, away from concentrated stormwater were possible, or within secondary containment. Dispose of used containers and excess material in accordance with manufacturer recommendations and local, state, and federal regulations. Vehicles and equipment will be inspected routinely for leaks, and will be repaired promptly to minimize or avoid drips.
Gasoline & diesel fuel	Fueling areas, mobile fueling truck, equipment and vehicles	Proper fueling practices, including personnel monitoring while fueling, routine inspections of fueling equipment, and use of secondary containment. Fuels stored on site will be within secondary containment subject to routine inspection, in accordance with SPCC plan. Vehicles and equipment will be inspected routinely for leaks, and will be repaired promptly to minimize or avoid drips.
Paint	Construction and maintenance activities	Proper application, following manufacturer recommendations. Store minimum quantities necessary in tightly sealed containers, away from concentrated stormwater were possible, or within secondary containment. Dispose of used containers and excess material in accordance with manufacturer recommendations and local, state, and federal regulations.
Solvents	Construction, maintenance and cleaning activities	Proper application, following manufacturer recommendations. Utilize drip pans and sorbent materials during use. Store minimum quantities necessary in tightly sealed containers, away from stormwater were possible, or within secondary containment. Dispose of used containers and excess material in accordance with manufacturer recommendations and local, state, and federal regulations.
Antifreeze and coolants	Equipment and vehicles	Proper application, following manufacturer and equipment specifications. Store minimum quantities necessary in tightly sealed containers, away from concentrated stormwater were possible, or within secondary containment. Dispose of used containers and excess material in accordance with manufacturer recommendations and local, state, and federal regulations. Vehicles and equipment will be inspected routinely for leaks, and will be repaired promptly to minimize or avoid drips.
Welding gases	Construction and maintenance activities	Proper use, following manufacturer specifications. Store minimum quantities necessary in properly marked undamaged cylinders or containers, away from concentrated stormwater were possible, or within secondary containment. Dispose of used containers and excess material in accordance with manufacturer recommendations and local, state, and federal regulations.
Drilling mud and fluids	Drilling and construction activities	Proper use of structures to divert and contain material, using secondary containment where applicable, in conjunction with designated storage areas and containers prior to off-site disposal in accordance with local, state, and federal regulations.
Bentonite	Drilling and construction activities	Proper use, following manufacturer specifications. Keep bagged material covered and dry until use. Store minimum quantities necessary away from stormwater. Dispose of used containers and excess material in accordance with manufacturer recommendations and local, state, and federal regulations.
Concrete	Construction and maintenance activities	Proper use, following manufacturer specifications. Keep bagged material covered and dry until use. Store minimum quantities necessary away from stormwater. Excess “green” concrete will not be poured in or exposed to stream flow or concentrated stormwater flows. Dispose of used containers and/or excess material in accordance with manufacturer recommendations and local, state, and federal regulations.
Adhesives, epoxy, etc.	Construction and maintenance activities	Proper use, following manufacturer specifications. Store minimum quantities necessary in tightly sealed containers, away from stormwater were possible, or within secondary containment. Dispose of used containers and excess material in accordance with manufacturer recommendations and local, state, and federal regulations.

Table 9.7-1 (cont'd)

Potential Pollutants and Best Management Practices

Pollutant Name	Source	Associated BMP(s)
Wood preservative	Construction and maintenance	Proper use, following manufacturer specifications. Store minimum quantities necessary in tightly sealed containers, away from stormwater were possible, or within secondary containment. Dispose of used containers and excess material in accordance with manufacturer recommendations and local, state, and federal regulations.
Fertilizers	Erosion	Site-specific erosion and sedimentation controls; BIC Steep Slopes controls; FERC Plan and Procedures
Pesticides	Erosion, construction and maintenance activities	Site-specific erosion and sedimentation controls; BIC Steep Slopes controls; FERC Plan and Procedures. Proper application, following manufacturer specifications. Store minimum quantities necessary in tightly sealed containers, away from stormwater were possible, or within secondary containment. Dispose of used containers and excess material in accordance with manufacturer recommendations and local, state, and federal regulations.
Herbicides	Erosion, construction and maintenance activities	Proper application, following manufacturer specifications. Store minimum quantities necessary in tightly sealed containers, away from stormwater were possible, or within secondary containment. Dispose of used containers and excess material in accordance with manufacturer recommendations and local, state, and federal regulations.
Sandblast Media	Construction	Spent blast media will be stored in closed containers and consolidated as needed into a larger dumpster or roll off container. The material will be disposed of in accordance with manufacturer recommendations and local, state, and federal regulations.

Site-specific descriptions and maps depicting locations of fixed and mobile oil containers and type of material located within the containers will be provided by the contractors prior to construction. DTI's contractors will provide DTI with a written SPCC Plan, specific to their operation and materials, which meets or exceeds federal regulatory requirements.

A GPP has been prepared for the proposed ACP activities. The GPP includes a record of potential contaminants along with procedures designated to protect groundwater from Project activities. A copy of the GPP is included as Appendix C.

As new materials are used on site, their pollution potential will be evaluated. It is the responsibility of the stormwater inspector to update and monitor the inventory list within this SWPPP, and verify that the potential pollutants listed in Table 9.7-1 have a BMP installed to minimize the potential for and/or prevent discharges.

Safety Data Sheets (SDSs) for materials anticipated for use during execution of the Project will be kept by the Contractor and provided to DTI prior to construction. SDSs will be available from the contractor on an as-required basis.

10.0 ESTIMATED START AND COMPLETION DATES FOR THE PROJECT

Subject to receipt of the required permits and regulatory approvals, DTI anticipates that the clearing of ROW will commence in the fall of 2017. The ACP pipeline will be built along three spreads in West Virginia, with construction estimated to begin in November 2017 and finish at the end of 2019. DTI anticipates that the proposed pipeline and facilities in West Virginia will be placed in service by December 2019. Key milestone dates for the construction schedule are summarized in Table 10-1.

The Sequence of Construction (Section 13.2) describes the timing and manner of installation of the erosion and sediment controls.

TABLE 10-1

Construction Schedule by Spread for the Atlantic Coast Pipeline in West Virginia [a]

Construction Activity/Spread or Facility	Approximate Milepost	Counties and State	Begin Construction	Finish Construction
Initial Construction Activities				
Initial Site Preparation (2018 Spreads)	By Spread	By spread (listed below)	November 2017	1Q 2018
Tree Clearing[b] (2018 Spreads)	By Spread	By spread (listed below)	November 2017[c]	1Q 2018
Initial Site Preparation (2019 Spreads)	By Spread	By spread (listed below)	September 2018	1Q 2019
Tree Clearing[b] (2019 Spreads)	By spread	By spread (listed below)	November 2018[b]	1Q 2019
Construction of Pipeline				
Spread 2-1 (AP-1)	31.6–47.3	Upshur and Randolph Counties, WV	April 2018	4Q 2018
Spread 2-2 (AP-1)	47.3–56.1	Randolph County, WV	April 2018	4Q 2018
Spread 2A (AP-1)	56.1–65.4	Randolph County, WV	April 2018	4Q 2018
Spread 1-1 (AP-1)	0.0–17.2	Harrison and Lewis Counties, WV	April 2019	4Q 2019
Spread 1-2 (AP-1)	17.2–31.6	Lewis and Upshur Counties, WV	April 2019	4Q 2019
Spread 3 (AP-1)	65.4–79.2	Randolph and Pocahontas Counties, WV	April 2019	4Q 2019
Spread 3A (AP-1)	79.2-91.3	Pocahontas County, WV and Highland County, VA	April 2018	4Q 2018
Construction of CSs				
Marts CS	7.6	Lewis County, WV	November 2017	4Q 2019
Construction of M&R Stations				
Kincheloe	7.6	Lewis County, WV	November 2017	4Q 2019
Long Run	47.2	Randolph County, WV	April 2018	4Q 2019

[a] The number and timing of the construction spreads are subject to change dependent upon construction and permit requirements.
[b] Including tree clearing for aboveground facilities.
[c] The start of tree clearing is dependent upon the results of the environmental surveys and agency consultations.

10.1 APPLICABLE FEDERAL, STATE, OR LOCAL PROGRAMS

DTI is seeking authorization from the FERC under Section 7(c) of the Natural Gas Act to construct, own, operate, and maintain the ACP. Additional programs, permits, and consultations applicable to DTI's proposed Project include:

- notice of proposed construction or authorization (Federal Aviation Administration);
- application for wireless telecommunications, bureau radio service authority (Federal Communications Commission);
- Section 401 and 404 of the Clean Water Act (U.S. Army Corps of Engineers, WVDEP);
- Section 10 of the Rivers and Harbors Act (U.S. Army Corps of Engineers);
- ROW Grant to cross federal lands in the Monongahela National Forest (U.S. Bureau of Land Management);
- Special Use Permit and Concurrence in the ROW Grant to cross the MNF (USFS);
- amendments to the *Monongahela National Forest Management Plan* (USFS);
- Section 7 of the Endangered Species Act (USFWS);
- Title 40 Code of Federal Regulations Section 112 Oil Pollution Prevention;
- New Source Review air permit (WVDEP);
- Section 403 of the Clean Water Act, National Pollutant Discharge Elimination System (NPDES) Water Pollution Control Permit for Stormwater Associated with Oil and Gas Activities (WVDEP);
- Section 403 of the Clean Water Act, NPDES Water Pollution Control Permit for Hydrostatic Testing Water (WVDEP);
- Large Quantity User Water Use registration (WVDEP);
- Section 106 of the National Historic Preservation Act (WVDCH, tribal governments);
- Natural Heritage/Protected Species and Stream Activity Permit (WVDNR, West Virginia Public Lands Corporation);

- Highway Occupancy/Encroachment Permits MM109 (West Virginia Department of Transportation, Division of Highways); and

- Regulatory Floodplain Fill Permits:

    - Upshur County;
    - Harrison County;
    - Lewis County;
    - Pocahontas County; and
    - Randolph County.

10.2 NOTICE OF TERMINATION

Within 30 days of final stabilization, DTI will file a NOT for the permit, which notifies WVDEP that the Permittee is requesting a final inspection of the site. ESCs are to be removed once stabilization is achieved. DTI will coordinate removal of ESC's with the WVDEP final inspection.

11.0 CUBIC YARDS OF EXCAVATION (CUT/FILL) AND WASTE/BORROW SITES

Excavation activities will consist of excavating and backfilling of the pipeline trench, construction of the CS pad, and construction of the M&R Station and other ancillary facilities. No waste areas, borrow sites, or ditches will be installed as part of this Project. Cubic yards of cut/fill by facility are included in Table 11-1.

TABLE 11-1

Cubic Yards of Excavation

Location	Cut (Cubic Yards)	Fill (Cubic Yards)
Marts CS	139,000	114,000
Long Run M&R	12,000	11,000
Pipeline	1,500,000	1,500,000

Trenching will be accomplished with an excavator or a similar machine. Excavated material is typically placed adjacent to the trench. In areas where soft rock or hard pans are present, a tractor-mounted ripper may be used to break and loosen consolidated material. Loosened material, not suitable as safe backfill material for placement over or around the pipeline, will be removed from the excavated substrate prior to backfilling of the trench. The loosened material will be redistributed within the limits of the permitted workspace. Upon successful installation of the pipeline segment and backfilling operations, the excavation areas will be returned to their approximate original slope and contours.

Backfilling of the trench will be performed as early as possible and should not exceed 45 days per pipeline segment. The Contractor will be required to notify DTI and the Environmental Inspector (EI) of any extenuating circumstances requiring open trenches in excess of 45 days. The backfill material that will be returned to the trench will typically consist mostly of the excavated material removed from the trench subject to particle size and quality of the materials. Following pipeline installation, disturbed areas will be returned to their approximate original slope and contours, stabilized, and seeded.

Construction of the ACP in West Virginia will affect approximately 2,496.64 acres of land total, including the permanent pipeline ROW, temporary construction ROW, additional temporary workspace (ATWS), aboveground facility sites, access roads, and pipe storage and contractor yards. Following construction, approximately 1,121.74 acres, including the temporary construction ROW, ATWS, temporary workspace at aboveground facility sites, and pipe storage and contractor yards, will revert to preconstruction conditions and uses. The remaining approximately 1,374.90 acres, including the permanent pipeline easement, permanent aboveground facility sites, and access roads, will be retained for operation of the new pipeline system.

Specific areas of grading and excavation are outlined in the attached drawings, the Construction Alignment Sheets and Aboveground Facility Site Specific Plans (see Drawing Set #1 and #2).

For the AP-1 mainline, the construction corridor in non-agricultural uplands will measure 125 feet in width, with a 40-foot-wide spoil side and an 85-foot-wide working side. In areas

where full width topsoil segregation is required (e.g., agricultural areas), an additional 25 feet of temporary construction workspace will be needed on the working side of the corridor to provide sufficient space to store topsoil. In wetlands, the width of the construction ROW will be reduced to 75 feet, with 25 feet on the spoil side and 50 feet on the working side. Following construction, a 75-foot-wide permanent easement will be maintained for operation of the pipeline.

In addition to the construction ROW, ATWS will be required to stage construction activities and store equipment, materials, and spoil at wetland, waterbody, and road crossings. ATWS will also be required in areas with steep side slopes, where special construction techniques are implemented, at tie-ins with existing pipeline facilities, utility crossings, truck turnaround areas, and spread mobilization/de-mobilization areas. For the AP-1 mainline, ATWS measuring 50 by 150 feet will typically be required on both sides of the corridor and both sides of the crossing at wetlands, waterbodies measuring greater than 10 feet in width, two lane roads, and railroads. ATWS measuring 25 by 100 feet will typically be required on both sides of the corridor and both sides of the crossing at waterbodies measuring less than 10 feet in width and single lane roads. Following construction of the pipelines, ATWS will be restored in accordance with the FERC Plan and Procedures, along with other federal and state agency requirements and landowner stipulations. Specific locations of ATWS are shown on the Construction Alignment Sheets, Drawing Set #1.

In West Virginia, the proposed AP-1 mainline will typically be constructed in steep, mountainous terrain. As previously discussed in Section 9.5.1, when the temporary ROW is restored to approximate preconstruction contours, the depth of cover over the pipeline could exceed the required minimum of three feet or more in steep terrain areas. During operation of the pipeline, if it is necessary to expose the installed pipeline for maintenance activities, a wider trench may be need to be excavated in areas of deeper fill. In determining the width of the permanent ROW needed along these narrow ridgelines and steep terrain for operation of the AP-1 mainline, the following criteria were used:

- 42-inch-diameter pipe;
- 10 feet depth of cover over the pipeline, and possibly greater depth of cover at over-bends and along ridgelines; and
- A 1 to 1 horizontal to vertical grade (45 degrees) on the trench walls in soils classified by the Occupational Safety and Health Administration as Type B.

Given the criteria, a permanent ROW of 75 feet is required along ridgelines. Additionally, outside of steep areas, DTI believes that a 75-foot-wide ROW is necessary due to changes in local terrain, soil conditions, and depth of cover requirements in different land use areas. Therefore, DTI will maintain a 75-foot-wide ROW along the length of the AP-1 mainline in West Virginia.

Post-construction stormwater runoff for these land disturbance areas is discussed in Section 12.0.

12.0 PRE-DISCHARGE AND POST-DISCHARGE CALCULATIONS

Post-construction stormwater management BMPs are outlined in Section 13.4.2 of this plan. Details on seed mixtures are provided in Section 13.3.6 and Appendix P, the Restoration and Rehabilitation Plan. Following construction, disturbed areas will be covered by permanent protection with vegetation uniformly covering more than 70 percent of ground areas. Stormwater outlets shall be stabilized with non-erosive material or discharged at non-erosive velocities.

New impervious surfaces will not be created by this Project along the AP-1 ROW. The majority of areas that will be affected consist of vegetated ROW. All non-impervious areas in the ROW disturbed by the Project will be restored to their approximate original conditions and their preconstruction contours. When encountered, existing impervious areas disturbed by the Project will be restored with similar construction materials and to approximate original conditions, and contours. Accordingly, post-construction runoff will remain essentially the same as preconstruction runoff. Therefore, the calculation of runoff coefficients for preconstruction versus post-construction conditions along the ROW is not warranted or applicable to the linear portion of the Project. Likewise, the pipe storage and contractor yards will be restored to pre-construction conditions and will not require stormwater management measures.

The Marts CS (CS1) or similar areas involving the addition of impervious area have had stormwater management facilities designed according to site specific parameters and requirements. Refer to site construction plans and calculations for post construction stormwater management at those facilities (Drawing Set #2).

13.0 NARRATIVE DESCRIPTION OF EROSION AND SEDIMENT CONTROLS

The ESCs outlined in this plan have been prepared for use by DTI and its contractors as a guidance manual for minimizing erosion of disturbed soils and transportation of sediments off the construction ROW and into identified water resources, sensitive areas, and residential areas during construction of the Project. The procedures developed, which represent the Project's BMPs, are designed to accommodate varying field conditions while achieving compliance with regulatory requirements and being protective of the environment.

This SWPPP also includes implementation of the BIC Program for addressing steep slopes, slip prone soils, karst terrain, and similar sensitive areas beyond typical West Virginia design requirements. This BIC Program proactively addresses identified potential issues and provides a tool box for the construction team to actively address issues identified during construction.

The ESC measures outlined in the following sections are designed to provide guidelines, BMPs, and typical techniques for the installation and implementation of soil erosion and sediment control measures while permitting adequate flexibility to use the most appropriate BMP measures based on site-specific conditions. The intent of the ESC measures included in this plan is to provide general information on the pipeline construction process and sequence, and to describe specific measures that will be employed during and following construction to minimize potential impacts to the environment.

ESC BMP information is referenced from the WV BMP Manual. This SWPPP, specifically the ESCs for construction activities in this plan have five goals, as required by WVDEP:

1. limiting the amount of total disturbance;
2. diverting upslope water around disturbed areas of the site;
3. limiting the exposure of disturbed areas to the shortest duration possible;
4. controlling internal water and runoff; and
5. removing sediment from stormwater before it leaves the site.

13.1 MINIMIZE DISTURBED AREA

13.1.1 Typical Right-of-Way Requirements

Pipeline construction workspace requirements are a function of pipe diameter, equipment size, topography, geological rock formations, location of construction such as at road crossings or river crossings, pipeline crossovers, methods of construction such as boring or open-cut construction, or existing soil conditions encountered during construction. As the diameter of the pipeline being installed increases, so does the depth of trench, excavated spoil material, equipment size, and ultimately the amount of construction workspace that will be required to construct the Project. Workspace locations for a given Project will be shown on the Construction Alignment Sheets (see Drawing Set #1).

Additional construction ROW may be required at specific locations including, but not limited to, steep side or vertical slopes, road crossings, pipeline crossovers, areas requiring supplemental topsoil segregation, and staging areas associated with wetland and waterbody crossings.

Construction activities, including staging, grading and additional spoil storage areas, are restricted to the construction ROW limits identified on the Construction Alignment Sheets, except for specific activities in limited, non-wetland and non-riparian areas that are allowed by the FERC Plan and Procedures (i.e., slope breakers, energy-dissipating devices, dewatering structures, and drain tile system repairs). Use of these limited areas is subject to landowner or land management agency approval and compliance with all applicable survey, permit, and reporting requirements; therefore, prior DTI approval is required to use these areas. In some cases, federal, state, and local permits and authorizations may require additional approvals.

Minor field realignments and workspace shifts per landowner needs and requirements are only allowed if construction activities remain within the environmental field survey area, comply with Project-specific environmental permits and landowner easements, and do not affect new landowners or sensitive resource areas.

13.1.2 Access Roads and Access Points

To the extent practical, access to the construction ROW should utilize existing roads and access will be avoided or minimized in wetlands. However, additional access roads to the construction ROW may be required at various points along the Project where other road crossings (paved or gravel state/local roads) do not exist. Improvements to existing access roads (i.e., earth grading, replacing/installing culverts, and trimming overhanging vegetation) may be required due to the size and nature of the equipment that would utilize the road. Refer to Appendix Q for Access Road Plans. The following conditions apply to the use of access roads:

- In West Virginia, access road upgrades requiring grading of earth, cleaning of roadside channels, widening or similar earth disturbance shall be shown within the Project LOD and have appropriate ESCs installed. Existing access roads requiring only the resurfacing with gravel or asphalt are not required to be included within the LOD.

- Construction entrances will have stone access entrance and exit drives and parking areas to reduce the tracking of sediment onto public or private roads. Except for haul roads, all unpaved roads on the site carrying more than 25 vehicles per day will be graveled.

- During construction and restoration activities, access to the ROW is limited to the use of new or existing access roads identified on the Construction Alignment Sheets.

- The only access roads that can be used in wetlands, other than the construction ROW, are those existing roads requiring no modification or improvements, other than routine repair, and posing no impact on the wetland.

- The construction ROW may be used for access across wetlands when the wetland soil is firm enough to avoid rutting or the construction ROW has been appropriately stabilized to avoid rutting (e.g., timber matting). However, access is not allowed through wetlands that would not otherwise be impacted by the Project.

- In wetlands that cannot be appropriately stabilized, all construction equipment other than that needed to install the wetland crossing shall use access roads located in upland areas. Where access roads in upland areas do not provide reasonable access, limit all other construction equipment to one pass through the wetland using the construction ROW.

- Maintain safe and accessible conditions at all road crossings and access points during construction and restoration. Access road maintenance through the construction sequence may include grading and the addition of gravel or stone when necessary.

- Maintain access roads in a stable manner to prevent off-ROW impacts, including impacts to adjacent and/or nearby sensitive resource areas, and implement appropriate ESC measures for construction/improvement of access roads.

- Minimize the use of tracked equipment on public roadways and in accordance with requirements of the managing agency.

- Remove soil or gravel spilled or tracked onto roadways daily or more frequently as necessary to maintain safe road conditions.

- Repair damages to roadway surfaces, shoulders, and bar ditches.

- If crushed stone/rock access pads are used in residential or agricultural areas, stone shall be placed on appropriate geotextile fabric to facilitate removal after construction.

- All access roads across a waterbody must use an equipment bridge.

- For access through a saturated wetland, use timber mats or an equivalent, unless otherwise authorized by agency permits.

Limit construction equipment operating in wetland areas to that needed to clear the ROW, dig the trench, fabricate and install the pipeline, backfill the trench, and restore the construction ROW. All other construction equipment shall use access roads located in upland areas to the maximum extent practical.

13.1.3 Contractor Yards

Contractor yards are required for storing and staging equipment, pipe, fuel, oil, pipe fabrication, and other construction-related materials and preparations. The contractor shall perform the following measures at contractor yards:

- Strip and segregate topsoil in agricultural lands.
- Install ESC structures identified on the Construction Alignment Sheets, and as outlined in this SWPPP. Implement additional controls as directed by the EI. Maintain controls throughout construction and restoration activities.
- Implement required spill prevention and containment of potential contaminants and comply with the SPCC Plan, including the completion of required site-specific forms and attachments.
- Restore and revegetate all disturbed areas in accordance with the measures outlined in this SWPPP, landowner agreements and/or as directed by the EI. At a minimum, the area must be returned to approximate preconstruction contours and stabilized prior to contractor demobilization.

13.1.4 Off-Right-of-Way Disturbance

All construction activities are restricted to the construction ROW LOD identified on the Construction Alignment Sheets, except for specific activities in limited, non-wetland and non-riparian areas that are allowed by the FERC Plan and Procedures. Activities allowed to occur off-ROW but within the permit boundary are limited to the installation of slope breakers, energy-dissipating devices and dewatering structures, as well as repairs to drain tile.

13.2 CONSTRUCTION SEQUENCE

This section provides an overview of the equipment and operations necessary to complete construction, describes potential impacts that may occur from each operation, and identifies the measures that will be implemented to control these potential impacts. This section discusses in detail the ESC techniques that typically apply to each construction activity including site preparation, clearing and flagging, grading, trenching, lowering-in of pipe, pipe installation, and backfilling. ROW restoration is the final step in the typical construction sequence. An approximate construction schedule for the ACP is provided as Table 10-1.

Miss Utility of West Virginia (WV 811) will be contacted at least two business days prior to start of work but no sooner than 10 days before excavation begins. Prior to starting any earth disturbance activities, appropriate Project and agency personnel shall be invited to a preconstruction meeting.

Site Preparation

1. Survey and flag the construction ROW and mark environmentally sensitive areas.

2. Install rock access pads.

3. Conduct initial clearing, limited to that necessary to install temporary sediment barriers.

4. Install perimeter BMPs incrementally in advance of bulk earth-moving activity.

5. Conduct progressive clearing with installation of temporary sediment barriers and temporary equipment bridges keeping pace with clearing.

6. Modify access roads by grading and installing stone where needed.

7. Grade the ROW, and segregate topsoil where necessary.

8. Install temporary slope breakers, as needed to reduce runoff velocity and divert water off the construction ROW. If specified install temporary ESC at the outlet of each slope breaker.

9. For any outlets associated with the General Permit a marker listing the name of the establishment to which the General Permit was issued, the permit number, and the outlet number will be posted on the stream bank at each outlet. The marker will be a minimum size of two feet by two feet and will be a minimum of three feet above ground level.

Clearing and Flagging

Clearing operations include the removal of vegetation within the construction ROW. Various clearing methods are employed depending on tree size, contour of the land, and the ability of the ground to support clearing equipment. Vegetative clearing can be accomplished either by hand or by cutting equipment. The following procedures will be standard practice during clearing:

1. Prior to beginning the removal of vegetation:

    a. the limits of clearing will be established and visibly marked before clearing;

    b. signs and highly visible flagging will also be used to mark the boundaries of sensitive resource areas, including waterbodies and wetlands, and/or areas with special requirements along the construction work area, in accordance with the Construction Alignment Sheets;

    c. flagging or marking shall be maintained throughout construction; and

    d. trees to be protected per landowner requests or as otherwise directed will be clearly marked.

2. All construction activities and ground disturbance will be confined to within the construction ROW shown on the Construction Alignment Sheets.

3. All brush and trees will be felled into the construction ROW to minimize damage to trees and structures adjacent to the ROW. Trees that inadvertently fall beyond the edge of the ROW will be immediately moved onto the ROW and disturbed areas will be immediately stabilized, per landowner approval.

4. Trees will be chipped and removed or cut into lengths identified by the landowner and then stacked at the edge of the ROW. Trees may be burned depending on local and state restrictions, applicable permits, construction Line List stipulations, and landowner agreements.

5. Brush and limbs may be disposed of in one or more of the following ways depending on local restrictions, applicable permits, construction Line List stipulations, and landowner agreements:

    a. stockpiled along the edge of the ROW;

    b. burned – if burning of brush is elected and approved by the EI, the Contractor will first obtain a burn permit from the WVDEP Division of Air Quality and notify the local Fire Department with jurisdiction for regional requirements in West Virginia. During the forest fire season (typically March 1 to May 31 and October 1 – December 31 a permit must also be obtained from the West Virginia Division of Forestry. Notification of the Division of Forestry will be made outside of forest fire season. The Contractor will abide by all site-specific requirements of the permit. The EI will be notified of identified burn permit requirements that conflict with other permits or requirements of the Project;

    c. chipped, spread across the ROW in upland areas, and plowed in at the discretion of the Construction Site Supervisor or EI (excess material must be removed);

    d. used as part of erosion control mix material; or

    e. hauled off site to a DTI-approved location.

6. Existing surface drainage patterns shall not be altered by the placement of timber or brush piles at the edge of the construction ROW.

Grading

The construction ROW will be graded as needed to provide a level workspace for safe operation of heavy equipment used in pipeline construction. The following procedures will be standard practice during grading; topsoil segregation, tree stump removal and disposal, rock management, temporary stabilization, and temporary slope breakers as needed. These procedures are discussed in more detail in subsequent sections.

Trenching

The trench centerline will be staked after the construction ROW has been prepared. In general, a trench will be excavated to a depth that will permit burial of the pipe with a minimum of 3 feet of cover.

The following procedures will be standard practice during ditching:

1. Flag drainage tiles damaged during ditching activities for repair.

2. Place spoils in additional extra work areas or at least 10 feet away from the waterbody's edge in the construction ROW. Spoil will be contained with ESC devices to minimize the potential for spoil materials or sediment-laden water from transferring into waterbodies and wetlands or off of the ROW.

3. If temporary ESCs are damaged or removed during trenching, they shall be repaired and/or replaced before the end of the work day.

Pipe Installation

During the pipe installation process, ensure that all roadway crossings and access points are safe and in accessible condition. Repair damaged temporary erosion controls by the end of the work day. If portions of slope breakers are removed from the travel lane to facilitate safe work conditions, they shall be restored prior to the end of the work day. Pipe installation will commence according to DTI construction and implementation plans and generally consists of stages such as stringing and bending, welding, and lowering-in and tie-ins.

1. Excavate new trench to accommodate new/replacement pipeline segment.

2. String pipe, bend the pipe joints.

3. Weld the pipe, inspect welds.

4. Lower the pipe into the trench.

5. Install permanent trench plugs and drains.

6. Backfill the trench.

7. Install hydrostatic test dewatering structures.

8. Hydrostatically test the pipe and dewater.

9. Bring the pipeline to gas service.

10. Final grade ROW and temporary workspaces to approximate original contours to the extent practicable.

11. Replace segregated topsoil.

12. Install permanent slope breakers.

13. Conduct ROW restoration and cleanup. As soon as slopes, channels, ditches, and other disturbed areas reach final grade, they must be stabilized.

14. Apply soil amendments, permanent seed, mulch, and/or erosion control matting.

15. Restore temporary access roads or paved surfaces to original condition.

16. Remove temporary sediment barriers from an area when replaced by permanent erosion control measures or when the area has been successfully restored to uniform 70 percent perennial vegetation.

Backfilling

Backfilling consists of covering the pipe with the earth removed from the trench or with other fill material hauled to the site when the existing trench spoil is not adequate for backfill. Backfilling will follow lowering-in of the pipeline as close as is practical.

In areas where the trench bottom is irregularly shaped due to consolidated rock or where the excavated spoil materials are unacceptable for backfilling around the pipe, padding material may be required to prevent damage to the pipe. This padding material will generally consist of sand or screened spoil materials from trench excavation.

Pipeline Abandonment and Removal

Pipeline abandonment and removal activities may occur when gas service is no longer needed, such as the abandonment of a lateral to a customer receipt or delivery point. For the ACP Project, only minor cut out sections for abonnement are expected. Removal or in-place abandonment of pipe can also be conducted as part of an expansion or maintenance Project, such as the lift-and-relay of existing pipe, the replacement or relocation of an existing pipeline due to road or highway modifications, or activities required to maintain compliance with U.S. Department of Transportation requirements.

Abandonment of FERC-regulated natural gas pipelines or storage facilities, either in place or by removal, must follow FERC's regulations. Where removal of a section of existing pipeline is required, construction activities typically proceed in a construction sequence similar to what has been described for new construction, except that instead of the pipeline installation step, the existing pipeline would be cut and removed from the trench. If the pipeline removal is associated with a lift-and-relay Project or a replacement, then the new pipeline installation would follow the removal of the old pipe. Pipe that is abandoned by removal will be handled, taken off site and properly disposed of or recycled in accordance with DTI procedures.

When a pipeline is abandoned in place, typically work involves only relatively small excavations to remove above-ground appurtenances and meters, as well as expose the pipe in certain locations, cut it, fill with grout or blanket gas and cap the ends of the pipe, in accordance with agency and DTI requirements.

Mitigation measures for pipeline abandonment and removal activities, such as erosion control measures, will follow the same requirements outlined within this plan for pipeline installation in order to minimize erosion and enhance revegetation, as well as mitigate the extent and duration of Project-related disturbance to wetlands and waterbodies.

Restoration and Final Cleanup

Restoration of the ROW will begin after pipeline construction activities have been completed. Restoration measures include the re-establishment of final grades and drainage patterns as well as the installation of permanent ESC devices to minimize post-construction erosion. Property shall be restored as close to its preconstruction condition as practical unless otherwise specified by the landowner.

1. The Contractor shall make every reasonable effort to complete final cleanup of an area (including final grading, topsoil replacement and installation of permanent erosion control structures) within 20 days after backfilling the trench in that area (within 10 days in residential areas). If seasonal or other weather conditions prevent compliance with these timeframes, continue to inspect and maintain temporary ESCs (i.e., temporary slope breakers, sediment barriers, and mulch) until conditions allow completion of cleanup.

2. As soon as slopes, channels, ditches, and other disturbed areas reach final grade, they must be stabilized. The disturbed ROW will be seeded as soon as possible and within no more than 6 working days of final grading, weather and soil conditions permitting.

3. Grade the ROW to approximate preconstruction contours, with the exception of the installation of any permanent measures required herein.

4. Spread segregated topsoil back across the graded ROW to its original profile.

5. Remove excess rock from at least the top 12 inches of soil in all cultivated or rotated cropland, managed pastures, hayfields, residential areas, as well as other areas at the landowner's request. The size, density, and distribution of rock on the construction ROW shall be similar to adjacent areas not disturbed by construction. The landowner or land managing agency may approve other provisions in writing.

6. A travel lane may be left open temporarily to allow access by construction traffic if the temporary ESC structures are installed, regularly inspected, and maintained. When access is no longer required, the travel lane must be removed and the ROW restored.

7. Remove all construction debris (used filter bags, skids, trash, etc.) from all construction work areas and dispose at an approved facility. Remove all unused or incidental clean material unless the landowner or land managing agency approves leaving material on site for beneficial reuse, stabilization, or habitat

restoration. Grade or till the ROW to leave the soil in the proper condition for planting.

13.3 VEGETATIVE PRACTICES

Natural vegetation will be preserved as much as possible, but especially on critical areas such as: steep slopes, areas adjacent to perennial and intermittent watercourses or swales or wetlands, and on building sites in wooded areas. Fence or clearly mark areas around plants that are to be saved. Where possible, the trenches will be routed around trees and large shrubs.

Stabilization measures must be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased; but in no case more than seven days after the construction activity in that portion of the site has ceased. However, where construction activity will resume on a portion of the site within 14 days from when the activities ceased, (i.e., the total time period that construction activity is temporarily halted is less than 14 days) then stabilization measures do not have to be initiated on that portion of the site by the seventh day after construction activities have temporarily ceased.

Areas where the seed has failed to germinate adequately and establish a uniform perennial vegetative cover with a density of 70 percent, within 30 days after seeding and mulching must be reseeded immediately, or as soon as weather conditions allow. Clean water diversions must be stabilized before becoming functional. For more detail on the seed mixes and revegetation measures see Appendix P, Restoration and Rehabilitation Plan.

13.3.1 Tree Stump Removal and Disposal

To allow adequate clearance for safe operation of vehicles and equipment the removal of tree stumps in upland areas along the entire width of the permanent ROW will be completed. Stumps within the temporary ROW will be removed or ground below the surface to allow the safe passage of equipment, as determined by the Construction Site Supervisor or EI. The USFS requirements for tree removal will be addressed within the Construction, Operations, and Maintenance Plan. In addition the following removal or disposal of tree stumps could potential occur:

- In wetlands, limit pulling of tree stumps and grading activities to directly over the trenchline. Grading or removal of stumps/root systems will not be completed from the rest of the construction ROW in wetlands unless the Chief Inspector and EI determine that safety-related construction constraints require grading or the removal of tree stumps from under the working side of the construction ROW (per FERC Procedure VI.B.2.g).

- Dispose of stumps by one of the following methods with the approval of the Construction Site Supervisor and the landowner and in accordance with regulatory requirements:

    - burned on construction ROW;
    - chipped, spread across the construction ROW in upland areas, and plowed in;

- used as erosion control mix material; and
- hauled off site.

13.3.2 Temporary Stabilization

Temporary stabilization will be conducted as needed for graded areas, spoil piles and other disturbed land during construction. The seed used for stabilization will not include any plant species prohibited by the West Virginia Noxious Weed Act. As part of the FERC process a Restoration and Rehabilitation Plan was prepared for the ACP to address post-construction restoration and rehabilitation activities. Revegetation and seeding mixes are discussed in more detail in this plan included as Appendix P. The seed mixes were determined by the Project area broken into Revegetation Units (RU) by physiographic regions.

13.3.3 Topsoil Segregation

During construction, topsoil and subsoil will be disturbed by grading of the ROW, trench excavation, and by heavy equipment moving along the ROW. Implementation of proper topsoil segregation is intended to mitigate these construction impacts and promote or facilitate post-construction revegetation success.

Topsoil segregation methods will be used in all residential areas (except where the topsoil is being replaced), wetlands (except areas where standing water is present or soils are saturated), cultivated or rotated croplands, managed pastures, hayfields, and other areas at the landowner's or land managing agency's request. Either the "ditch plus spoil side" or the "full ROW" segregation method will be used.

1. Prevent the mixing of topsoil with subsoil by stripping topsoil from either the full work area or from the trench and subsoil storage area ("ditch plus spoil side" method).

2. Segregate at least 12 inches of topsoil in deep soils with more than 12 inches of topsoil. In soils with less than 12 inches of topsoil, make every effort to segregate the entire topsoil layer.

3. Within wetlands, segregate the top 12 inches of topsoil within the trenchline, except in areas where standing water is present or soils are saturated.

4. In residential areas, importation of topsoil (i.e., topsoil replacement) is an acceptable alternative to topsoil segregation, if approved by the landowner and Construction Site Supervisor.

5. Maintain separation of salvaged topsoil and subsoil throughout all construction activities.

6. Leave gaps in the topsoil piles and spoil piles for the installation of temporary slope breakers to allow water to be diverted off the construction ROW.

7. Never use topsoil for padding the pipe, constructing temporary slope breakers, trench breakers or trench plugs, improving or maintaining roads, or as a fill material.

8. Stabilize topsoil piles and minimize loss due to wind and water erosion with use of sediment barriers, mulch, temporary seeding, or functional equivalents, where necessary. The stockpiles will be laid out perpendicular to the predominant wind direction where possible and practical.

13.3.4 Mulching

At a minimum, a mulch application will be applied and temporary erosion control structures will be maintained until final stabilization has been achieved. Mulch is intended to stabilize the soil surface and shall consist of weed-free straw, wood fiber hydromulch, erosion control fabric, or some functional equivalent as approved by the EI and Construction Site Supervisor. A Restoration and Rehabilitation Plan was prepared for the ACP and the associated Supply Header Project to address post-construction restoration and rehabilitation activities. Refer to the attached Restoration and Rehabilitation Plan (Appendix P) for seedbed preparation, seed mix selection, seeding methods, lime and fertilizer application, mulching, and supplemental planting.

DTI has been granted an exception to the time of year restriction for chemical mulches. DTI will use Earth Guard brand fiber matrix mulch (copolymer emulsion blend with fiber mulch) or similar. The material will be used in accordance with manufacturers specifications including application rates based upon time of year, slope and soil conditions. As the project will continue for more than a year, the use of this material is expected to occur within various seasons as both a permanent and temporary stabilization.

13.3.5 Temporary Seeding

Use temporary seeding where exposed soil surfaces are not to be fine-graded for periods longer than 21 days. Such areas include denuded areas, soil stockpiles, dikes, dams, sides of sediment basins, temporary road banks, etc. A permanent vegetative cover must be applied to areas that will be left unworked for a period of more than six months. Annual plants that sprout rapidly and survive for only one growing season are suitable for establishing temporary vegetative cover. Temporary seeding is encouraged whenever possible to aid in controlling erosion on construction sites. To control erosion on bare soil surfaces, plants must be able to germinate and grow. Seedbed preparation is essential. If the area has been recently loosened or disturbed, no further roughening is required. When the area is compacted, crusted, or hardened, the soil surface must be loosened by disking, raking, harrowing, or other acceptable means. Seed must be evenly applied with a broadcast seeder, drill, cultipacker seeder, or hydroseeder. Small grains must be planted no more than 1.5 inches deep. Small seeds, such as annual rye, must be planted no more than one-quarter-inch deep. Other grasses and legumes must be planted no more than one-half-inch deep. Temporary seeding conducted in fall for winter cover and during hot and dry summer months must be mulched with straw or hay according to the standard for mulching. Hydromulches (fiber mulch) may not provide adequate temperature and moisture control. See Table 13.3.5-1 for timeframes when temporary seeding is required.

TABLE 13.3.5-1 **Temporary Seeding Timeframes**	
Areas Requiring Temporary Stabilization	Timeframe to Apply Erosion Controls
For all construction areas, disturbed areas that will be idle for more than 21 days	Within 7 days of the most recent disturbance in the area
Disturbed areas that will be idle over the winter	Prior to the on-set of winter weather

13.3.6 Permanent Seeding

Permanent seeding is the establishment of perennial vegetative cover on disturbed areas by planting seed. Permanent seeding will permanently stabilize disturbed areas in a manner that is economical, adaptable to site conditions, and allows selection of the most appropriate plant materials. Permanent seed will be applied in disturbed areas where permanent, long-lived vegetative cover is needed to stabilize the soil, and at rough-graded areas that will not be brought to final grade for six months or more. However, in seeding for erosion control purposes, the inclusion of more than one species must be considered. Mixtures need not be excessive in poundage or seed count. The addition of a nurse crop is necessary for soil stabilization, particularly on difficult sites, those with steep slopes, poor, rocky, erosive soils, those seeded outside of the optimum seeding periods, or in any situation where the permanent cover development is likely to be slow. The nurse crop germinates and grows rapidly, holding the soil until the slower-growing perennial (permanent) seedlings become established. The seed mixture(s) to be used are described in the Restoration and Rehabilitation Plan included as Appendix P.

If seed fails to germinate adequately (uniform perennial vegetative cover with a density of 70 percent) in any of the Project areas within 30 days after seeding and mulching, then the areas must be reseeded immediately, or as soon as weather conditions allow.

If vegetation has not been established by November 1st, use Winter Rye at 85 pounds per acre in lieu of the Perennial Ryegrass.

13.3.7 Wetland Vegetation Practices

As further described in Section 5.10 of the Restoration and Rehabilitation Plan (Appendix P), seeding of wetlands is not anticipated as wetlands are expected to naturally revegetate. Wetland revegetation will be considered successful when vegetation community characteristics are similar to the vegetation in adjacent wetland areas that were not disturbed by construction. Restored wetland vegetation will include at least 80 percent of the species targeted for restoration, and the density and distribution of individuals plants will be similar to areas not disturbed by construction. Fertilizer, lime, or mulch will not be used within the wetland area unless required in writing by an appropriate land management or state agency. Topsoil in wetland areas will be segregated, stockpiled, and reapplied after final grading has been reached.

13.3.8 Vegetative Buffers

A natural vegetative buffer must be provided adjacent to receiving streams or other waterbodies on the Project site. Vegetative buffers may be reduced at the direction of the EI for

linear Projects where ROW acquisition or area is limited. Contractor shall attempt to maintain as much of the natural vegetation as possible in these instances.

No disturbance is permitted within a vegetative buffer, except for necessary infrastructure improvements (utility lines, road crossings, etc.), or unless planting is required.

The minimum vegetative buffer width must be 100 feet, unless specific design information can be provided to justify a smaller buffer width. For slopes greater than 10 percent, the minimum distance is 250 feet. Smaller buffers may be used in conjunction with other BMPs.

The width of the contributing area to the vegetative buffer will not exceed 300 feet, unless energy-dissipating devices are provided. Buffers may be used as a supplement to other BMPs for larger drainage areas. Good (minimum of 80 percent) vegetative cover must be present in the proposed buffer area.

13.4 STRUCTURAL CONTROLS

Activities related to the construction of AP-1 will occur within the Project Area indicated on Figure 2 of Appendix A. Excavation activities for this Project will be limited to the indicated LOD. Excess soil will be spread on site, and disturbed areas will be returned to their approximate original slope and contours. Constructed fill slopes are generally limited to the construction of the ancillary facilities such as CS1 (Marts) or M&R facilities. No fill slopes are being proposed for the AP-1 alignment except in limited instances identified in the field where necessary to promote slope stability. The following sections detail the temporary and permanent sediment controls measures proposed to be utilized on AP-1. The proposed disturbance within the AP-1 section of the Project is temporary; therefore, no permanent stormwater detention/retention structures will be required on the pipeline.

Stormwater controls and ESCs have been designed for the ancillary facilities such as the CS1 (Marts) and M&R sites. These controls will be shown on the Site Specific Drawings (see Drawing Set #2). For all disturbed areas, sediment-laden water must be directed through appropriate BMP's before leaving the Project Area.

The entire ROW will be re-vegetated following completion of the installation activities. The following sections and the Construction Alignment Sheets, Drawing Set #1, illustrate the various ESCs that will be used on this Project. Typical construction details with regard to road, railroad, stream, and wetland crossings are located in Appendix N.

13.4.1 Temporary Structure Control Measures

13.4.1.1 Temporary Sediment Barriers

Sediment barriers, which are temporary sediment controls intended to minimize the flow and deposition of sediment beyond approved workspaces or into sensitive resource areas, will be installed prior to mechanized clearing of trees, brush, and vegetation. They may be constructed of materials such as silt fence, compacted earth (e.g., drivable berms across travel lanes), compost filter sock, sand bags, or other appropriate materials (see detail on Construction Alignment Sheets, Drawing Set #1).

1. Install temporary erosion controls immediately after initial disturbance of the soil. Temporary erosion controls must be properly maintained through construction (on a daily basis) and reinstalled as necessary (such as after backfilling of the trench) until replaced by permanent erosion controls or restoration is complete.

2. Install temporary sediment barriers at the base of slopes greater than 5 percent where the base of the slope is less than 50 feet from a road crossing, waterbody, and/or wetland. Leave adequate room between the base of the slope and the sediment barrier to accommodate ponding of water and sediment deposition.

3. Where wetlands or waterbodies are adjacent to and downslope of construction work areas, install sediment barriers along the edge of these areas, as necessary to prevent sediment flow into the wetland or waterbody.

4. Sediment control logs such as coir logs or compost filter logs will be used on equipment bridges or on mats across the travel lane.

5. Inspect temporary sediment barriers daily in areas of active construction to ensure proper functioning and maintenance. In other areas with no construction or equipment operation, sediment barriers will be inspected and maintained on a weekly basis throughout construction, and within 24 hours following runoff events (greater than 0.5 inches of rainfall in 24 hours). Remove accumulated sediments when sediment reaches half the aboveground height of the fence or one-third the aboveground height of compost filter sock barriers (see Maintenance Section 18.0).

6. Sediment removed from erosion controls will be disposed by adding to existing on-site soil stockpiles and stabilizing, or will be reused on site within the construction ROW and outside of any wetlands, streams, or riparian areas.

7. Maintain all temporary sediment barriers in place until permanent revegetation measures are successful or the upland areas adjacent to wetlands, waterbodies, or roads are stabilized.

8. Remove temporary sediment barriers from an area when replaced by permanent ESC measures or when the area has been successfully restored to a minimum of 70 percent uniform distribution of perennial vegetation.

13.4.1.2 Belted Silt Retention Fence

BSRF will be used to intercept and detain small amounts of sediment from disturbed areas during construction operations to minimize the potential for sediment from leaving the site. BSRF will be entrenched a minimum 8 inches with 4-inch "J" and placed on the contour perpendicular to the flow of the water. It will not be installed in areas of concentrated flow or in areas where the drainage area is too large. BSRF will be installed in places below disturbed areas where erosion would occur in the form of sheet flow and small rill erosion. BSRF will never be installed in streams or in any area where there is a reasonable chance of concentrated

flow. A trench must be excavated approximately 4 inches wide and 8 inches deep on the upslope side of the proposed location of the measure. The fabric must not be stapled to existing trees. The most common type of BSRF has the stakes attached to the fabric at the factory. The 4- by 8-inch trench must be backfilled and the soil compacted over the filter fabric. BSRF will be removed when it has served its useful purpose, but not before the upslope area has been permanently stabilized. The ends of a run of BSRF will be turned uphill to provide required sediment retention capacity behind the BSRF and to prevent runoff from going around the end.

BSRF will be installed where indicated on the Construction Alignment Sheets, Drawing Set #1 and as directed by the EI. BSRF will be installed following the contour and at the following locations unless otherwise directed by the EI:

- at edge of ROW if a residential area is within 50 feet of the construction ROW;
- at the entrance and exit of all wetlands; on either side of an ephemeral, intermittent, or perennial stream crossing;
- at edge of ROW if an intermittent or perennial stream is within 50 feet of the construction ROW; and
- along the edge of paved roadways if the roadway is downgradient of land disturbance.

BSRF will be installed in accordance with the detail in the Construction Alignment Sheets, Drawing Set #1. Sediment will be removed when accumulations reach one-third of the ground height of the sediment barrier. Any section of a sediment control structure that has been undermined or topped will be immediately repaired.

The method of installation for the BSRF is an integral part of the system and is critical to the success of the installation. The specifically designed process includes wood (oak) stakes and wood bonding strips at four-foot intervals. Four-foot stakes are driven to a depth which allows 24 inches of fabric to be above ground. The fabric is then stretched along the inside perimeter of the stakes, pulled tightly, and held in place with bonding strips. The bonding strips (typically 1" x 3/8" x 24") are attached to the stake with 1" x 1 ¼" staples. Five staples are used to secure the fabric in place against the 1 ¼" x 1 ¾" oak posts. This installation bonds the fabric and support system (scrim) to the vertical support post. The remaining fabric is now tucked into the trench forming a "J" and when filled with dirt creates a "ground bite." With its firm attachment to each post, the load is now spread to the total linear strength of all the posts within the system. Variance from the material specifications installation requirements may alter the performance of this product.

BSRF fabric should be purchased in continuous rolls and cut to the length of the barrier to avoid joints. When joints are necessary, an 18- to 24-inch overlap is used, as indicated in the construction details and manufacturer recommendations.

BSRF will remain in place and maintained until the disturbed area being controlled by the BMP is permanently stabilized. BSRF function is consistent with WVDEP standards and expected to maintain and limit erosion from the proposed construction corridor.

13.4.1.3 Rolled Erosion Control Products

RECP is utilized on slopes or in conditions where typical mulch application may not provide adequate protection for germination and establishment of vegetation. RECP will be used where indicated on the Construction Alignment Sheets (Drawing Set #1) and where directed by the EI. When using RECPs, a stable and firm soil surface typically free of rocks over 4 inches, aggregations of smaller rock or other obstructions will be prepared. Soil amendments will be applied as necessary to prepare the seedbed. Seed and fertilizer will be applied in accordance with the Permanent Seeding Specifications. Typically, RECPs are unrolled parallel to the primary direction of flow (i.e., downslope). The product must maintain intimate contact with the soil surface over the entirety of the installation. Do not stretch or allow material to bridge over surface inconsistencies. Staple/stake RECPs to soil such that each staple/stake is flush with underlying soil. Install anchor trenches, seams, and terminal ends as specified in the manufacturer instructions. Install RECPs after application of seed, fertilizer, mulches (if necessary) and other necessary soil amendments. Additional information regarding installation of RECPs may be found in Construction Alignment Sheets, Drawing Set #1.

13.4.1.4 Temporary Slope Breakers

Temporary slope breakers are temporary erosion control measures intended to reduce runoff velocity and divert water off the construction ROW. Temporary slope breakers may be constructed of materials such as compacted soil, silt fence, or sand bags. Segregated topsoil may not be used for constructing temporary slope breakers.

- Install temporary slope breakers on all disturbed areas as necessary following grading operations to avoid excessive erosion. Unless otherwise specified by permit conditions, temporary slope breakers must be installed on slopes greater than 5 percent at the recommended spacing interval indicated below (closer spacing should be used if necessary):

Slope (%)	Spacing (feet)
< 5	300
10	175
15	125
20	100
>25	75

- Direct the outfall of each slope breaker to a stable, well vegetated area or construct an energy-dissipating device (silt fence, erosion control fabric, compost filter sock, etc.) at the end of the slope breaker.

- Position the outfall of each temporary slope breaker to prevent sediment discharge into wetlands, waterbodies, or other sensitive resource areas.

- Install temporary slope breakers across the entire construction ROW along slopes greater than 5 percent where the base of the slope is less than 50 feet from waterbody, wetland, and road crossings.

- Inspect temporary slope breakers daily in areas of active construction to insure proper functioning and maintenance. In other areas, the slope breakers will be inspected and maintained on a weekly basis or after a runoff event (greater than 0.5 inches in 24 hours) throughout construction. Repairs should be made within 24 hours of identification, or as soon as practical.

13.4.1.5 Trench and Site Dewatering

Dewatering may be periodically conducted to remove accumulated water or precipitation from the construction ROW, including from within the trenchline. The need for erosion controls as well as the type of control used will vary depending on the type and amount of sediment within the water, and volume and rate of discharge.

1. Conduct dewatering (on or off the construction ROW) in such a manner that does not cause erosion and does not result in silt-laden water flowing into any waterbody or wetland.

2. Elevate and screen the intake of each hose used to withdraw the water from the trench to minimize pumping of deposited sediments.

3. Water may be discharged into areas where adequate vegetation is present adjacent to the construction ROW to function as a filter medium.

4. Where vegetation is absent or in the vicinity of waterbody / wetland areas, water will be pumped into a discharge structure that accommodates the anticipated discharge volumes as well as type and amount of sediment within the water being discharged, including:

    a. a filter bag; or
    b. a structure composed of appropriate sediment barriers.

5. A structure that is more typically used for discharges of hydrostatic test water may be necessary for large volumes of water.

6. When using filter bags, secure the discharge hose to the bag. Bags will be changed when half full.

7. Remove dewatering structures as soon as practicable after the completion of dewatering activities.

13.4.1.6 Drop Inlet Protection

Storm drain inlets are to be made operational before permanent stabilization of the corresponding disturbed drainage area. The use of drop inlets is typically limited to developed

areas of the Project (i.e., CS1 (Marts)). The drainage area will be no greater than one-acre per inlet. The drainage area must have slopes of five percent or less, and the area immediately around the inlet must not exceed a slope of one percent. The inlet protection device must be constructed in a manner that will facilitate clean out and disposal of trapped sediment and minimize interference with construction activities. The inlet protection devices must be constructed in such a manner that any resultant ponding of stormwater will not cause excessive inconvenience or damage to adjacent areas or structures. For the inlet protection devices that utilize stone as the chief ponding/filtering medium, a range of stone sizes is offered. The designer must attempt to get the greatest amount of "filtering" action possible. In all designs that utilize stone with a wire-mesh support as a filtering mechanism, the stone can be completely wrapped with the wire mesh to improve stability and provide easier cleaning. Filter Fabric may be added to any of the devices that utilize stone to significantly enhance sediment removal; but, reduced flow capacity will occur. The fabric, which must meet the physical requirements noted for "extra strength," must be secured between the stone and the inlet (on wire-mesh if it is present). As a result of the significant increase in filter efficiency provided by the fabric, a larger range of stone sizes (up to gabion size) may be utilized with such a configuration. Significant ponding will occur at the inlet if filter cloth is utilized in this manner. If there is a possibility that ponding will occur, the top of the inlet protection must be at least 6 inches below the nearest low spot to insure sufficient freeboard. Remove any obstructions prior to excavating and grading. Excavate any sump area, grade slopes, and properly dispose of soil. The inlet grate must be secured to prevent seepage of sediment-laden water. Ensure that weep holes in the inlet structure are protected by filter fabric and gravel.

Types of Inlet Protection include Silt Fence Drop Inlet Protection, Gravel and Wire Mesh Drop Inlet Protection, Block and Gravel Drop Inlet Protection, Pipe Riser Drop Inlet Protection, Excavated Drop Inlet Sediment Trap, Gravel Curb Inlet Protection, Curb Inlet Protection with 2-by 4-inch wooden Weir Block, and Gravel Inlet Protection. Refer to the Facility Construction Plans and the WV BMP Manual.

13.4.2 Permanent Control Structures

13.4.2.1 Permanent Trench Breakers/Trench Plugs

Trench plugs are intended to slow subsurface water flow and erosion along the trench and around the pipe in sloping terrain. An engineer or similarly qualified professional shall determine the need for and spacing of trench plugs. At a minimum, install a trench breaker at the base of slopes greater than 5 percent where the base of the slope is less than 50 feet from a waterbody or wetland and where needed to avoid draining a waterbody or wetland. Install trench breakers at wetland boundaries, as specified in the Procedures. However, trench plugs will not be installed within a wetland.

Trench plugs will be constructed with sand bags, polyurethane foam, or an equivalent as identified in the permit requirements. Topsoil shall not be used to construct trench plugs. Sakrete may be used at the discretion of the Construction Site Supervisor on severe slopes greater than 30 percent.

Trench plugs, which are used in conjunction with slope breakers, shall be installed at the locations shown on the Construction Alignment Sheets (see Drawing Set #1), at the same spacing interval as and upslope of permanent slope breakers, or as otherwise determined by an engineer or similarly qualified professional, such as the EI. If not shown, the following spacing will be used:

Slope (%)	Spacing (feet)
< 5	300
10	175
15	125
20	100
>25	75

Impervious trench plugs shall be installed at the base of slopes adjacent to waterbodies and wetlands, and where needed to avoid draining of a resource.

13.4.2.2 Permanent Waterbars

Permanent waterbars (i.e., ROW diversions) are intended to reduce runoff velocity, divert water off the construction ROW, and prevent sediment deposition into sensitive resources. Permanent waterbars will be constructed of compacted soil. Stone or some functional equivalent may be used when approved by DTI.

Construct and maintain permanent waterbars of at least 12 inches in height in all areas, except cultivated areas and lawns, unless requested by the landowner, at the locations shown on the Construction Alignment Sheets, Drawing Set #1. If not shown, the following spacing will be used:

Slope (%)	Spacing (feet)
< 5	300
10	175
15	125
20	100
>25	75

Construct permanent waterbars with a typical 3 to 8 percent cross slope to divert surface flow to a stable vegetative area without causing water to pool or erode behind the slope breaker. In the absence of a stable vegetative area, install an energy-dissipating device at the end of the waterbar. Permanent waterbars will be installed on access roads in accordance with the Construction Alignment Sheets (Drawing Set #1) or as directed by the EI.

Do not install permanent water bars where the discharge will run down and into the next water bar diversion. Where sufficient ROW or landowner permission exists, waterbars may extend slightly (about 4 feet) beyond the edge of the construction ROW to effectively drain water off the disturbed area. Where permanent waterbars extend beyond the edge of the

construction ROW, they are subject to compliance with all applicable survey and permit requirements.

Where drainage is insufficient in upland areas, install a rock-lined drainage swale as approved by the EI.

DTI has been granted an exception to utilize belted silt retention fence (BSRF) as an acceptable form of energy dissipation and sediment control at the ends of water bars during construction activities, in addition to other commonly accepted methods (i.e. filter sock, salvaged native rock, coir logs, etc.). During permanent seeding and restoration activities when temporary water bars are converted to permanent installations, the end treatment is then proposed to be changed to a filter sock, rock outlet or similar. These options will be allowed as acceptable forms of energy dissipation if Right-of-Way Diversion Spacing is maintained per Table 3.18.1 of the "2006 Erosion and Sediment Control Best Management Practice Manual".

13.4.2.3 Permanent Slope Breakers

Permanent slope breakers will be installed during final grading, where required, to slow runoff velocity and direct water off the ROW and prevent sediment deposition into sensitive resources. Permanent slope breakers may be constructed of materials such as soil, stone, or some functional equivalent. In accordance with the FERC Plan, DTI will adhere to the following general construction and maintenance specifications:

- Construct and maintain permanent slope breakers in all areas, except cultivated areas and lawns, unless requested by the landowner, using spacing shown on the Construction Alignment Sheets, Drawing Set #1.
- Spacing for permanent slope breakers will be the same as temporary slope breakers described in Section 13.4.1.4.
- Construct slope breakers to divert surface flow to a stable area without causing water to pool or erode behind the breaker. In the absence of a stable area, construct appropriate energy-dissipating devices at the end of the breaker.
- Slope breakers may extend slightly (about 4 feet) beyond the edge of the construction ROW to effectively drain water off the disturbed area. Where permanent breakers extend beyond the edge of the construction ROW, they are subject to compliance with all applicable survey and permit requirements.

13.4.2.4 Riprap

Riprap is used as a non-erodible lining for concentrated storm flows and for energy dissipation in stormwater flows. It may be used, as appropriate, at storm drain outlets, on channel banks and/or bottoms, roadside ditches, drop structures, at the toe of slopes, as transition from concrete channels to vegetated channels, etc. Riprap is classified as either graded or uniform. A sample of graded riprap would contain a mixture of stones that vary in size from small to large. A sample of uniform riprap would contain stones which are all fairly close in

size. For most applications, graded riprap is preferred to uniform riprap. Graded riprap forms a flexible self-healing cover, while uniform riprap is more rigid and cannot withstand movement of the stones. Hand or mechanical placement of individual stones is limited to that necessary to achieve the proper thickness, line, and grade. To ensure that stone of substantial weight is used when constructing riprap structures, specified weight and diameter ranges for individual stones and composition requirements must be followed. Refer to Table 3.23.1: American Association of State Highway and Transportation Officials (AASHTO) Riprap Gradation Classes in the WV BMP Manual. If stone is crushed on site, great care must be taken to produce stone sizes that mirror the requirements created by the designer and this specification. Disturbance of areas where riprap is to be placed must be undertaken only when final preparation and placement of the riprap can follow immediately behind the initial disturbance. Where riprap is used for outlet protection, the riprap must be installed before the construction of the pipe or channel is completed. The minimum thickness of the riprap layer must be two times the maximum stone diameter, but not less than 6 inches. A lining of engineering filter fabric (geotextile) must be placed between the riprap and the underlying soil surface to prevent soil movement into or through the riprap. Filter fabric must not be used on slopes greater than 1.5:1 as slippage may occur and must be used in conjunction with a layer of course aggregate (granular filter blanket is described below) when the riprap to be placed is Class C (top size of approximately 24 inches) or larger. Riprap must extend up the banks of the channel to a height equal to the maximum depth of flow or to a point where vegetation can be established to adequately protect the channel. When installing geotextile filter cloths, the cloth must be placed directly on the prepared slope. The edges of the sheets must overlap by at least 12 inches. Anchor pins 15 inches long must be spaced every three feet along the overlap. Placement of riprap must follow immediately after placement of the filter. The riprap must be placed so that it produces a dense well-graded mass of stone with a minimum of voids.

13.4.2.5 Rock Check Dams

This practice, utilizing a combination of stone sizes, is limited to use in small open channels that drain five acres or less. It is never used in live streams. Check dams can be useful in the following instances: temporary ditches or swales, and temporary or permanent ditches and swales which need protection during the establishment of grass linings. This practice is primarily for reduction of erosive velocities during channel disturbance and is not a substitute for major perimeter trapping measures such as a sediment trap or basin. The drainage area of the ditch or swale being protected must not exceed two acres when 2- to 4-inch aggregate is used alone; and must not exceed five acres when a combination of 4- to 8-inch aggregate (added for stability) and the smaller aggregate is used. Refer to Figure 3.05.1 of the WV BMP Manual for orientation of stone and a cross-sectional view of the measure. An effort must be made to extend the stone to the top of channel banks. The maximum height of the dam shall not exceed three feet. The center of the check dam must be at least 6 inches lower than the outer edges. The maximum spacing between the dams must be such that the toe of the upstream dam is at the same elevation as the top of the downstream dam. The maximum distance between rock check dams is 300 feet. When using a small trap in front of the check dam, ensure the minimum transition from the ditch into the trap is at least 5:1.

13.4.2.6 Geotextiles

Geotextiles are usually made from a synthetic polymer such as polypropylene, polyester, polyethylenes, and polyamides. Geotextiles can be woven, knitted, or nonwoven. Geotextiles can be used either to prevent water from permeating a slope or to control the amount of infiltration that occurs during rainfall. Erosion control fabric or blankets are used during restoration, including as mulch, to slow down stormwater and stabilize soil until vegetation becomes established. Install erosion control fabric or blankets where necessary or as recommended by the EI. Anchor the erosion control fabric or blanket with staples or other appropriate devices in accordance with the manufacturer recommendations. Evaluate flow conditions to determine if erosion control fabric is suitable as an effective vegetation stabilization technique on waterbody banks. High-velocity erosion control fabric should be used on the swale side of permanent slope breakers, when utilizing geotextile on slope breakers.

13.4.2.7 Turf Reinforcement Mats

Permanent RECPs or TRMs are used for reinforcing grass-lined channels and stream banks and can be useful when underlying soil boundaries that may subside or shift slightly after installation. They are composed of ultraviolet stabilized polymeric fibers, filaments, nettings, and/or wire mesh, integrating together to form a three-dimensional matrix. The types of polymer include polypropylene, polyethylene, polyamides, and polyvinyl chloride. Often TRMs are combined with organic material such as coir to aide vegetation establishment and provide the initial temporary erosion control necessary to resist the forces of running water until the vegetation can become established. Typical vegetation includes grasses that can withstand inundation. TRMs can be installed after applying seed to the prepared soil surface, or deployed first and then seeded following infilling with soil. The former method allows the roots and shoots to grow through and interlock with the geosynthetic matrix. For applications where natural vegetation alone will not sustain expected flow conditions and/or provide sufficient long-term erosion protection, a TRM will be required. The TRM must have the necessary performance properties to effectively control erosion and reinforce vegetation under the expected long-term site conditions. The TRM must conform to one of the specifications and corresponding properties found in Table 3.13.2 of the WV BMP Manual.

Prepare a stable and firm soil surface free of rocks and other obstructions. Apply soil amendments as necessary to prepare seedbed. Apply seed and fertilizer in accordance with the Permanent Seeding Specification. For TRMs, if soil in-filling, install TRM, apply seed, and other soil amendments lightly brush or rake 0.3 to 0.7 inch of topsoil into TRM matrix to fill the product thickness. If in-filling with a hydraulically applied matrix or medium is required, install TRM, then install hydraulically applied matrix or medium at the manufacturer suggested application rate.

13.4.2.8 Soil Compaction

Soil compaction resulting from construction activities may reduce the potential for successful revegetation. Fine-textured soils with poor internal drainage that are moist or saturated during construction are the most susceptible to compaction and rutting. DTI will minimize impacts by implementing the mitigation measures for compaction and rutting as

described in FERC's Plan and Procedures. DTI will test for soil compaction using penetrometers or other appropriate devices:

- In residential and agricultural areas (e.g., active croplands, pastures, nurseries, and orchards) disturbed by construction activities;
- In other areas requested by the land managing agency or landowner;
- In undisturbed areas adjacent to the construction workspace with the same soil type under similar moisture conditions to approximate preconstruction conditions; and
- In areas identified by the EIs, who will be responsible for conducting subsoil and topsoil compaction testing and determining the need for corrective measures.

Compaction impacts will be mitigated through the use of tillage equipment during restoration activities such as a paraplow or similar implement. In areas where topsoil segregation occurs, plowing with a paraplow or other deep tillage implement to alleviate subsoil compaction will be conducted before replacement of the topsoil. In rocky or heavily rooted soils, compaction may be impossible to measure and rectify without additional damage. If compaction testing is impeded by rock or roots, DTI may conclude that there is a suitable amount of large material in the soil to rectify potential compaction. Soil compaction will be remediated prior to re-spreading of salvaged topsoil.

14.0 WATERBODY, WETLAND, AND ROAD CROSSING PROTOCAL

14.1 STREAM CROSSING

All necessary permits must first be acquired prior to construction activities commencing at streams. Movement across waterbodies will be limited to necessary equipment only. BMPs for vehicles crossing streams and wetlands will be utilized when practical. For each identified crossing location, dry crossing techniques are preferred. Individual stream crossings will be completed in a continuous, progressive manner and completed within 72 hours under normal or low stream flow conditions.

Stream crossings associated with the Project are listed in Appendix E.

DTI will employ a typical temporary equipment crossing at each stream location. The temporary equipment crossing will consist of timber mat bridges (with or without culverts), or a rock-flume crossing, depending on the depth of the stream channel and channel flow at the time of construction. Details regarding these crossing methods are found in Appendix E. All stream crossings will be restored to approximate preconstruction grades and contours, and banks will be re-vegetated and stabilized.

DTI will obtain necessary stream permits including WVDNR Office of Land and Streams for the Public Land Corporation, the Section 404 U.S. Army Corps of Engineers Permits, and WVDEP Section 401 Certification. DTI will conduct stream crossing actions as authorized by applicable permits and regulations.

14.1.1 Time Windows for Instream Work

Unless expressly permitted or further restricted by the appropriate federal or state agency in writing on a site-specific basis, instream work must occur during the following time windows:

- Coldwater fisheries – June 1 through September 30;
- Coolwater and Warmwater Fisheries-June 1 through November 30;

Installation or removal of equipment bridges above the top of bank is not subject to the aforementioned time windows.

14.1.2 Equipment Bridge

Only clearing equipment and equipment necessary for installation of equipment bridges will cross waterbodies prior to bridge installation. DTI will limit the number of such crossings of each waterbody to one per piece of clearing equipment.

DTI will construct and maintain equipment bridges to allow unrestricted flow and to prevent soil from entering the waterbody. Examples of such bridges include:

- equipment pads and culvert(s);

- equipment pads or railroad car bridges without culverts;
- clean rock fill and culvert(s); and
- flexi-float or portable bridges.

Additional options for equipment bridges may be utilized that achieve the performance objectives noted above. DTI will not use soil to construct or stabilize equipment bridges. Each equipment bridge will be designed and maintained to withstand and pass the highest flow expected to occur while the bridge is in place. Culverts will be aligned to prevent bank erosion or streambed scour. If necessary, install energy dissipating devices downstream of the culverts. Design and maintain equipment bridges to prevent soil from entering the waterbody. DTI will remove temporary equipment bridges as soon as practicable after permanent seeding. If there will be more than 1 month between final cleanup and the beginning of permanent seeding and reasonable alternative access to the right-of-way is available, DTI will remove temporary equipment bridges as soon as practicable after final cleanup.

14.1.3 Stream Crossing Techniques

The following techniques are a means of diverting flow over or around the open excavation: open cut, conventional bore, and dry crossing. The limiting factors for these techniques are usually stream size, flow, and water depth.

14.1.3.1 Open-Cut

The open-cut or wet trench crossing method will involve trenching through the waterbody while water continues to flow through the trenching area. Prior to initiating construction across the waterbody, the crossing section of pipeline will be fabricated (i.e., bent, welded, and coated) in adjacent ATWS areas. Backhoe-type excavators will then be used to excavate a trench in the flowing waterbody from one or both banks of the waterbody. Where the waterbody is too wide to excavate the trench from the banks, equipment may operate from within the waterbody with approval from the appropriate regulatory agencies. Equipment operating within the waterbody will be limited to that needed to construct the crossing. During these operations, flow will be maintained at the crossing as specified in the Procedures. Turbidity curtains will be installed downstream of the crossing as necessary to minimize suspended solids in the water.

Spoil excavated from the trench will be placed on the bank above the high water mark (at least 10 feet from the edge of the water) or placed adjacent to the trench in the stream (major waterbodies only, in accordance with the Procedures) for use as backfill. A prefabricated segment of pipeline will then be placed into the trench using side-boom tractors. Concrete coating (installed in uplands in Project workspace) or bag weights will be utilized, as necessary, to provide negative buoyancy for the pipeline. Once the trench is backfilled, the banks will be restored as near as practicable to preconstruction contours and stabilized as described above. Excavated material not required for backfill will be removed and disposed of at approved upland disposal sites.

Throughout the construction process, DTI will follow the Procedures to avoid or minimize impacts on water quality. Construction activities will be scheduled so that the trench is not excavated across the waterbody until immediately prior to pipe laying activities. The duration of in-stream construction activities (excluding blasting, if required) will be limited to 24 hours across minor waterbodies (those 10 feet in width or less) and 48 hours across intermediate waterbodies (those between 10 and 100 feet in width). Site-specific crossing drawings for major waterbody crossings are included as Appendix K.

14.1.3.2 Conventional Bore

In some cases, waterbodies may be crossed by conventional subsurface boring beneath the waterbody. Boring involves installing pipeline through a hole bored through the substrate. Where this method is implemented, equipment operating from pits excavated on either side of the crossing will bore through the substrate beneath the waterbody. If dewatering of the pits is necessary, it will be conducted in accordance with the Plan and Procedures and applicable permits in a manner that will minimize erosion and prevent silt-laden water flowing into the waterbody or adjacent wetlands.

The pipeline will be pushed through the bore under the waterbody. Like the HDD method described in Section 15.12, the conventional bore can eliminate direct surface impacts on waterbodies, however, there are limitations to its use. This method cannot typically be used to cross waterbodies with unconsolidated soils in the substrate because it is not possible to maintain the integrity of the borehole in this condition.

Because conventional bores in general are installed straight along a horizontal plane, the bore pits must be excavated to a depth sufficient to allow installation of pipe at the appropriate depth beneath the streambed (i.e., 5 feet beneath the streambed) and to account for the height of the boring machinery. Where waterbodies are entrenched or adjacent slopes are steep, excavation to sufficient depths can require excessively large pits to address Occupational Safety and Health Administration (OSHA) shoring requirements, which creates the potential to sink the stream or flood the bore pits. These considerations limit the use of this crossing method for entrenched waterbodies or those with steep slopes.

14.1.3.3 Dry Crossings

DTI will implement dry crossing methods of minor waterbodies where techniques will support the passage of stream flow. There are three primary crossing methods that include installation of pipeline in dry streambed conditions: the flume method, dam-and-pump, and cofferdam method. In each case, normal stream flows are maintained upstream and downstream of the work area.

14.1.3.3.1 Flume Crossing

A flume pipe crossing consists of two impervious dams across a stream with one or more culverts installed to pass the stream flow across the work area. A flume pipe crossing can be used when in- stream construction will last less than 72 hours and the stream is narrow (less than 15 feet wide) or wider in low water conditions.

The flume pipe crossing must be made operational prior to the start of the instream construction. A large flume pipe(s) or culvert(s) of an adequate size to support normal water channel flow (see Table 3.21.1 of WV BMP Manual) must be installed in the streambed across the proposed pipeline trench centerline. Riprap, jersey barrier, or sandbags must be placed close to each end of the flume pipe so as to dam off the creek, thus forcing the water to flow through the flume pipe (see Drawing Set #1). Sandbags are the preferred method for diverting water into the flumes. The commercial cofferdams can be used if a tight seal can be created. The entrapped water in the work area can then be pumped into an approved dewatering device. The trench can then be dug under the flume pipe. The pipe sections will then be installed to the proper depth under the flume pipe. After the utility pipe is installed, the ditch will be backfilled and re-stabilization must be carried out.

Reclamation of the stream banks will occur the same day as the installation of the pipe is completed. Re-stabilization must consist of the installation of ungrouted riprap on all disturbed streambank areas (or on the area six feet on both sides of the centerline of the utility trench, whichever is greater) with slopes of 3:1 or greater. Refer to the specification for riprap for installation requirements. For slopes of 3:1 or less, vegetative stabilization with or without RECP may be used, pending approval by the Division of Water and Waste Management. Stabilization of its streambed and banks and the approach areas must occur immediately following the attainment of final grade.

After completion of backfilling operation and restoration of stream banks and leveling of streambed, the flume pipe can then be removed. The stone can be removed or spread as stabilization of the streambed depending on permit requirements. Sediment control in approach areas must not be removed until all construction is completed in the stream crossing area and the contributing drainage area to the device is stabilized. All ground contours must be returned to their original condition.

14.1.3.3.2 Dam-and-Pump Method

The dam-and-pump method generally is preferred for smaller waterbodies, where mechanical pumps can dependably convey stream flows. In this approach, pumps and hoses are used instead of flume pipes to isolate and transport the stream flow around the construction work area. Similar to the flume method, the objective of the dam-and-pump method is to create a relatively dry work area to avoid or minimize the transportation of sediment and turbidity downstream of the crossing during in-stream work.

As the first step in implementing the dam-and-pump method, one or more pumps and hoses of sufficient size to transport anticipated flows will be installed adjacent to the waterbody. Additional back-up pumps will be on site at all times as a contingency, in case of pump failure. Once the pumps are operational, the waterbody upstream and downstream of the construction area will be dammed with sandbags and/or steel plates. As the dams are installed, the pumps will be started to maintain continuous flow in the waterbody.

Following the installation of the dams, the pumps will be run continuously until the pipeline is installed across the waterbody and the streambed and banks are restored. Pump intakes above the upstream dam will be appropriately screened to prevent entrainment or impingement of

aquatic species as described in relevant species sections. Energy-dissipation devices, such as splash blocks, filter bags, or energy dissipation sleeves, will be used to prevent scouring of the streambed at the discharge location. Water flow will be maintained through all but a short reach of the waterbody at the actual crossing location.

Backhoe-type excavators located on the banks of the waterbody will be used to excavate a trench across the waterbody. Spoil removed from the trench will be placed and stored on the bank above the high water mark at a minimum of 10 feet from the edge of the water. Trench plugs will be maintained between the upland trench and the waterbody crossing. After backfilling, the banks will be restored and stabilized as described above, and the dams will be removed.

14.1.3.3.3 Cofferdam

Some waterbodies will be crossed using the cofferdam method. In this method, a temporary diversion structure is installed from the bank around half the width of the crossing to isolate that section of the stream from the rest of the waterbody. Once the temporary diversion structure is installed, water is pumped from the isolated section to allow excavation of the pipe trench from the bed of the waterbody in the dry. After the pipe is installed in the trench in the isolated section of stream, the temporary diversion structure is disassembled and then reinstalled from the opposite bank of the crossing and the process is repeated. The cofferdam method allows waterbodies to be crossed in the dry in discrete sections while water flows unimpeded around the temporary diversion structure. The method is sometimes favored for wide, relatively shallow waterbodies or waterbodies containing sensitive fisheries because it allows water and fish to pass around the temporary diversion structure.

For waterbodies crossed using the cofferdam method, sections of steel frame for the temporary diversion structure will be assembled in an upland area adjacent to the crossing. Depending on size, the frame sections will be placed in the waterbody either manually or by crane. The frame sections will be positioned around a predetermined perimeter in the waterbody extending from one of the banks. The spacing of frame sections will be based on the depth of the water, but a typical spacing will be 15 to 30 inches. The frame sections may be reinforced, as necessary, with steel poles or other supports to increase stability of the structure, especially in waterbodies with soft substrate. Fabric sheets will then be attached to the top of the frame and unrolled down and out onto the bed of the waterbody on the exterior side of the frame. The fabric sheets will create a liner around the frame with a seal on the bed of the waterbody. The fabric may be covered in soft sediments or sandbags to help create the seal.

After the temporary diversion structure is installed, one or more pumps will be used to dewater the area within the temporary diversion structure. Pump intakes will be appropriately screened to prevent entrainment of aquatic species. Water will be discharged to the waterbody outside the structure through an energy-dissipating device to prevent scouring of the bed at locations of discharge. Once dewatering is complete, any fish trapped in the temporary diversion structure will be removed and returned to the flowing waterbody. Construction equipment will enter the isolated section of the waterbody from the adjacent bank. This construction equipment will be used to excavate the trench, install a pre-assembled section of pipe, backfill the trench, and restore the bed as near as practicable to preconstruction contours. The equipment is removed from the temporary diversion structure via the adjacent bank.

After the section of pipeline is installed, the enclosed area within the temporary diversion structure will be flooded. Then the fabric sheets and steel frame sections will be disassembled. The structure will be reinstalled from the opposite bank, with enough overlap of the initial excavation area so that the installed section is accessible for tie-in to the next section of pipe. The dewatering and construction process is then repeated from the opposite bank, to complete the crossing of the waterbody.

14.1.4 FERC Waterbody Classification

In the FERC Procedures, a "waterbody" is defined to include any natural or artificial stream, river, or drainage with perceptible flow at the time of crossing, and other permanent waterbodies such as ponds and lakes. Waterbodies have been further divided into three classifications by FERC depending on the width of the feature, which dictate construction limitations or requirements.

14.1.4.1 Minor Waterbodies

FERC defines a "minor waterbody" as a waterbody less than or equal to 10 feet wide at the water's edge at the time of crossing. Minor waterbodies will be crossed in accordance with the following requirements:

- The spoil from minor waterbody crossings must be placed in the construction ROW at least 10 feet from the water's edge or in additional extra work areas. Use sediment barriers to prevent the flow of spoil or silt-laden water into any waterbody.

- Unless approved otherwise by the appropriate federal or state agency, utilize a dry crossing construction technique to install crossings at minor waterbodies that are state-designated fisheries or federally designated as critical habitat.

- Where a dry-ditch crossing is not required, minor waterbodies may be crossed using the open-cut crossing method, with the following restrictions:

    - Except for blasting and other rock breaking measures, complete instream construction activities (including trenching, pipe installation, backfill, and restoration of the streambed contours) within 24 hours. Streambanks and unconsolidated streambeds may require additional restoration after this period; and

    - Limit use of equipment operating in the waterbody to that needed to construct the crossing.

14.1.4.2 Intermediate Waterbodies

FERC defines an "intermediate waterbody" as a waterbody greater than 10 feet wide but less than or equal to 100 feet wide at the water's edge at the time of crossing. Intermediate waterbodies will be crossed in accordance with the following requirements:

- The spoil from intermediate waterbody crossings must be placed in the construction ROW at least 10 feet from the water's edge or in additional extra work areas. Use sediment barriers to prevent the flow of spoil or silt-laden water into any waterbody.

- Unless approved otherwise by the appropriate federal or state agency, install the pipeline using a dry crossing method for crossings of waterbodies up to 30 feet wide (at the water's edge at the time of construction) that are:

    - State-designated as either coldwater or significant coolwater or warmwater fisheries, or

    - Federally-designated as critical habitat.

Where a dry-ditch crossing is not required, intermediate waterbodies may be crossed using the open-cut crossing method, with the following restrictions:

- Complete instream construction activities (not including blasting and other rock breaking measures) within 48 hours, unless site-specific conditions make completion within 48 hours infeasible;

- Limit use of equipment operating in the waterbody to that needed to construct the crossing; and

- All other construction equipment must cross on an equipment bridge as specific in Section 14.1.2.

14.1.4.3 Major Waterbodies

FERC defines a "major waterbody" as all waterbodies greater than 100 feet wide at the water's edge at the time of crossing. Site-specific construction plans and scaled drawings identifying all areas to be disturbed by construction for the one major waterbody crossing is located in Appendix K. These plans were developed in consultation with the appropriate state and federal agencies and include extra work areas, spoil storage areas, sediment control structures, etc., as well as mitigation for navigational issues.

14.1.5 Waterbody Restoration

Restore and stabilize the waterbody banks and channel in accordance with this section.

- Return waterbody banks to preconstruction contours or to stable angle of repose as approved by the EI.

- Use clean gravel or native cobbles for the upper 12 inches of trench backfill in waterbodies identified as coldwater fisheries, unless otherwise specified by state-specific agency recommendations or permit conditions.

- For dry crossings, complete bank stabilization before returning flow to the waterbody channel.

- Limit the use of rock riprap to areas where flow conditions preclude effective vegetation stabilization techniques such as seeding and erosion control fabric, unless otherwise specified by COE and state permits. Limit the placement of rock riprap to the slopes along the disturbed waterbody crossing. Application of riprap for bank stabilization must comply with COE, or its delegated agency, permit terms and conditions.

- Disturbed banks and riparian work areas will be seeded as soon as possible after final grading, weather and soil conditions permitting and subject to the recommended seeding dates for the area. Seeding is intended to stabilize the soil, improve the appearance of the area disturbed by construction, and restore native flora. DTI will determine appropriate seeding prescriptions based upon the vegetative community of the disturbed area.

- Install erosion control fabric or a functional equivalent on waterbody banks at the time of final bank contouring. Do not use synthetic monofilament mesh/netted erosion control materials in areas designated as sensitive wildlife habitat unless the product is specifically designed to minimize harm to wildlife.

- Revegetate disturbed riparian areas with native species of conservation grasses, legumes and woody species similar in density to adjacent undisturbed lands.

- In the event that final cleanup is deferred more than 20 days after the trench is backfilled, all slopes within 100 feet of waterbodies will be mulched with 3 tons/acre of straw.

- Remove all temporary sediment barriers when replaced by permanent erosion controls or when restoration of adjacent upland areas is successful.

- Install a permanent waterbar and a trench plug at the base of slopes greater than 5% that are less than 50 feet from each waterbody crossed.

14.1.6 Post-Construction Maintenance

DTI will limit routine vegetation mowing or clearing adjacent to waterbodies to allow a riparian strip at least 25 feet wide, as measured from the waterbody's mean high water mark, to permanently revegetate with native plant species across the entire construction ROW. However, to facilitate periodic corrosion/leak surveys, a corridor centered on the pipeline and up to 10 feet wide may be cleared at a frequency necessary to maintain the 10-foot corridor in an herbaceous state. Routine vegetation mowing or clearing will not be done more frequently than every 3 years.

In addition, trees that are located within 15 feet of the pipeline that have roots that could compromise the integrity of the pipeline coating may be cut and removed from the permanent

ROW. DTI will not conduct any routine vegetation mowing or clearing in riparian areas that are between HDD entry and exit points. DTI will not use herbicides or pesticides in or within 100 feet of a waterbody except as allowed by the appropriate land management or state agency.

Time of year restrictions specified in section VII.A.5 of the FERC Plan (April 15 – August 1 of any year) apply to routine mowing and clearing of riparian areas.

14.2 WETLAND CROSSING PROTOCOL

Construction across wetlands will be conducted in accordance with the Procedures, site-specific modifications to the Procedures requested by DTI and approved by the FERC, and any additional requirements identified in Federal or State wetland crossing permits. Typical methods for construction across wetlands are described below. A table listing the wetlands and crossing methods for wetlands crossed by the ACP within West Virgina is provided in Appendix L.

The construction ROW will be limited to 75 feet through wetlands, with ATWS on both sides of wetland crossings to stage construction equipment and materials, fabricate the pipeline, and store materials and excavated temporary side-cast. ATWS will be located in upland areas a minimum of 50 feet from the wetland edge (with the exception of site-specific modifications as requested by DTI and approved by the FERC).

Wetland boundaries will be clearly marked in the field prior to the start of construction with signs and flagging. Construction equipment working in wetlands will be limited to what is essential for ROW clearing, excavating the trench, fabricating and installing the pipeline, backfilling the trench, and restoring the ROW. In areas where there is no reasonable access to the ROW except through wetlands, non-essential equipment will be allowed to travel through wetlands once, unless the ground is firm enough or has been stabilized to avoid rutting. DTI will install a timber mat over the portion of the wetlands located within the LOD. Timber mat will be removed at the completion of construction activities.

Clearing of vegetation in wetlands will be limited to trees and shrubs, which will be cut flush with the surface of the ground and removed from the wetland. To avoid excessive disruption of wetland soils and the native seed and rootstock within the topsoil, stump removal, grading, topsoil segregation, and excavation will be limited to the area immediately over the trenchline, except a limited amount of stump removal and grading may be conducted in other areas if required by safety-related issues. Topsoil segregation over the trenchline will only occur if the wetland soils are not saturated at the time of construction.

Immediately following clearing, sediment barriers, such as silt fences or other approved sediment barriers, will be installed and maintained adjacent to wetlands and within ATWS areas as necessary to minimize the potential for sediment runoff. Sediment barriers will be installed across the full width of the construction ROW at the base of slopes adjacent to wetland boundaries. ECDs installed across the working side of the ROW will be removed during the day when vehicle traffic is present, and will be replaced each night. Alternatively, drivable berms may be installed and maintained across the ROW in lieu of silt fences or straw bales. Sediment barriers will also be installed within wetlands along the edge of the ROW, where necessary, to minimize the potential for sediment to run off the construction ROW and into wetlands outside

the work area. If trench dewatering is necessary, it will be conducted in accordance with the Procedures and applicable permits. Silt-laden trench water will be discharged into an energy dissipation/sediment filtration device, such as a geotextile filter bag, to minimize the potential for erosion and sedimentation.

The method of pipeline construction used in wetlands will depend on site-specific weather conditions, soil saturation, and soil stability at the time of construction. If wetland soils are not excessively saturated at the time of construction and can support construction equipment on equipment mats, they will be crossed using conventional open-trench construction. This will occur in a manner similar to conventional upland cross-country construction techniques. In unsaturated wetlands, topsoil from the trenchline will be stripped and stored separately from subsoil.

Where wetland soils are saturated or in inundated lowlands areas where soils cannot support conventional pipe-laying equipment, the pipeline may be installed using the push-pull method. This method will involve stringing and welding the pipeline outside of the wetland and excavating and backfilling the trench using a backhoe supported by equipment mats. A prefabricated section of pipeline will be installed in the wetland by equipping it with buoys and pushing or pulling it across the water-filled trench. After the pipeline is floated into place, the floats will be removed and the pipeline will sink into place. In most cases, the pipeline will be coated with concrete or equipped with set-on weights to provide negative buoyancy. Once the pipeline is in place, the trench will be backfilled. The push-pull construction method minimizes the number of equipment passes, reducing wetland impacts and soil compaction in lowland areas and can be utilized in conjunction with the open trench method described above for waterbody crossings.

Because little or no grading will occur in wetlands, restoration of contours will be accomplished during backfilling. Prior to backfilling, trench breakers will be installed, where necessary, to prevent subsurface drainage of water from wetlands. Where topsoil is segregated, the subsoil will be backfilled first followed by the topsoil. Topsoil will be replaced to the original ground level leaving no crown over the trenchline. In areas where wetlands overlie rocky soils, the pipe will be padded with rock-free soil or sand before backfilling with native bedrock and soil. Equipment mats, gravel fill, and/or geotextile fabric will be removed from wetlands following backfilling.

Where wetlands are located at the base of slopes, permanent slope breakers will be constructed across the ROW in upland areas adjacent to the wetland boundary. Temporary sediment barriers will be installed where necessary until revegetation of adjacent upland areas is successful. Once revegetation is successful, sediment barriers will be removed from the ROW and disposed of at an approved disposal facility.

14.3 ROAD CROSSINGS

Construction across paved roads, highways, and railroads will be conducted in accordance with the FERC Plan and requirements identified in road and railroad crossing permits or approvals. Most paved roads, highways, and railroads will be crossed by conventional subsurface boring beneath the roadbed or railroad, which will avoid surface disturbance of the

roads and railroads. Boring activities will consist of the following: excavating a pit on each side of the road or railroad; placing boring equipment within the pits; boring a hole under the roadbed or railroad that is greater than or equal to the diameter of the pipe; and pulling a section of pipe through the hole. For long crossings, sections of pipe may be welded into a pipe string before being pulled through the borehole.

Typically, there is little or no disruption to traffic at road, highway, or railroad crossings during boring operations; however, brief traffic delays could occur when equipment required to complete a bore is brought onto or off of the construction rights-of-way. In these instances, DTI will use flaggers and signage to safely slow or direct traffic as appropriate.

Unpaved roads, two-tracks, trails, and driveways, as well as roads in areas with a high water table, will be crossed using the open-cut method and then restored to preconstruction condition. This method will require temporary closure of the road to traffic and establishment of detours. If no reasonable detour is feasible, at least one lane of the road being crossed will be kept open to traffic except during brief periods when it is essential to close the road to install the pipeline. Most open-cut road crossings will be completed and the road restored in a few days using the same type of sub-bed and surface material as the original construction. DTI will take measures such as posting signs at open-cut road crossings for safety and to minimize traffic disruptions.

If road closures are necessary, a road closure schedule will be arranged with the appropriate transportation authority, if applicable, prior to the closure. Landowners, land managing agencies, and local businesses that could be affected by the closure, as well as law enforcement agencies, will be notified in advance of the closure.

Where construction crosses roads necessary for access to private residences or businesses and no alternative entrance exists, DTI will implement measures (e.g., plating over the open portion of the trench or a temporary bridge) to maintain passage for landowners and emergency vehicles. DTI will place and maintain traffic control measures during construction, and use flaggers, warning signs, lights, and barriers, as appropriate, for safety and to minimize traffic congestion.

Once construction is complete, DTI's construction contractors will repair road damage that occurs as a result of construction, and roadways will be restored to their preconstruction condition. A table with the Road Crossing Methods is included as Appendix R.

15.0 OTHER CONTROLS

15.1 VEHICLE AND EQUIPMENT MAINTENANCE

Equipment will be refueled with extreme care under continual surveillance and away from wetland and associated waterbodies. A combination of fixed storage tanks and mobile fuel tanker trucks will be used to store and deliver fuel to on-site equipment. On-site bulk fuel tanks shall be located in the staging areas with secondary containment areas around the tank. Fueling will either occur at a staging area by small mobile tanks or in upland areas of the alignment. If refueling occurs within a Restricted Refueling Area, a DTI representative or EI must be present. If any fuel is spilled, the fuel impacted soil material and fuel residue shall be cleaned up and disposed of properly. Fuel dispensers shall be locked during non-construction hours.

All equipment will be maintained in good operating condition and inspected regularly for leaks. Routine scheduled maintenance and identified necessary maintenance shall only take place within the staging areas unless equipment is not able to be moved to staging areas for unplanned, emergency repairs. In the event of planned major maintenance, the vehicle should be transported off site for service. Any liquids leaked during maintenance shall be cleaned up and disposed of properly.

Repairs shall only be made outside of the staging area if equipment requires emergency repairs on site (e.g., unexpected hydraulic hose rupture or similar) and cannot be moved to the staging area. As soon as equipment can be safely moved, the equipment shall be moved to staging areas for continued maintenance. The EI shall be notified of all necessary emergency repairs prior to them occurring. Proper containers and/or disposable sorbent materials shall be placed under the equipment to collect drips and leaked liquids. Impacted soils and spilled material shall be properly cleaned up, contained, and disposed of properly.

Vehicle washing shall be performed off site. No vehicle washing will occur on site, except in the case of field maintenance. Non-native invasive species washing stations may be on the ROW to help reduce or prevent the spread of invasive species.

All equipment operating on site will have sufficient spill containment equipment on board to provide for prompt cleanup in the event of a release. All equipment will also carry tools necessary to stop leaks and, if possible, make repairs.

15.2 OFF-SITE VEHICLE TRACKING

Access to the ROW must be from public roadways, approved access roads, and existing ROW only. Any location where a new access point meets paved roadways, a combination of matting, culvert installation, and 70-foot long crushed stone access pads must be used to minimize the tracking of mud onto paved roads. Stone must be placed on synthetic fabric to facilitate removal. Geotextile fabric used for this purpose must be durable and strong enough to allow removal of stone and fabric. All surface water flowing or diverted toward construction entrances must be piped across the entrance. If a culvert is impractical, a mountable berm with 5:1 slopes will be used. Wheels on all vehicles must be cleaned to remove sediment prior to entrance onto public ROW. If washing is required, it must be done on an area stabilized with

stone and which drains into approved sediment trapping device. Detergents are not preferred for washing vehicles on location. If the Contractor elects to use a detergent, it must be approved by DTI and the EI.

Public and private roads adjacent to a construction entrance will be inspected and kept clear of debris.

15.3 UNAUTHORIZED VEHICLE ACCESS TO RIGHT-OF-WAY

DTI will offer to install and maintain measures to control unauthorized vehicle access to the ROW based on requests by the manager or owner of forested lands. These measures may include:

1. signs;
2. fences with locking gates;
3. permanent access roads;
4. slash and timber barriers, pipe barriers, or a line of boulders across the ROW; or
5. conifers or other appropriate shrubs with a mature height of 4 feet or less across the ROW.

15.4 TEMPORARY CONSTRUCTION ROAD, WORK AND PARKING AREA STABILIZATION

One-way traffic, 20 feet wide for two-way traffic, and 30 feet wide for haul roads. Road slopes must not exceed 15 percent. All cuts and fills must be 2:1 or flatter and 6-inch crushed aggregate must be applied immediately after grading and geotextile must be applied to the roadbed for additional stability. In heavy duty traffic situations, stone must be placed at an eight-inch to 10-inch depth. Temporary parking areas must be located on naturally flat areas to minimize grading. Grades must not exceed four percent, but must be sufficient to provide drainage for all temporary extra workspaces that will be used for parking. Stabilize disturbed areas not covered with stone immediately after installation with appropriate temporary or permanent vegetation.

15.5 SURFACE ROUGHENING

All slopes steeper than 3:1 require surface roughening, either stair-step grading, grooving, furrowing, or tracking, if they are to be stabilized with vegetation. Areas with grades less than 3:1 must have the soil surface lightly roughened and loose to a depth of two to four inches prior to seeding. Slopes with a stable rock face do not require roughening or stabilization. Stair-step grading may be carried out on any material soft enough to be ripped with a bulldozer. Slopes consisting of soft rock with some subsoil are particularly suited to stair-step grading. The ratio of the vertical cut distance to the horizontal distance must be less than 1:1, and the horizontal portion of the "step" must slope toward the vertical wall. Individual vertical cuts must not be more than 30 inches on soft soil materials and not more than 40 inches in rocky

materials. Grooving consists of using machinery to create a series of ridges and depressions that run perpendicular to the slope (on the contour). Grooves may be made with any appropriate implement which can be safely operated on the slope and which will not cause undue compaction. These grooves must not be less than three inches deep or further than 15 inches apart. Fill slopes with a gradient steeper than 3:1 must be grooved or allowed to remain rough as they are constructed. At no time must slopes be bladed or scraped to produce a smooth, shiny, hard surface. Roughening with tracked machinery on clayey soils is not recommended unless no alternatives are available. When tracking is the chosen surface roughening technique, it must be done by operating tracked machinery up and down the slope to leave horizontal depressions in the soil. Roughened areas must be seeded and mulched as soon as possible to obtain optimum seed germination and seedling growth but at a minimum within seven days of reaching final grade, or within seven days if no additional activity is anticipated for 21 days or more.

15.6 BURNING

If burning of brush is elected and approved by the EI, the Contractor will first obtain a burn permit from the WVDEP Division of Air Quality and notify the local Fire Department with jurisdiction for regional requirements in West Virginia. During the forest fire season (typically March 1 to May 31 and October 1 – December 31 a permit must also be obtained from the West Virginia Division of Forestry. Notification of the Division of Forestry will be made outside of forest fire season. The Contractor will abide by all site-specific requirements of the permit. The EI will be notified of identified burn permit requirements that conflict with other permits or requirements of the Project. No burning shall occur in areas where concentrated stormwater will flow. Ash shall be dispersed and blended into the soil used for reestablishing approximate original contour.

15.7 FUGITIVE DUST CONTROL

Wind is capable of causing erosion, particularly in dry climates or during the dry season. Wind erosion can occur where surface soil is loose and dry. Wind erosion may also occur in areas where vegetation is sparse or absent.

This can be washed into receiving waters during the next storm event or snowmelt runoff. Additionally, the prevailing winds in the vicinity of the pipeline are from the northwest. The excavated top soil, ground cover, and overburden materials will be stockpiled for reuse once the pipeline construction is completed. The stockpiles will be laid out perpendicular to the predominant wind direction where possible and practical. Temporary sediment controls will be used where soil deposits susceptible to wind erosion are found within the Project area.

15.8 WIND EROSION CONTROL

For Wind Erosion Control, the following temporary sediment controls will be used as applicable to minimize the surface and air movement of dust during land disturbing and construction activities:

1. In areas with little or no construction traffic, a vegetatively stabilized surface will reduce dust emissions.

2. Mulch will be used in areas without heavy traffic pathways. The Restoration and Rehabilitation Plan attached as Appendix P includes recommendations provided by regional Natural Resources Conservation Service offices and other Federal agencies regarding seeding mixtures and soil amendments. Some of the recommendations provided include specifications on the use of mulch and/or tackifiers to control soil erosion (i.e., wind and water soil erosion) during the construction and restoration of the pipeline. The information provided includes recommendations on the type of mulch material, application rates, soil binders, and tackifiers.

3. Tillage should be used only in an emergency situation before wind erosion begins. Plowing on the windward side of the site with chisel-type plows spaced approximately 12 inches apart.

4. Exposed soil can be sprinkled with water until the surface is wet and repeated as needed.

5. Use of spray-on Adhesives may be used on mineral soils only.

6. Use crushed stone or course gravel to stabilize roads and other areas during construction.

7. A board fence, wind fence, or sediment fence may be used to control air currents and blowing soil. Place barriers perpendicular to prevailing air currents at intervals of about 15 times the barrier height.

8. Calcium chloride may be applied by a mechanical spreader as loose, dry granules or flakes at a rate that keeps the surface moist but not so high as to cause water pollution or plant damage.

Finally, after land disturbing activities are complete, permanent vegetation and site stabilization will provide long-term protection against wind erosion.

15.9 STAGING AREAS

Staging areas should be maintained on site throughout the construction activities. The staging areas should be used as a place to store equipment, construction materials, waste, and additional construction related material. The staging areas shall be in an area away from concentrated stormwater drainage paths. The contractor is responsible for storing and securing all tools, materials, and waste.

15.10 WASHOUT AREAS

A washout area for excess concrete and cleaning of concrete delivery vehicles shall be constructed near areas where concrete pours will occur. Concrete wash water or green concrete shall be managed to minimize the potential for this material to reach identified water and wetland resources.

The washout area shall be installed in an upland area away from potential wetlands and streams. It shall be above grade, with a minimum width of 10 feet. The base and sides of the washout area shall be covered with a plastic sheeting at least 10 mils thick without any holes or tears. The wash area shall be inspected for any leaks, holes, and tears in the plastic on a daily basis. If the washout area gets to 75 percent capacity, the area should be cleaned out. Once all concrete mixing activities are completed, the concrete waste area should be allowed to harden, broken up, and then disposed of properly.

15.11 ROCK MANAGEMENT

Rock, including blast rock, will be used, removed, or disposed of in one of the following ways:

1. Rock excavated from the trench may be used to backfill the trench with approval of the DTI representative;

2. Windrowed or blended into final graded ROW. Attain written landowner permission if necessary;

3. Removed and disposed of at a DTI-approved landfill;

4. Used as riprap for streambank stabilization as allowed by applicable regulatory agency(ies) and provided the rock is durable, uncontaminated and free of soil and other debris; or

5. If removed to a DTI-approved disposal site not within the LOD, coordination with the county/disposal site operator is required.

6. Durable rock may be salvaged and used for permanent water bar outlets

DTI has prepared a Blasting Plan for procedures and safety measures that DTI's construction contractors will adhere to while conducting blasting activities required for the construction of ACP. A copy of the current Blasting Plan is provided in Appendix S.

15.12 HORIZONTAL DIRECTIONAL DRILLING

The HDD method is a process that allows for trenchless construction by drilling a hole beneath a surface feature, such as a waterbody or other unique resource, and installing a prefabricated segment of pipeline through the hole. The method avoids disturbance to the surface of the ROW between the entry and exit points of the drill.

If an HDD crossing is successful, there are little to no impacts on the surface feature being crossed. If a natural fracture or weak area in the ground is encountered during drilling, however, an inadvertent return of drilling fluid to the environment could occur. Substrate consisting of unconsolidated gravel, coarse sand, or fractured bedrock could present circumstances that increase the likelihood of an inadvertent return.

DTI's Horizontal Directional Drill Fluid Monitoring, Operations, and Contingency Plan (HDD Plan, Appendix T), identifies typical contingency measures to be implemented in the event of a drill failure, such as drilling along a new path, abandoning and sealing the drill hole, and implementing an alternate crossing method, which includes procedures for any inadvertent return. DTI has prepared and will implement a HDD Plan which describes the procedures to be followed in the event of an inadvertent return.

The HDD method will not be used in areas with the potential to contain karst features due to the potential for drilling fluid to enter aquifers through pre-existing voids or conduits in limestone or dolomite bedrock.

15.13 BEST-IN-CLASS PROGRAM FOR SLOPES GREATER THAN 30 PERCENT

DTI recognizes the increased risk of instability associated with pipeline construction particularly while traversing steep slopes. As a baseline, DTI developed a program for use on projects within steep terrain. The program outlines the following engineering design methods which will apply to slip prevention and correction during construction:

- drainage improvement that may include providing subsurface drainage at seep locations through granular fill and outlet pipes, incorporating drainage into trench breakers using granular fill, and/or intercepting groundwater seeps and diverting them from the ROW;
- buttressing slopes with Sakrete trench breakers;
- changing slope geometry;
- benching and re-grading with controlled backfill;
- using alternative backfill;
- chemical stabilization of backfill;
- geogrid reinforced slope that consists of benching existing slope, installing subsurface drains, and incorporating Geogrid reinforcement into compacted backfill; and/or
- retaining structures.

Selection of the most appropriate engineered prevention measure or combination is dependent on the individual site conditions and constraints.

For the ACP Project, DTI is also committed to identifying mitigation measures beyond standard practices through a Best in Class (BIC) Program. The focus of the BIC Program is to proactively address steep slopes (defined as slopes with an inclination greater than 30 percent and greater than 100 feet in length) and landslide hazards related to pipeline construction, compressor station, and metering and regulation facilities that could potentially impact

environmental resources, in particular streams, wetlands, and waterbodies. The BIC program is intended to incorporate the permit requirements from West Virginia, Virginia, and North Carolina, and then exceed these regulatory standards, in order to mitigate for potential erosion and sediment discharges related to steep slope and landslide hazards.

The ultimate goal of the BIC Program is to develop project-specific engineering mitigation recommendations and thereby support preparation of steep slope ESC control measures for the ACP Project. The BIC Program has achieved this by assembling a team of internal Dominion stakeholders along with supporting external subject matter experts (SMEs) to develop project- specific mitigation recommendations, by using a process-based approach that includes: hazard identification and assessment (i.e. find and then understand the hazard), engineering mitigation design (i.e. targeted design measures that mitigate the hazard), monitoring (i.e. track performance to understand if additional mitigation is needed), and operational measures (i.e. monitor and maintain and operate the system, as needed).

The BIC Program Team convened in a series of design workshops to examine the identified hazards and supporting information along the pipeline alignment. The hazards were initially identified by studies such as the Geohazards Assessment or the karst study, and/or from other targeted studies such as the Order 1 Soil Survey. These studies identify and assess or support the review of the hazard, and provide a basis to select the appropriate BIC mitigation response to minimize or eliminate the hazard, and then monitor the hazard through ongoing operations.

The conceptual work-flow process of the BIC Program is organized around four general steps, briefly described as follows:

- Hazard Identification - Geologic hazards are systematically identified during the Geohazards Analysis Program through desktop analysis and field reconnaissance as well as by supporting evaluations (e.g. karst studies and soil surveys). Refer to Figure 4 of Appendix A for the conceptual work-flow process diagram describing the general approach.

- Hazard Characterization, Assessment, and Threat Classification - As part of the Geohazards Analysis Program, the nature of the geohazards and their potential impacts on the pipeline and environmental resources are assessed. A semi-quantitative ranking of hazard threat level to the proposed pipeline from various geohazards is used to identify areas for further investigation to determine where appropriate mitigation and monitoring measures may need to be designed and implemented during construction. Refer to Figure 4 of Appendix A for the conceptual work-flow process diagram describing the general approach.

- Hazard Mitigation - Areas for mitigation are selected based upon potential risk to the pipeline, environment, and operation and maintenance. Overall hazard reduction techniques may include BIC construction practices and/or best management practices.

Hazard-specific control measures were developed based on the recommendations of the Geohazards Analysis Program and mitigation techniques selected by a BIC team of experts. The hazard-specific control measures address the specific geologic hazard (e.g., slip, stream scour, ground displacement) with mitigation measures, as applicable, for construction and/or operation of the Project. DTI has incorporated these mitigation measures in Appendix O of this SWPPP. Refer to Figure 5 of Appendix A for the conceptual work-flow process diagram.

- Hazard Monitoring - DTI will monitor mitigation techniques to assess their effectiveness and the need for further mitigation, if appropriate. Refer to Figure 6 of Appendix A for a conceptual work flow process diagram.

As one of the initial steps in the BIC Program, DTI implemented a comprehensive Geohazards Analysis Program to assess potential geohazards, including slope failures, along the proposed pipeline route. The study for slope failures included:

- a desktop analysis to prepare an inventory of and categorize potential slope hazards along the proposed routes;
- a field program to verify the locations and limits of slope hazards along the routes;
- a risk analysis of slope hazards along the routes; and
- recommendations for landslide and landslip mitigation, if and where warranted.

DTI has completed the desktop portion of the Geohazards Analysis Program and the field reconnaissance portion and filed a report on the results of the Program to FERC. The final report provided recommendations on geological hazards and potential risks to be mitigated during construction and operation of the proposed ACP facilities. Through desktop study and field verification, the Geohazards Analysis Program identified six recurring typical steep slope hazard scenarios which collectively encompass the majority of the steep slopes identified along the ACP alignment. Some sites may have the characteristics of more than one typical scenario type, particularly those that contain sensitive resources at the slope's toe or where previously modified by cutting and filling.

The six typical scenarios are identified by letters A through F, and each are generally described as follows:

Primary Scenarios

A. Steep slopes without evidence of previous movement;

B. Steep slopes with evidence of active movement;

C. Steep slopes with increased potential to become unstable after construction disturbance;

D. Steep slopes near narrow ridge tops;

Secondary Scenarios

E. Steep slopes with a sensitive resource at toe (e.g. streams, wetlands, roads); and

F. Steep slopes previously modified by cutting and filling.

Project-specific steep slope geohazard mitigation Typical Designs (TDs) for each of the six typical scenarios were developed as part of the BIC Program and are provided in Appendix O. Additionally, six slopes receiving Site-Specific Designs (SSDs) are currently under development for those locations with unique geohazard concerns and/or a greater potential for instability. These six SSDs will be coordinated with state and federal agencies upon full completion of the engineering design and constructability analysis.

The locations where the BIC Program Typical Designs will be implemented are identified on the Construction Alignment Sheets, Drawing Set #1. Additionally, the location of SSDs will be shown on the Construction Alignment Sheets after the final designs are completed.

Implementation of the BIC Steep Slope Hazard Mitigation Program in the field during construction will follow a detailed decision tree/work flow process provided in Appendix O**.** In summary, the TD packages are intended to provide a comprehensive and programmatic approach to address the hundreds of BIC locations along the pipeline alignment. TD packages include Incremental Control (IC) measures (i.e. Typical Details) that provide targeted mitigation for steep slope related hazards that are above and beyond the standard erosion and sediment controls necessary to meet regulatory requirements. The TDs list BIC ICs that are available for use at a site. The host of ICs for each typical scenario provides options to the field team to respond to site-specific field conditions. These ICs will be selected using the decision tree/work flow process provided in Appendix O will be implemented in addition to the standard ESC measures which are shown on the alignment sheets. Detailed drawings of the ICs are also provided in Appendix O.

SSD packages will be site-specific steep slope mitigation plans that address specialized steep slope or related hazards and conditions at targeted sites, and require geotechnical, hydro-technical engineering, or geologic technical support to develop the design package. SSD packages typically include detailed engineering drawing sets, showing plan and profile and section views of the intended design, supported by details and specifications, and may require specialized work plans. Incremental controls proposed for SSDs are the same as used for the TDs. There are currently fifteen slopes along the ACP pipeline (six slopes are located within West Virginia), identified through the Geohazards Analysis Program, that will be addressed with a SSD. DTI will provide specific employee training which has been developed from the steep slope program. DTI personnel with responsibility for pipeline routing, construction, or operation must be trained in this procedure on an annual basis. The training may be completed by an online learning management system (LMS) module or may be conducted by Energy Infrastructure Environmental Services (EIES) personnel, or DTI Engineering Management. At a minimum, the following personnel will be trained:

- Engineering Directors and Managers;
- Design and construction engineers;
- Operations Directors, Managers and Supervisors;
- Construction supervisors; and
- Construction and operations Environmental Compliance Coordinators (ECC).

The training must include the following:

- Types and causes of slope failures;
- Routing avoidance and desktop methods;
- Field reconnaissance;
- Risk prioritization;
- Pipeline design and engineering to prevent slope failures;
- Addressing slope failures during construction;
- Addressing slope failures post construction; and
- Reporting requirements.

16.0 BEST MANAGEMENT PRACTICE SEQUENCING

Temporary and permanent BMPs will be used during maintenance activities to avoid and/or minimize adverse environmental effects. BMP installation guidance and engineered drawings are located on the Construction Alignment Sheets (see Drawing Set #1). For more details about BMP sequencing see Section 13.2.

17.0 ANTIDEGRADATION – TIER 3.0 WATERS

Construction activities discharging to Tier 3 waters must go through the Tier 3.0 antidegradation review process. Activities do cross Tier 3 waters. For more information on Tier 3 waters see Section 8.0.

17.1 DISCHARGES TO WATERS WITH APPROVED TOTAL MAXIMUM DAILY LOADS

It is DTI's understanding that projects that are permitted under West Virginia General Water Pollution Control Permit for Stormwater Associated with Oil and Gas related Activities are not subject to the caps established by the TMDL.

18.0 MAINTENANCE

All BMPs must be properly selected, installed, and maintained in accordance with good engineering practices and, where applicable, manufacturer specifications. If periodic inspections or other information indicates a control has been used inappropriately or incorrectly, the operator must replace or modify the control for site situations as soon as practicable. If site inspections identify control measures that are not operating effectively, maintenance must be performed as soon as practicable to maintain the continued effectiveness of stormwater controls. If site inspections identify existing control measures that need to be modified or if conditions suggest additional control measures are necessary, implementation must be completed before the next anticipated storm event. If implementation before the next anticipated storm event is impracticable, the situation must be documented in the SWPPP and alternative control measures shall be implemented as soon as practicable.

Inspectors must look for evidence of, or the potential for, pollutants such as sediments, foam, or sheen, entering a stormwater conveyance system. Control measures identified in the SWPPP must be inspected for proper installation, maintenance, and operation. Discharge locations, where accessible, must be inspected to ascertain whether control measures are effective in minimizing impacts to receiving waters. Where discharge locations are inaccessible, nearby downstream locations must be inspected to the extent that such inspections are practicable. Locations where vehicles enter or exit the site must be inspected for evidence of off-site sediment tracking. The operator must report any noncompliance which may adversely affect state waters or may endanger public health.

For the duration of the construction process, the construction contractor will be responsible for inspection and maintenance of all ESC structures. DTI will be responsible for inspection and maintenance from post-construction until final stabilization is achieved. The ROW and ESC devices will be inspected daily at the active construction site and at least once every seven calendar days for actively disturbed areas, 14 calendar days for restored areas, and within 24 hours after any storm event greater than one-half-inch per 24-hour period. After the Project area achieves 70 percent uniform perennial vegetative growth, BSRF and other temporary controls will be removed, and the NOT will be submitted. Inspections will occur once every 14 days until the NOT has been approved by WVDEP. Soil conditioning, fertilization, reseeding, and mulching will be performed as required. All grade surfaces, walls, dams and structures, vegetation, ESC measures and other protective devices shall be maintained in good and effective condition and promptly repaired or restored.

A record of weekly and storm event inspections will be maintained by the Project EI or Project Supervisor and submitted to Dominion. This record will include the date(s) and names(s) of personnel making the inspection and results (including any major observations and corrective actions taken or needed). Any major observation and corrective action needed will be carried over to subsequent inspection reports until completely resolved. The weekly inspections will be recorded using the BMP inspection form included in Appendix U, or similar. The inspection sheets will be maintained on site during construction and retained for a minimum period of two years after final soil stabilization.

18.1 ROLES AND RESPONSIBILITIES

EIs will have the authority to stop activities that violate the environmental conditions of the FERC's Orders (if applicable), stipulations of other environmental permits or approvals, or landowner easement agreements, as well as order appropriate corrective action.

The EI will have peer status with all other activity inspectors and will report directly to the Construction Site Supervisor who has overall authority on the construction spread or Project. For each construction spread, at least one EI will have knowledge of the wetland and waterbody conditions in the project area. The number and experience of EIs assigned to each construction spread shall be appropriate for the length of the construction spread and the number/significance of resources affected.

At a minimum the EI will be responsible for:

- inspecting construction activities for compliance with the requirements of this plan, the construction drawings, the environmental conditions of the FERC (if applicable), proposed mitigation measures, other federal or state and local (if applicable) environmental permits and approvals, and environmental requirements in landowner easements;

- identifying, documenting, and overseeing corrective actions, as necessary to bring an activity back into compliance;

- verifying that the limits of authorized construction work areas and locations of access roads are visibly marked before clearing, and maintained throughout construction;

- verifying the location of signs and highly visible flagging marking the boundaries of sensitive resource areas, including waterbodies and wetlands, or areas with special requirements along the construction work area;

- identifying ESC and soil stabilization needs in all areas;

- ensuring that the design of slope breakers will not cause erosion or direct water into sensitive resource areas, including cultural resource sites, wetlands, waterbodies, and sensitive species habitats;

- verifying that dewatering activities are properly monitored and do not result in the deposition of sand, silt, and/or sediment into sensitive resource areas, including wetlands, waterbodies, cultural resource sites, and sensitive species habitat; stopping dewatering activities if such deposition is occurring and ensuring the design of the discharge is changed to prevent reoccurrence; and verifying that dewatering structures are removed after completion of dewatering activities;

- ensuring that subsoil and topsoil are tested in agricultural and residential areas to measure compaction and determine the need for corrective action;

- advising the Construction Site Supervisor when environmental conditions (such as we weather, severe storm events, or frozen soils) make it advisable to restrict or delay construction activities to avoid topsoil mixing and excessive compaction;

- ensuring restoration of approximate original contours and replacement of topsoil;

- verifying that the soils imported for agricultural or residential use have been certified as free of noxious weeds and soil pests, unless otherwise approved by the landowner, and is considered clean and free of hazardous materials;

- ensuring that the appropriate ESC and stabilization needs are implemented in all areas, including ensuring that ESC are properly installed and maintained daily to prevent sediment flow into sensitive resource areas (e.g., wetlands, waterbodies, cultural resource sites, and sensitive species habitats) and onto roads, and determining the need for additional erosion control devices;

- inspecting and ensuring the maintenance of temporary ESC measures at least:

    - on a daily basis in areas of active construction or equipment operation;

    - on a weekly basis in areas with no construction or equipment activity; and

    - within 24 hours of each stormwater event (runoff from precipitation, snowmelt, surface runoff and drainage), including time rainfall events resulting in 0.5 inches or more;

- ensuring the repair of all ineffective temporary ESC measures immediately after identification, or as soon as conditions allow if compliance with this time frame would result in greater environmental impacts;

- identifying areas that should be given special attention to ensure stabilization and restoration;

- ensuring proper seed mixes, rates and restoration methods are used, and obtaining documentation;

- ensuring that the Contractor implements and complies with a SPCC Plan, DTI's Waste Management Plan, and other company environmental documents and standard operating procedures;

- verifying that locations for any disposal of excess construction materials for beneficial reuse comply with this SWPPP and any applicable permits/clearances; and

- keeping records of compliance with environmental conditions of the FERC's Orders and mitigation measures proposed by DTI in the application submitted to

the FERC (if applicable), and other federal or state environmental permits during active construction and restoration. Records should include photo documentation.

Copies of blank SWPPP and BMP inspection forms are included as Appendix U.

18.2 EMPLOYEE TRAINING

Prior to the start of construction, DTI will conduct environmental and field training for company and contractor personnel. The training program will be focused on the WV BMP Manual, the FERC Plan and Procedures; this SWPPP; applicable permit conditions and other applicable construction, restoration, and mitigation plans as identified. DTI will provide large-group training sessions before each work crew commences construction with follow-up training for groups of newly assigned personnel. Following initial training, the training will be conducted on a quarterly basis until construction activities are completed.

Contractors will provide spill prevention and response training to their work crews as well as educate work crews on how to conduct daily inspections of ESC mechanisms. The training program will be designed to improve awareness of potential hazards, pollution control laws, and proper operation and maintenance or equipment. Contractors will train all employees who handle fuels and other regulated substances to prevent spills and to quickly and effectively contain and cleanup spills that may occur in accordance with applicable regulations. Contractors will also train all employees the methods by which to inspect ESC structures, to properly install and repair ESC structures, and response procedures in the event an erosion and sediment structure fails. Copies of blank training records are included as Appendix V.

18.3 RECORD KEEPING

Blank versions of the inspection and training forms can be found in Appendices U and V**,** respectively. All records will be maintained for at least three years. For each spill, written documentation of the spill is required. The following information is to be included in this documentation:

1. Date and time of spill (actual/discovered)
2. Area where spill occurred
3. Type of spill (oil, lubricant, etc.)
4. Estimated volume
5. Did any spill leave the property?
    a. If so, where was it discharged?
    b. What is the ditch into which the spill has, or may, enter?
6. Suspected failure that caused the spill?

7. Assessment of imminent danger to personnel or property?

8. Damage and injuries caused by spill?

9. Actions taken to contain, stop, remove, or cleanup spill?

10. Identification of any local emergency unit(s) contacted?

18.4 HOUSEKEEPING

The following housekeeping and materials management practices will be conducted to ensure that releases of hazardous substances or oil in the stormwater do not occur. Store, as appropriate, only enough products on site required to complete the Project. Store on-site materials in a neat, orderly manner in their original containers (unless they are not re-sealable), and with either the materials original manufacturer label or replacement label that identify the contents of each container. SDSs will be retained for the period of time that the product is being utilized on site in accordance with applicable Occupational Safety and Health Administration regulations. Follow manufacturer recommendations for proper use and disposal, and do not mix substances with one another unless recommended by the manufacturer. Use, whenever possible, all of a product before disposing of the container. If surplus product must be disposed of, follow manufacturer or local/state recommended methods for proper disposal.

Inspect materials storage areas routinely to ensure proper use and management of materials for, at a minimum, the following:

- leaks, corrosion, and integrity of containers;
- accumulated liquids on the ground;
- improper labeling and storage practices;
- opened or deteriorated containers;
- provide a temporary berm or other device for on-site containers with a 55-gallon capacity or larger that are utilized to store diesel or gasoline fuel, oil, or other hazardous substances to ensure residual material resulting from leaks/drips do not enter into the stormwater discharge;
- conduct routine maintenance, such as replacement and repair of leaking fittings, valves, hoses, or other equipment;
- remediate/clean-up minor spills which pose no threat to site personnel that may have resulted from leaking containers, equipment leaks, spilled materials, or other site specific operations immediately after discovery;
- containers (e.g., dumpsters, drums) must be available for the proper collection of all waste material, including construction debris, sanitary garbage, petroleum

products, and any hazardous materials to be used on site. Containers must be covered and not leaking;

- implement the measures below during unloading/loading operations of large quantities of hazardous substances or oil;
- provide temporary diversion dikes, berms, or other structures to protect adjacent drainage pathways until such operations are completed;
- assign personnel to monitor the transfer operation; and
- inspect the area beneath the truck/equipment transferring hazardous substances or oil for spills or leaks before and after the unloading/loading operations.

18.4.1 Procedure for Disposal of Material

Measures must be planned and implemented for housekeeping, materials management, and litter control. Construction wastes, such as building materials, sanitary wastes, etc., will be handled in such a manner so as not to adversely impact water quality of stormwater runoff. All solid waste and construction/demolition material must be disposed of in accordance with the Code of West Virginia and Legislative Rule Title 33 Series 1. Dominion and its contractor will be responsible for properly disposing of waste materials in accordance with WVDEP regulations. Wherever possible, recycling of excess materials rather than disposal is preferred.

Site non-hazardous waste shall be collected and stored in appropriate containers (e.g., dumpsters) at the staging areas. The containers shall have lids to minimize windblown trash and the accumulation of water. The containers shall be in an area that stormwater does not collect or drain to, and meet federal, state, and municipal regulations. The containers shall be emptied once they are near capacity. Containers shall not be allowed to overflow.

Waste material shall not be buried on site.

Hazardous wastes are not anticipated to be generated for the Project based on the anticipated construction. In the event hazardous waste is generated, it will not be stored within 100 feet of a waterbody or wetland. This applies to storage and does not apply to normal operation or use of equipment in these areas. Potentially hazardous wastes (i.e., used motor oils) will be separated from other waste through segregation of storage areas and proper labeling of containers. Hazardous waste will be removed from the site by licensed contractors in accordance with applicable regulatory requirements and disposed at an approved/licensed facility. Manifests documenting the proper transportation and disposal of the waste will be generated and maintained for the Project.

Hazardous waste will not be buried or disposed of in the waste material dumpsters.

19.0 SPILL PREVENTION AND RESPONSE PROCEDURES

The Project is generally linear in nature; therefore, potential spills may occur along the entire length of the Project area, but specifically in areas where refueling, equipment maintenance, and chemical storage is occurring. When refueling or maintaining equipment in staging areas or along the ROW, location of streams, wetlands, and other water conveyance channels must be observed and appropriate buffer areas maintained. The Contractor shall manage potential contaminants as presented in Section 9.7 of this document and manage drips and spills in accordance with accepted engineering and environmental practice. Additional details on spill prevention, material handling procedures and storage requirements are located in the GPP Appendix C.

DTI will report any noncompliance to the appropriate contact in Table 19.-1 which may endanger health or the environment immediately after becoming aware of the circumstances. If a spill occurs, the USFWS office in West Virginia shall also be contacted along with the West Virginia Division of Wildlife Resources.

TABLE 19-1

Spill Response Notification Contacts

Agency	Location	Telephone
U.S. Coast Guard National Response Center	National	1-800-424-8802
West Virginia Department of Environmental Protection	Charleston, WV	1-800-642-3074
West Virginia Department of Natural Resources, Office of Land and Streams	Charleston, WV	1-304-558-3225
USFWS West Virginia Field Office	Elkins, WV	304-636-6586
West Virginia Division of Wildlife Resources	South Charleston, WV	304-558-9125
Local Fire Departments		
West Milford Volunteer Fire Department	West Milford, Harrison County	304-745-3355
Weston Fire Department	Weston, Lewis County	304-269-2349
Buckhannon Fire Department	Buckhannon, Upshur County	304-472-2868
Tygart Valley Fire Company	Dailey, Randolph County	304-338-2132
Durbin Fire Department	Durbin, Pocahontas County	304-456-4999

A written submission shall be provided to the WVDEP within five days of becoming aware of the circumstances. The written description shall contain a description of the noncompliance and its cause, the period of noncompliance (including exact dates and times), and if not corrected, the anticipated time it is expected to continue, and steps taken to reduce, eliminate, and prevent recurrence of the noncompliance.

SPCC Plans are required for contractors storing more than 1,320 gallons of any liquid that has petroleum oil except gasoline, in tanks and drums 55 gallons and larger, including portable tanks. A Tier I SPCC Plan (one that the contractor can prepare without hiring a Professional Engineer) is allowed when the contractor has:

1. a total aboveground oil storage capacity of 10,000 U.S. gallons or less;

2. no aboveground oil storage containers with a capacity greater than 5,000 U.S. gallons; and

3. in the three years prior to the date the SPCC Plan is certified, had no single discharge of oil to navigable waters or adjoining shorelines exceeding 1,000 U.S. gallons, or no two discharges of oil to navigable waters or adjoining shorelines each exceeding 42 U.S. gallons within any 12 month period.[3]

Any facility owner/operator who is subject to the SPCC Rule must comply with the reporting requirements found in 40 CFR 112.4. A discharge must be reported to the EPA Regional Administrator (RA) when there is a discharge of:

- More than 1,000 U.S. gallons of oil in a single discharge to navigable waters or adjoining shorelines
- More than 42 U.S. gallons of oil in each of two discharges to navigable waters or adjoining shorelines occurring within any twelve-month period

It is the Contractor's responsibility to ensure any stored materials comply with West Virginia Legislative Rule Title 47, Series 62 (47 CSR62).

19.1 ALLOWABLE NON-STORMWATER DISCHARGE

Non-stormwater discharges shall not be allowed under the West Virginia General Pollution Control Permit for Stormwater Discharges Associated with Oil and Gas Activities. DTI will seek coverage under NPDES Water Pollution Control Permit for Discharges of Hydrostatic Test Water.

[3] Not including discharges that are the result of natural disasters, acts of war, or terrorism. When determining the applicability of this SPCC reporting requirement, the gallon amount(s) specified (either 1,000 or 42) refers to the amount of oil that actually reaches navigable waters or adjoining shorelines not the total amount of oil spilled. The EPA considers the entire volume of the discharge to be oil for the purposes of these reporting requirements.

19.2 TWELVE ELEMENTS OF AN EROSION AND SEDIMENT CONTROL PLAN

19.2.1 Element #1 Mark Clearing Limits

Clearly mark all ROW and LOD boundaries to show clearing and disturbance limits.

19.2.2 Element #2 Establish Construction Access

See Section 13.1.2 for construction access and maintenance.

19.2.3 Element #3 Install Sediment Controls

Install all BMPs as shown on the Construction Alignment Sheets, Drawing Set #1. BMPs must be constructed in accordance with this plan and the WV BMP Manual.

19.2.4 Element #4 Stabilize Soils

See the Construction Alignment Sheets (Drawing Set #1) for soil properties and Sections 13.3 and 13.4 for Soil Stabilization BMPs.

19.2.5 Element #5 Protect Slopes

RECP will be installed on slopes with 3:1 or steeper slopes. See Section 9.5.1, 15.12, and 15.13 for how to protect critical slopes.

19.2.6 Element #6 Protect Drain Inlets

Use drop inlet or riprap inlet protection BMPs to protect inlets from receiving sediment. See Section 13.4.1.6 for Drop Inlet BMP information.

19.2.7 Element #7 Convey Stormwater in a Non-Erosive Manner

Stormwater created by a permanent increase impervious area will be conveyed to stormwater BMPs. All channels and culvert outlets will be properly lined with riprap or TRM to minimize erosion.

No stormwater management controls within the AP-1 mainline are expected to be required due to the linear nature of the Project, coordination with WVDEP may be necessary to confirm. There will be negligible change in land use from pre- to post-construction conditions. Disturbed areas within the ROW will be returned to existing condition following construction. Stormwater management controls, if needed at ancillary facilities, will be shown on Drawing Set #2.

19.2.8 Element #8 Control Other Pollutants

All pollutants, including waste materials and demolition debris that occur on site during construction, must be handled and disposed of in a manner that does not cause contamination of surface water. See Section 19.0 for Spill Prevention and Response Procedures.

19.2.9 Element #9 Control Dewatering

A hose, pump, and geotextile bag must be used to remove sediment-laden water from a construction area. See Section 13.4.1.5 for a description on dewatering practices.

19.2.10 Element #10 Maintain BMPs

After construction is completed, all temporary BMPs will be removed and any land disturbed by removal will be permanently stabilized with 70 percent vegetative cover. See Section 18.0 for maintenance procedures.

19.2.11 Element #11 Manage the Project

The Contractor will call 811, West Virginia's one-call notification system, at least 48 hours prior to construction to coordinate with existing utilities. Employee training programs must inform all on- site personnel who are directly involved with construction activities at all levels of responsibility of the components and goals of the SWPPP. Company personnel must be identified to inspect as set forth under G.4.e.2.D of the Permit No. WV0116815. A tracking procedure must be used to ensure that adequate corrective actions have been taken in response to deficiencies identified during an inspection. Records of inspection must be maintained on site for review by the WVDEP director or the director's representative. Incidents such as spills, leaks and improper dumping, along with other information describing the quality and quantity of stormwater discharges must be included in the records. Inspection and maintenance records must be kept on site for review by the WVDEP director or the director's representative.

19.2.12 Element #12 Stabilization

Site must be temporarily stabilized within seven days after construction ceases. If construction activity will resume on a portion of the site within 21 days from when activities ceased, then stabilization measures do not have to be initiated on that portion of the site by the seventh day after construction. Areas where the seed has failed to germinate adequately within 30 days after seeding and mulching must be reseeded immediately or as soon as weather conditions allow. Stabilization is considered when 70 percent uniform perennial vegetative coverage has been achieved.

20.0 DETAILED SITE MAP(S) OF EROSION AND SEDIMENT CONTROLS

Figure 1 of Appendix A provides the location of the proposed ACP route. Figure 2 of Appendix A provides the West Virginia ACP route and depicts the boundary of the construction ROW and locations of aboveground facilities. Figure 3 of Appendix A illustrates impaired waterways that are crossed by the ACP. The construction ROW will be returned to original contours at the completion of construction. Dominion holds a ROW agreement for the pipeline easement through the property. No waste areas, borrow sites, or ditches will be installed as part of this Project. Structural controls to be used in the Project are depicted in the Construction Alignment Sheets, Drawing Set #1. Appendix N contains typical drawings of ESCs to be used on this Project.

21.0 SITE MAP OF THE FINAL CONDITIONS SHOWING THE STORMWATER MANAGEMENT FACILITIES

The AP-1 mainline section of the Project will be returned to approximately original contours and re-vegetated with an appropriate seed mix. The only permanent stormwater controls to be used on this section of the Project are permanent slope breakers, trench plugs, and bleeder drains as shown on the Construction Alignment Sheets, Drawing Set #1. Ancillary Facilities that will require permanent stormwater controls are shown in the Site Specific Drawings (Drawing Set #2).

22.0 NARRATIVE DESCRIPTION OF THE FINAL STORMWATER MANAGEMENT AND POLLUTION PREVENTION PLAN

The entire Project area will be returned to approximate original contours and re-vegetated with an appropriate seed mix. The only permanent stormwater controls to be used on this Project are permanent slope breakers, trench plugs, and bleeder drains; trench plugs are to be installed in the ditch line at all stream and wetland crossing locations. Construction Alignment Sheets (Drawing Set #1) include detail drawings of permanent slope breakers. They will be constructed at the WVDEP required spacing.

New impervious surfaces will not be created. The majority of areas that will be affected consist of vegetated ROW. All non-impervious areas disturbed by the Project will be restored to wooded area, and and/or vegetated ROW and their approximate preconstruction contours. If any are encountered, existing impervious areas disturbed by the Project will be restored to their preconstruction materials, conditions, and contours.

The compressor station, or similar areas involving the addition of impervious area have had stormwater management facilities designed according to site specific parameters and requirements. Refer to site construction plans for post construction stormwater management at those facilities. Site Construction plans were developed for Marts CS, Kincheloe M&R Station, and Long Run M&R Station (see Drawing Set #2).

Accordingly, post-construction runoff will remain essentially the same as preconstruction runoff within the AP-1 section of the Project. Therefore, the calculation of runoff coefficients for preconstruction versus post-construction conditions is not warranted or applicable to this linear Project. For Ancillary Facilities the post-construction runoff calculations of runoff coefficients for preconstruction versus post-construction conditions are shown in the Site Specific Drawings (see Drawing Set #2), as appropriate.

23.0 PUBLIC NOTICE SIGN

Within 24 hours of filing a Notice of Intent or Site Registration Application, the Project must display a sign for the duration of the construction Project near the entrance of the Project or, for linear Projects, at a location near an active part of the Project that is accessible by the public.

For Info on Water Pollution Control Permit
To comment on Pollution Control Plan:

Call: 800-654-5227
Or

DEP.Plan@wv.gov DEP
601 57th Street SE
Charleston, WV 25304

Filed with WVDEP

Application Date: [File Date]

Dominion Transmission Inc. (DTI)
on Behalf of ACP

Atlantic Coast Pipeline Project

The sign will be at least 24 inches by 24 inches with 1.6-inch and 0.8-inch letters and high contrast colors will be used. The sign must be placed at least three feet above ground level, clearly visible and legible from a public road or ROW. If it is not feasible to display a sign at or near the Project, Dominion may post a notice containing the information at a local public building, including but not limited to, a town hall or public library.

24.0 CERTIFICATION STATEMENT

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature

3/2/17
Date

Leslie Hartz
Name

Vice President, Pipeline Construction
Title