



ATLANTIC COAST PIPELINE, LLC
ATLANTIC COAST PIPELINE
Docket Nos. CP15-554-000
CP15-554-001

and



DOMINION TRANSMISSION, INC.
SUPPLY HEADER PROJECT
Docket No. CP15-555-000

Timber Removal Plan

Updated, Rev. 1

Prepared by



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LIST OF ACRONYMS AND ABBREVIATIONS

ACP	Atlantic Coast Pipeline
AO	Authorized Officer
Atlantic	Atlantic Coast Pipeline, LLC
ATWS	additional temporary workspace
COM Plan	Construction, Operation, and Maintenance Plan
DTI	Dominion Transmission, Inc.
EI	Environmental Inspector
GWNF	George Washington National Forest
HDD	horizontal directional drill
LRMP	Land and Resource Management Plans
MNF	Monongahela National Forest
NPS	National Park Service
Plan	Upland Erosion Control, Revegetation, and Maintenance Plan
POD	Plan of Development
Procedures	Wetland and Waterbody Construction and Mitigation Procedures
Projects	Atlantic Coast Pipeline and Supply Header Projects
SHP	Supply Header Project
USFS	U.S. Forest Service

1.0 INTRODUCTION

Atlantic Coast Pipeline, LLC (Atlantic) – a company formed by four major energy companies – Dominion Resources, Inc.; Duke Energy Corporation; Piedmont Natural Gas Co., Inc.; and AGL Resources, Inc. – proposes to construct and operate approximately 600 miles of natural gas transmission pipelines and associated aboveground facilities in West Virginia, Virginia, and North Carolina. This Project, referred to as the Atlantic Coast Pipeline (ACP), will deliver up to 1.5 million dekatherms per day of natural gas from supply areas in the Appalachian region to demand areas in Virginia and North Carolina. Atlantic has contracted with Dominion Transmission, Inc. (DTI), a subsidiary of Dominion Resources, Inc., to construct and operate the ACP on behalf of Atlantic.

In conjunction with the ACP, DTI proposes to construct and operate approximately 37.5 miles of pipeline loop and modify existing compression facilities in Pennsylvania and West Virginia. This Project, referred to as the Supply Header Project (SHP), will enable DTI to provide firm transportation service to various customers, including Atlantic.

Subject to receipt of the required permits and regulatory approvals, Atlantic and DTI anticipate that construction of the Projects will commence in the Summer of 2017. Initial construction activities for the Projects (e.g., preparation of contractor yards and access roads) are expected to begin in April 2017. The ACP pipelines will be built along 14 spreads with construction occurring over an approximate 18-month period beginning in June 2017. The SHP pipelines will be built along two spreads with construction occurring over an approximate 14-month period beginning in June 2017. Construction of aboveground facilities for the Projects will begin in June 2017. Atlantic and DTI anticipate that all facilities for the Projects will be placed in service by the fourth quarter of 2018. A table summarizing the proposed construction schedule for the Projects by spread, including tree clearing, is provided in Resource Report 1.

2.0 PURPOSE

The Projects cross numerous wooded areas, some of which contain merchantable timber. The purpose of this *Timber Removal Plan* is to describe how timber removal activities will be conducted and to identify measures for reducing impacts and stabilizing areas where timber is removed. This plan augments the other construction, restoration, and mitigation plans prepared for the Projects. All applicable provisions of other plans apply to timber removal activities (e.g., the equipment refueling procedures described in the *Spill Prevention, Control, and Countermeasures Plan*).

3.0 TRAINING

Prior to the start of construction, Atlantic and DTI will conduct environmental training for Company and Contractor¹ personnel. The training program will focus on the Federal Energy Regulatory Commission's *Upland Erosion Control, Revegetation, and Maintenance Plan* (Plan) and *Wetland and Waterbody Construction and Mitigation Procedures* (Procedures); other construction, restoration, and mitigation plans, including this *Timber Removal Plan*; and

¹ Contractor refers to the company or companies retained by Atlantic/DTI or another contractor to construct the proposed facilities.

applicable permit conditions. In addition, Atlantic and DTI will provide large-group training sessions before each work crew commences construction with periodic follow-up training for groups of newly assigned personnel.

4.0 JURISDICTIONS

The ACP crosses forested public lands under the jurisdiction of the U.S. Forest Service (USFS), National Park Service (NPS), State of West Virginia, and Commonwealth of Virginia, as well as private timbered areas, including commercial tree plantations. The SHP crosses forested public lands under the jurisdiction of the State of West Virginia as well as private timbered areas, including commercial tree plantations.

The two National Forests crossed by the ACP, the Monongahela National Forest (MNF) in West Virginia and George Washington National Forest (GWNF) in Virginia, have standards and guidelines applicable to timber removal practices within the National Forests. This *Timber Removal Plan* has been written to conform to the standards and guidelines contained within the Land and Resource Management Plans (LRMP) of the respective National Forests. Timber removal on the National Forests will also be addressed in a *Construction, Operations, and Maintenance Plan* (COM Plan). The broader list of USFS standards and guidelines applicable to the ACP are described in Section 8.7 of Resource Report 8.

The ACP will cross NPS lands at the Blue Ridge Parkway and USFS lands at the Appalachian National Scenic Trail. Atlantic is planning to cross these areas with a horizontal directional drill (HDD), which will eliminate the need to clear trees on NPS and USFS lands at these crossings. Tree clearing between the HDD entry and exit points at this crossing will not be required during construction. Additionally, during operations, the right-of-way will not be maintained between the exit and entry points of the HDD (i.e., no clearing for maintenance).

The ACP also crosses non-commercial forested lands on the Seneca State Forest, which is managed by the West Virginia Division of Forestry; and the James River Wildlife Management Area, which is managed by the Virginia Department of Game and Inland Fisheries. The SHP crosses non-commercial forested lands on the Lewis Wetzel Wildlife Management Area, which is managed by the West Virginia Department of Natural Resources.

5.0 COMPENSATION

Timber owners along the ACP and SHP pipeline routes will be fairly compensated for financial impacts associated with construction and operation of the Projects, including damages caused by construction and removal of timber from the permanent easement and temporary construction workspace. Atlantic and DTI will hire independent, third-party timber specialists to complete inventories of timber (i.e., timber cruises) along the pipeline routes and in other construction areas for public crossings and for private lands as warranted or as requested by the landowner. On the Federal and State/Commonwealth lands crossed by the Projects, timber cruises will be done by or under the direction of the appropriate land managing agency. The timber specialists will evaluate forested properties to determine species composition and diameter and provide a current market value estimate for merchantable timber on the property. Landowners or land managing agencies will be compensated for the loss of merchantable timber

based on stumpage board footage and tree species. Typically, Atlantic and DTI will purchase and take ownership of the timber, unless another agreement is reached with the landowner or land managing agency. Timber located on USFS lands will be paid for and disposed of at the discretion of the Forest officer in charge.

Permanent Easement

Atlantic and DTI will seek to obtain permanent easements from landowners along the pipeline routes. The easements will grant Atlantic and DTI the right to install, operate, and maintain the pipelines on each landowner's property while the landowners retain ownership of the property. Landowners will receive a one-time payment as compensation for the permanent easements. After the pipelines are installed, trees will not be allowed within the permanent easements because tree root systems could damage the pipelines or their coatings and because trees can hinder aerial inspection of the pipeline rights-of-way.² During operation of the Projects, the permanent easements will be maintained in an herbaceous state in accordance with the Plan and Procedures and applicable permit requirements. Timber owners will be compensated for the easement and the removal of merchantable timber.

Temporary Workspace

The temporary workspace is adjacent to the permanent easement. Timber owners will be compensated for the use of temporary workspace as well as the removal of merchantable timber from these areas. Trees will be allowed to grow in temporary workspace areas following installation of the pipelines.

Restoration

When construction is complete, the permanent easements and the temporary workspace areas will be restored in accordance with the Plan and Procedures, agency requirements, and landowner stipulations. During restoration, Atlantic and DTI will give special attention to current or planned road systems for future timbering activities. Following restoration, the temporary workspace will be allowed to revert to preconstruction uses. The permanent pipeline easements will be maintained in an herbaceous state.

6.0 TIMBER CRUISE AND EXTRACTION PLANS

Timber cruises will be conducted prior to construction to determine timber volumes, values, and species composition. Atlantic and DTI and their timber specialists will conduct cruises in accordance with industry standards and with applicable Federal or State/Commonwealth agency standards for public lands. For areas containing merchantable timber, and as requested or directed by the appropriate land managing agency or landowner, Atlantic and DTI will prepare Timber Extraction Plans in consultation with the respective land management agencies and landowners after timber cruises are complete. The Timber Extraction Plans will identify:

² This does not apply to areas crossed by HDD. Tree clearing/vegetation maintenance will not be required within the permanent easement in areas crossed by HDD.

- the timber volume to be cleared;
- tree sizes;
- log grades;
- the dollar value of the timber;
- the logging system(s) to be used for each harvest segment;
- yarding methods and landing locations and decks;
- the volume of timber that will be yarded at each landing;
- the locations of landings and decks not previously identified;
- the roads that will be used to haul logs; and
- the haul distance for each harvest segment.

7.0 TIME OF YEAR RESTRICTIONS

Based on agency consultations to date, timing restrictions for tree clearing by State/Commonwealth are as follows:

- West Virginia:
 - migratory birds: April 1 – August 31
 - bats: April 1 to November 15
- Virginia:
 - migratory birds: March 15 – August 15
 - bats: April 1 – November 15
- North Carolina:
 - migratory birds: April 15 – August 1
 - bats: April 1 – November 15
- Pennsylvania:
 - migratory birds: April 1 – August 31
 - bats: April 1 – November 15

While Atlantic and DTI will comply with these time-of-year restrictions to the extent practicable, tree clearing on select spreads and aboveground facility sites will be required in the Spring and Summer of 2017 in accordance with the current schedule for the Projects. Atlantic and DTI will consult with the U.S. Fish and Wildlife, U.S. Forest Service, and State/Commonwealth wildlife agencies regarding additional or special requirements or mitigation for tree clearing in this period.

8.0 TIMBER REMOVAL METHODS

Atlantic and DTI anticipate employing three timber-clearing methods for the Projects: hand cutting; mechanical harvesting; and high line yarder logging. Helicopter logging is not anticipated, but could be used in steep mountainous areas or if required by a land managing agency. All four methods are described below.

8.1 Hand Cutting

Trees may be cut and felled by workers using chainsaws. Trees felled by chain saw will be collected and removed from the rights-of-way as described in Section 8.2 below.

8.2 Mechanical Harvesting

Wherever possible, mechanical harvesting will be employed. “Feller bunchers,” which are mechanized tree harvesters that can cut and gather several trees at once, will be used to cut trees on slopes with up to 50 percent grade. The feller bunchers will pile felled trees, allowing them to be transported (yarded) to larger collection areas (landings) by “skidders” or “forwarders,” which are other specialized machines for moving trees. Skidders drag logs, while forwarders carry logs clear of the ground. Log cranes and logging shovels will load trucks, feed grinders, handle stumps, place environmental mats, build bridges, and aid in the overall safe handling of materials and rigging on the landing and in the woods.

8.3 Yarder Logging

Cable yarding systems remove felled timber with the use of cables and blocks using a tower (the “yarder”) and an anchor line. Yarding systems may drag logs up or down hill, or in the case of skyline systems, lift the logs either partially or entirely above the ground. Skyline logging will be implemented in some areas because of steep terrain, limited access, and the alignment of the route. Alignment is critical in all cable systems. Where there are slight changes in alignment, skyline yarder logging can be effectively used.

Yarder work using a skyline system could be used in some places on the rights-of-way. This system requires a tailhold, which is the point of anchorage of the skyline. In many cases, a right-of-way alignment does not lend itself to be "in line" for a good tailhold. Loggers typically seek permission to place their tailhold outside the cutting area to create better alignment. Consequently, the tailhold is typically placed off the construction area and on an opposing slope. The tailhold could also be a tree that is rigged off the main cutting area. Atlantic and DTI will seek extra workspace authorization, if necessary, to locate tailholds beyond the construction rights-of-way.

Yarders will be used to assist excavators, skidders, stump grinders, and dozers to remove brush and stumps on the rights-of-way. With long cable capabilities and good rigging, many machines can be aided by a yarder using stump holds, blocks, and "dead men" to safely hold or lower machines on a steep hill.

A yoder is a combination yarder/loader that can accomplish many of the same tasks as a yarding system on a smaller scale. Yoders can fill the gap for log removal in areas where alignment problems pose major inefficiencies to big yarders. These smaller yarding machines can effectively remove logs in tight, steep areas, such as those encountered in parts of the Appalachian Range.

8.4 Helicopter Logging

Helicopter logging is typically employed in remote areas with rough terrain. Timber is generally felled by hand cutters with chain saws. One advantage of helicopter logging is the

ability to safely remove timber on remote slopes where no roads exist. Flying logs to existing roadway systems creates less soil disturbance and requires fewer person-hours on the hills. Logs are flown to the nearest timber landing for truck transport to a mill.

During log transportation, helicopter flight paths typically will be along the pipeline rights-of-way. The helicopter can also provide ambulatory service, if needed, as well as help with fire patrol and the delivery of equipment and crew to the field.

9.0 PLANNED TIMBER REMOVAL OPERATIONS

9.1 General Requirements

The Projects cross diverse landscapes, including forestlands of varied states of growth and maturity. Consequently, it is expected that timber of marketable and unmarketable quality will be cut as clearing is conducted along the pipeline rights-of-way and in other construction areas.

A detailed civil survey will be conducted, before timber removal activities begin, to delineate and flag the limits of approved work areas (i.e., the construction rights-of-way, temporary and additional temporary workspace (ATWS), aboveground facility sites and associated workspace, staging areas, and contractor yards). The locations of approved access roads will be flagged and marked with signs.

Riparian and wetland areas will be clearly labeled in the field. Other areas/sensitive features will be flagged prior to clearing (e.g., existing snags or large diameter trees on the edge of the construction rights-of-way to be saved or protected for green recruitment or habitat/shade trees). Applicable erosion and sediment control measures will be installed in accordance with the Plan and Procedures to prevent unnecessary disturbance during initial clearing. Additionally, temporary bridges will be installed at waterbody crossings along the rights-of-way in accordance with the Plan and Procedures.

Timber will be felled from construction areas using the method best suited to terrain, permit conditions, and topography (see Section 8.0). Felled timber that is merchantable will be moved to a loading area for trucking to nearby mills. Non-merchantable timber will be burned, chipped, hauled off-site, or salvaged for use during restoration activities. After it is cut, non-merchantable timber that will be salvaged for restoration will be flagged, quantified, labeled, and placed along the edge of the construction rights-of-way or at the nearest staging area.

Slash will be ground up and used as mulch on the rights-of-way, hauled to an approved disposal site, or burned. Stumps will be cut as close to the ground as possible and left in place, except over the trench line or where grading is necessary to create a safe and level work surface. The top of the stumps will be ground flush to grade within the majority of the rights-of-way. All stumps excavated from the trench line that cannot be ground to mulch onsite will be placed along the edge of the construction rights-of-way or in temporary extra workspaces. Stumps will be hauled from the extra workspaces to an approved disposal site, used on the rights-of-way for restoration purposes, burned, or disposed of according to land managing agency or landowner specifications.

The timber removal Contractors will typically use conventional clearing methods where slopes are less than 30 percent using track and rubber tired equipment. In areas where slopes are greater than 30 percent, a combination of "high line clearing" with yarders and yoders will typically be used. Where the rights-of-way do not allow this method to be implemented, logging by helicopter may be used as an alternative.

During construction, Atlantic's and DTI's Environmental Inspectors (EIs)³ will monitor compliance with the environmental requirements and permit conditions for the Projects. The EIs will be responsible for monitoring Contractor compliance with this *Timber Removal Plan*.

9.2 Access Roads and Storage Areas

Approved access roads and storage areas in ATWS for timber removal activities will be depicted on the ACP and SHP alignment sheets and flagged or otherwise marked in the field.

10.0 MITIGATION MEASURES

10.1 General Mitigation Measures

Atlantic and DTI will implement several additional measures to reduce or minimize impacts associated with timber removal activities, including the following:

- After timber removal, temporary erosion control devices will be installed, inspected, and maintained in accordance with the Plan and Procedures and/or *Winter Construction Plan* depending on season and soil conditions.
- Debris entering a waterbody as a result of felling and yarding of timber will be removed as soon as practical and will be placed outside the 100-year floodplain where feasible.
- Logs and slash will not be yarded across perennial streams unless fully suspended (i.e., logs will not be dragged across waterbodies). Logs and slash may be hauled by truck over temporary bridges across waterbodies.
- During logging/clearing operations, the direction of log or slash movement will be conducted to minimize sediment delivery to waterbodies.
- Logs firmly embedded in the bed or bank of waterbodies that are in place prior to felling and yarding of timber will not be disturbed unless they prevent fluming, damming, or trenching operations.
- Landings for clearing operations will not be located in wetlands or riparian areas, and, where feasible, logs yarded out of wetlands or riparian areas will be skidded with at least one end suspended from the ground to minimize soil disturbance.

³ The role and responsibilities of an EI are defined in the Federal Energy Regulatory Commission's *Upland Erosion Control, Revegetation, and Maintenance Plan*.

- Timber cleared from the pipeline rights-of-way or other work areas that will be used for in-stream or upland wildlife habitat diversity structures will be stored on the edge of the rights-of-way or in temporary workspace areas for use during restoration.
- Prior to clearing operations, EIs will flag existing snags on the edges of the construction rights-of-way or ATWS, where feasible, to save from clearing. These snags will be saved as mitigation to benefit primary and secondary cavity nesting birds, mammals, reptiles, and amphibians.
- Other large diameter trees on the edge of the construction rights-of-way and ATWS areas will be flagged to save/protect as green recruitment or habitat/shade trees, where feasible.

Where ground skidding is used, the following measures will be implemented to minimize soil disturbance:

- Low ground weight (pressure) vehicles will be used, where feasible.
- The removal of soil duff layers will be avoided to maintain a cushion between the soil, logs, and logging equipment.
- Designed skid trails will be used to restrict detrimental soil disturbance (e.g., compaction and displacement) to a smaller area of the rights-of-way over the pipeline trenching area.

10.2 Additional Mitigation Measures for U.S. Forest Service Lands

On USFS lands, additional measures will be implemented in conformance with the applicable standards and guidelines identified in the MNF and GWNF LRMPs. If a general mitigation measure as described above is more stringent than an applicable standard or guideline, the more stringent measure will be applied. The standards and guidelines, as well as other requirements for timber removal activities on the MNF and GWNF, will be addressed in the COM Plan prepared for the ACP.

10.2.1 Monongahela National Forest

Standards and guidelines from the LRMP for the MNF include the following:

- Whole trees will not be yarded without approval from the MNF Authorized Officer (AO) (MNF LRMP TR05).
- Where sustained slopes 35 percent or greater are encountered, high line yarder logging or helicopter logging would be employed.
- Skid trails and landings shall not be constructed within 100 feet of perennial, intermittent, and ephemeral channels except at crossings or when locations outside the 100-foot zone pose a greater risk to aquatic or riparian resources. The

100-foot filter strip may be modified based on site-specific conditions such as soil type, slope, and stability (MNF LRMP SW40).

- Cable yarding that crosses channel buffers will avoid or mitigate adverse effects to the stream channel. Crossing will be at as near a right angle as possible, with full suspension preferred. Trees cut within channel buffers to provide cable corridors may be left on site for woody debris recruitment and erosion control (MNF LRMP SW52).
- Slash will be removed from permanent roads and recreation trails. Slash may be retained in wildlife openings in brush piles if approved by the AO (MNF LRMP TR08).
- Forest Service roads will not be used for skidding (MNF LRMP TR09).
- Log skidding will not cross trail corridors except at designated crossing sites or unless the trail is already located on a road (MNF LRMP RC31).
- Forest Service roads will not be used as log landings unless approved by the AO. Wildlife openings used as log landings will be restored upon completion of construction (MNF LRMP TR10).
- Log landings and other concentrated timber removal activities will be located outside channel buffers (MNF LRMP TR11).
- Skid trails will be kept to the minimum necessary to yard the logs (MNF LRMP TR13).
- Right-of-way edges will be “feathered” in irregular patterns to blend in with the landscape in the immediate foreground, foreground, or midground of visually sensitive areas (MNF LRMP TR20).

10.2.2 George Washington National Forest

- Advanced harvesting methods (such as cable or helicopter) may be used on sustained slopes greater than 35 percent (GWNF LRMP FW-125).
- Log landings will be located outside of riparian corridors (GWNF LRMP FW-139).
- Equipment used for harvesting and hauling operations will be serviced outside of riparian corridors (GWNF LRMP FW-140).
- Unless otherwise authorized by the AO, log landings will be ripped to a depth of 6-8 inches to break up compaction and to ensure soil productivity and the successful reestablishment of vegetation (GWNF LRMP FW-141).

- Skid trails will cross riparian corridors only at Forest-designated crossings. If crossing a perennial or intermittent stream is unavoidable, temporary bridges will be used. All streams will be crossed as close to a right angle as possible. Stabilization of skid trails will occur as soon as possible after use to minimize downslope soil movement (GWNF LRMP FW-142).
- Corridors for cable logging in areas adjacent to riparian corridors may cross the riparian corridor. Crossing will be at as near a right angle as possible, with full suspension preferred (GWNF LRMP 11-024).
- When cable logging in riparian corridors, if full suspension is not possible across perennial and intermittent streams, partial suspension will be accomplished with armoring (GWNF LRMP 11-025).
- No timber hauling or skidding will be done within the Appalachian Trail management prescription area (GWNF LRMP 4A-005).
- Skidding of trees will be directed in a manner that prevents creation of channels or gullies that concentrate water flow to adjacent streams (GWNF LRMP FW-143).
- Temporary stream crossings associated with timber harvest operations will be removed and rehabilitated (GWNF LRMP FW-144).
- Dips, waterbars, or other dispersal methods will be constructed and maintained to direct stormwater off skid trails and reduce potential sediment flow to streams (GWNF LRMP FW-145).
- Designated trails will not be used as skid trails. Crossings of designated trails will occur at right angles to the extent feasible. Designated trail treads and profiles will be restored upon completion of pipeline construction (GWNF LRMP FW-146).
- Right-of-way edges will be “feathered” in irregular patterns to blend in with the existing landscape in high and moderate scenic integrity objective areas. At the direction of the AO, some edges may not require feathering to meet the scenic integrity objectives. Geometric shapes will not be utilized (GWNF LRMP FW-184).
- If visible within a 100-foot zone of concern from level 1 and 2 travel ways and use areas, slash will be removed, burned, chipped, or lopped. These treatments will result in an average slash height of 2 feet off the ground (GWNF LRMP FW-186).
- To the extent practical, log landings, access roads, and bladed skid trails will be located out of view to avoid bare mineral soil as observed from level 1 travel routes and viewing platforms (GWNF LRMP FW-190).