ATLANTIC COAST PIPELINE, LLC
ATLANTIC COAST PIPELINE
Docket No. PF15-6-000

and

DOMINION TRANSMISSION, INC.
SUPPLY HEADER PROJECT
Docket No. PF15-5-000

Resource Report 1
General Project Description

Draft

Prepared by

NATURAL RESOURCE GROUP
an ERM Group company

May 2015

Summary of Required Federal Energy Regulatory Commission Report Information

Minimum Filing Requirements:	Report Section Reference
1. Provide a detailed description and location map of the project facilities. (§ 380.12(c)(1)) • Include all pipeline and aboveground facilities. • Include support areas for construction or operation. • Identify facilities to be abandoned.	Section 1.3; Figure 1.1.1-1; Appendices 1A and 1B
2. Describe any nonjurisdictional facilities that would be built in association with the project. (§ 380.12(c)(2)) • Include auxiliary facilities. (See § 2.55(a)) • Describe the relationship to the jurisdictional facilities. • Include ownership, land requirements, gas consumption, megawatt size, construction status, and an update of the latest status of Federal, State, and local permits/approvals. • Include the length and diameter of any interconnecting pipeline. • Apply the four-factor test to each facility. (See §380.12(c)(2)(ii))	Section 1.11
3. Provide current original U.S. Geological Survey 7.5-minute-series topographic maps with mileposts showing the project facilities. (§ 380.12(c)(3)) • Maps of equivalent detail are acceptable if legible (check with staff). • Show locations of all linear project elements, and label them. • Show locations of all significant aboveground facilities, and label them.	Appendix 1A
4. Provide aerial images or photographs or alignment sheets based on these sources with mileposts showing the project facilities. (§ 380.12(c)(3)) • No more than 1-year old. • Scale no smaller than 1:6,000.	Appendix 1B
5. Provide plot/site plans of compressor stations showing the location of the nearest noise sensitive areas (NSA) within 1 mile. (§ 380.12(c)(3,4)) • Scale no smaller than 1:3,600. • Show reference to topographic maps and aerial alignments provided above.	To be provided with the next draft
6. Describe construction and restoration methods. (§ 380.12(c)(6)) • Include this information by milepost (if applicable). • Make sure this is provided for offshore construction as well. For offshore, this information is needed on a mile-by- mile basis and will require completion of geophysical and other surveys before filing.	Section 1.5
7. Identify the permits required for construction across surface waters. (§ 380.12(c)(9)) • Include the status of all permits. • For construction in the Federal offshore area be sure to include consultation with the Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE). File with the BOEMRE for rights-of-way grants at the same time or before you file with the Federal Energy Regulatory Commission.	Section 1.12; Tables 1.12-1 and 1.12-2
8. Provide the names and addresses of all affected landowners and certify that all affected landowners will be notified as required. (§ 380.12(c)(10)) • Affected landowners are defined in § 157.6(d). • Provide an electronic copy directly to the environmental staff.	Section 1.15

Additional Information:	Report Section Reference
Describe all authorizations required to complete the proposed action and the status of applications for such authorizations.	Section 1.12; Tables 1.12-1 and 1.12-2
Provide plot/site plans of all other aboveground facilities that are not completely within the right-of-way.	Appendix 1C
Provide detailed typical construction right-of-way cross-section diagrams showing information such as widths and relative locations of existing rights-of-way, new permanent right-of-way, and temporary construction right-of-way.	Appendix 1D
Summarize the total acreage of land affected by construction and operation of the project.	Section 1.4; Tables 1.4-1 and 1.4-2
If Resource Report 5, Socioeconomics is not provided, provide the start and end dates of construction, the number of pipeline spreads that would be used, and the workforce per spread.	Section 1.6
Send two (2) additional copies of topographic maps and aerial images/photographs directly to the environmental staff of the Office of Energy Projects.	Appendices 1A and 1B

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LIST OF ACRONYMS AND ABBREVIATIONS

ACP	Atlantic Coast Pipeline
AGL	AGL Resources, Inc.
API	American Petroleum Institute
Atlantic	Atlantic Coast Pipeline, LLC
ATWS	additional temporary workspace
bcf/d	billion cubic feet per day
Certificate	Certificate of Public Convenience and Necessity
CFR	Code of Federal Regulations
COM Plan	Construction, Operations, and Maintenance Plan
Commission	Federal Energy Regulatory Commission
DOE	U.S. Department of Energy
Dominion	Dominion Resources, Inc.
DOMSP	Dominion South Point
Dth/d	dekatherms per day
DTI	Dominion Transmission, Inc.
Duke Energy	Duke Energy Corporation
DVP	Dominion Virginia Power
EI	Environmental Inspector
EIA	U.S. Energy Information Administration
ER	Environmental Report
ESA	Endangered Species Act
FBE	fusion-bonded epoxy
FERC	Federal Energy Regulatory Commission
FWS	U.S. Fish and Wildlife Service
GWNF	George Washington National Forest
HDD Plan	Horizontal Directional Drill Fluid Monitoring, Operations, and Contingency Plan
HDD	horizontal directional drill
hp	horsepower
kV	kilovolt
LDC	local distribution company
M&R	metering and regulating
MDTQ	maximum daily transportation quantity
MMBtu	million British thermal units
MNF	Monongahela National Forest
MP	milepost
NEPA	National Environmental Policy Act
NGO	non-governmental organization
NHPA	National Historic Preservation Act
NPS	National Park Service
Piedmont	Piedmont Natural Gas Co., Inc.
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 Project

SCC	State Corporation Commission
SHP	Supply Header Project
SPCC Plan	Spill Prevention, Control, and Countermeasures Plan
Transco	Transcontinental Gas Pipe Line Company, LLC
USDOT	U.S. Department of Transportation
USFS	U.S. Forest Service
VNG	Virginia Natural Gas
WMA	Wildlife Management Area

ATLANTIC COAST PIPELINE – Docket No. PF15-6-000 and
SUPPLY HEADER PROJECT – Docket No. PF15-5-000

1.0 RESOURCE REPORT 1 – GENERAL PROJECT DESCRIPTION

1.1 PROJECT DESCRIPTION

1.1.1 Atlantic Coast Pipeline

Atlantic Coast Pipeline, LLC (Atlantic) is a company formed by four major U.S. energy companies – Dominion Resources, Inc. (Dominion; NYSE: D), Duke Energy Corporation (Duke Energy; NYSE: DUK), Piedmont Natural Gas Co., Inc. (Piedmont; NYSE: PNY), and AGL Resources, Inc. (AGL; NYSE: GAS). The company was created to develop, own, and operate the proposed Atlantic Coast Pipeline (ACP), an approximately 556-mile-long, interstate natural gas transmission pipeline system designed to meet growing energy needs in Virginia and North Carolina. The ACP will be capable of delivering 1.5 billion cubic feet per day (bcf/d) [1] of natural gas to be used to generate electricity, heat homes, and run local businesses. The underground pipeline Project will facilitate cleaner air, increase the reliability and security of natural gas supplies, and provide a significant economic boost in West Virginia, Virginia, and North Carolina. More information is provided at the company's website at www.dom.com/acpipeline. Atlantic has contracted with Dominion Transmission, Inc. (DTI), a subsidiary of Dominion, to permit, build, and operate the ACP on behalf of Atlantic. [2]

Atlantic is seeking authorization from the Federal Energy Regulatory Commission (FERC or Commission) under Section 7(c) of the Natural Gas Act to construct, own, operate, and maintain the following proposed facilities for the ACP:

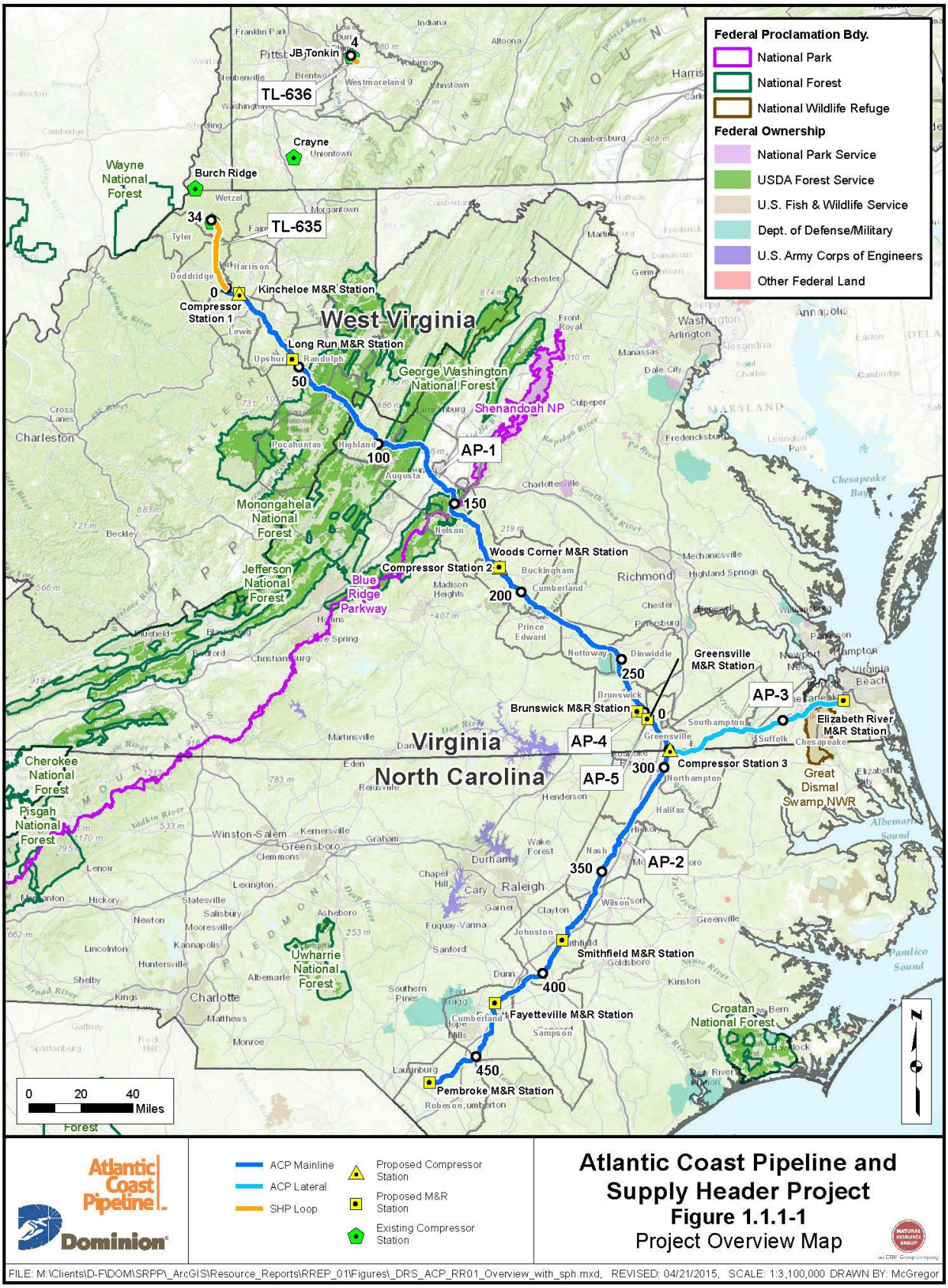
Mainline Pipeline Facilities:

- AP-1: approximately 292.8 miles of 42-inch outside diameter natural gas transmission pipeline in Harrison, Lewis, Upshur, Randolph, and Pocahontas Counties, West Virginia; Highland, Augusta, Nelson, Buckingham, Cumberland, Prince Edward, Nottoway, Dinwiddie, Brunswick, and Greensville Counties, Virginia; and Northampton County, North Carolina.

- AP-2: approximately 181.5 miles of 36-inch outside diameter natural gas transmission pipeline in Northampton, Halifax, Nash, Wilson, Johnston, Sampson, Cumberland, and Robeson Counties, North Carolina.1

[1] The 1.5 bcf/d is equivalent to approximately 1.5 million dekatherms per day (Dth/d). The bcf/d unit of measurement is used to refer to the capacity of the ACP system. The Dth/d measurement is used to refer to contractual obligations (as set forth in Table 1.2-1).

[2] As described in this report, DTI actions associated with the ACP are on behalf of Atlantic.


Federal Proclamation Bdy.
National Park
National Forest
National Wildlife Refuge
Federal Ownership
National Park Service
USDA Forest Service
U.S. Fish & Wildlife Service
Dept. of Defense/Military
U.S. Army Corps of Engineers
Other Federal Land
TL-636
TL-635
Crayne
Burch Ridge
Wayne National Forest
Kincheloe M&R Station
Compressor Station 1
Long Run M&R Station
George Washington National Forest
Shenandoah NP
AP-1
Monongahela National Forest
Jefferson National Forest
Blue Ridge Parkway
Woods Corner M&R Station
Compressor Station 2
Greensville M&R Station
AP-3
Brunswick M&R Station
Elizabeth River M&R Station
AP-4
AP-5
Compressor Station 3
Great Dismal Swamp NWR
Cherokee National Forest
Pisgah National Forest
Uwharrie National Forest
AP-2
Smithfield M&R Station
Fayetteville M&R Station
Croatan National Forest
Pembroke M&R Station
West Virginia
Virginia
North Carolina
0 20 40 Miles
ACP Mainline
ACP Lateral
SHP Loop
Proposed Compressor Station
Proposed M&R Station
Existing Compressor Station
Atlantic Coast Pipeline
Dominion
Atlantic Coast Pipeline and Supply Header Project
Figure 1.1.1-1
Project Overview Map
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Lateral Pipeline Facilities:

- AP-3: approximately 77.6 miles of 20-inch outside diameter natural gas lateral pipeline in Northampton County, North Carolina; and Greensville and Southampton Counties and the Cities of Suffolk and Chesapeake, Virginia.

- AP-4: approximately 3.1 miles of 16-inch outside diameter natural gas lateral pipeline in Brunswick County, Virginia.

- AP-5: approximately 1.0 mile of 16-inch outside diameter natural gas lateral pipeline in Greensville County, Virginia.

Compressor Station Facilities:

- Compressor Station 1: a new, natural gas-fired compressor station approximately at milepost (MP) 6.8 of the AP-1 mainline in Lewis County, West Virginia.

- Compressor Station 2: a new, natural gas-fired compressor station approximately at MP 186.0 of the AP-1 mainline in Buckingham County, Virginia.

- Compressor Station 3: a new natural gas-fired compressor station approximately at MP 292.8 of the AP-1 mainline in Northampton County, North Carolina.

Other Aboveground Facilities:

- Nine new metering and regulating (M&R) stations at receipt and/or delivery points along the new pipelines (including one at Compressor Station 1 and one at Compressor Station 2).

- Twenty-nine valve sites at select points along the new pipelines at intervals specified by U.S. Department of Transportation (USDOT) regulations at Title 49 Code of Federal Regulations (CFR) Part 192.

- Eight sets of pig launcher and/or receiver sites at 11 points along the new pipelines (including launcher/receiver sites at Compressor Stations 2 and 3).

As required by 18 CFR 380.12, Atlantic is submitting this Environmental Report (ER) in support of its Application to the Commission for a Certificate of Public Convenience and Necessity (Certificate) to construct and operate the proposed ACP facilities.

1.1.2 Supply Header Project

DTI proposes to construct and operate approximately 36.7 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 of up to 1.5 bcf/d to various customers, including Atlantic. Atlantic will be a Foundation Shipper in

the SHP, and will utilize the SHP capacity to allow its shippers access to natural gas supplies from various DTI receipt points for further delivery to points along the ACP.

DTI is seeking authorization from the FERC under Section 7(c) of the Natural Gas Act to construct, own, operate, and maintain the following proposed facilities for the SHP:

Pipeline Loops:

- TL-636: approximately 3.9 miles of 30-inch outside diameter natural gas pipeline looping DTI's existing LN-25 pipeline in Westmoreland County, Pennsylvania.

- TL-635: approximately 32.8 miles of 36-inch outside diameter natural gas pipeline looping DTI's existing TL-360 pipeline in Harrison, Doddridge, Tyler, and Wetzel Counties, West Virginia.

Compressor Station Modifications:

- JB Tonkin Compressor Station: modifications at DTI's existing JB Tonkin Compressor Station in Westmoreland County, Pennsylvania.

- Crayne Compressor Station: modifications at DTI's existing Crayne Compressor Station in Greene County, Pennsylvania.

- Burch Ridge Compressor Station: crossover piping at DTI's existing Burch Ridge Compressor Station in Marshall County, West Virginia.

- Mockingbird Hill Compressor Station: modifications at or near DTI's existing Mockingbird Hill Compressor Station in Wetzel County, West Virginia.

Other Aboveground Facilities:

- Five valve sites at select points along the new pipeline loops at intervals specified by USDOT regulations at 49 CFR 192.

- Two sets of pig launcher and receiver sites at the ends of each of the new pipeline loops.

As required by 18 CFR 380.12, DTI is submitting this ER in support of its Application to the Commission for a Certificate to construct and operate the proposed SHP facilities.

1.1.3 Scope of Resource Report 1

This Resource Report describes the purpose of and need for the ACP and SHP (collectively, the Projects), facilities associated with the Projects, procedures for construction and operation of the facilities, timetables for construction, environmental compliance measures,

permits and consultations required for the Projects, and cumulative impacts associated with the Projects.

1.2 PURPOSE AND NEED

The ACP is a proposed interstate natural gas transmission pipeline that will serve the growing energy needs of multiple public utilities and local distribution companies in Virginia and North Carolina. The natural gas transported by the ACP will be used as a fuel to generate electricity for industrial, commercial, and residential uses. The natural gas will also be used directly for residential, commercial, and industrial uses. By providing access to additional low-cost natural gas supplies, the ACP will increase the reliability and security of natural gas supplies in Virginia and North Carolina.

In recent years, demand for natural gas in Virginia and North Carolina has grown significantly. Demand for natural gas for all uses grew by 37 and 50 percent, respectively, in Virginia and North Carolina between 2008 and 2012. Demand for gas-fired electric power generation grew by 123 percent in Virginia and 459 percent in North Carolina from 2008 to 2013 (U.S. Energy Information Administration (EIA), 2014a, 2014b, 2014c, 2014d, and 2014e).

Demand for natural gas in Virginia and North Carolina is expected to increase in coming decades due to a combination of population growth and displacement of coal-fired electric power generation. The U.S. Census Bureau predicts 2.7 million new residents in Virginia and 4.2 million new residents in North Carolina between 2000 and 2030 (U.S. Census Bureau, 2014). At the same time, use of natural gas for power generation is expected to increase significantly. By 2035, natural gas is expected to surpass coal as the most common fuel for electric power generation due to coal-fired plant retirements and low natural gas prices. The EIA (2014a) expects renewable generation to grow 1.9 percent per year, meeting a part of the demand for power, but more than 70 percent of new generating capacity will be fueled by natural gas.

A study prepared by ICF International (2015) for Atlantic projects that electric power generation in Virginia and North Carolina will increasingly rely on natural gas over the next two decades. Between 2019 and 2038, the study predicts that approximately 9,900 megawatts of electric generating capacity from coal and nuclear fuels will be retired, while 20,200 megawatts of new generating capacity from natural gas will be built in Virginia and North Carolina. As a result, demand for natural gas for power generation in Virginia and North Carolina is expected to grow 6.3 percent annually between 2014 and 2035, increasing from 1 bcf/d to 3.7 bcf/d.

To meet the growing demand for natural gas, the EIA (2014a) projects total U.S. natural gas production to increase by 56 percent from 2012 to 2040. At the same time, natural gas transmission patterns across the United States are expected to change based on the growing production from shale basins in the mid-Atlantic region. Historically, gas produced from the Gulf of Mexico, Canada, and the Rocky Mountains was delivered to markets in the eastern United States. Large increases in production from U.S. supply basins have created abundant, competitively priced supplies to meet the demands of the region.

A study by the U.S. Department of Energy (DOE; 2015), dated February 2015, examined the impact of increased demand for natural gas from the electric power sector on natural gas pipeline infrastructure in the United States over a 15 year period from 2015 to 2030. [3] The DOE (2015) study found that a projected 38 to 42 bcf/d of new and expanded pipeline capacity will be necessary to meet demand over the 15 year study period. The DOE study further found that flow reversal is projected to occur "to serve markets in the Southeast." Furthermore, existing pipelines that historically transported natural gas from the Gulf Coast region to points further north are expected to change the direction of flow in order to "serve the Virginia and Carolina markets" (DOE; 2015). However, there are no existing long haul interstate pipelines with available takeaway capacity from the Appalachian region directly serving Virginia and North Carolina (see Figure 1 in the DOE (2015) study).

Moreover, market participants in the region have determined that their needs cannot be adequately met by existing pipeline systems. In April 2014, Duke Energy and Piedmont issued requests for proposals for incremental pipeline transportation service due to their existing and future natural gas generation requirements, core load growth, and system reliability and supply diversity goals. In June 2014, Virginia Power Services Energy Corp., Inc. issued a request for proposals for firm transportation service to serve Virginia. Following the request for proposals processes, these companies contracted for transportation service on the ACP, as did other companies in the region.

To meet the natural gas demand of its customers, the ACP will connect the growing demand areas in Virginia and North Carolina with growing supplies. Interstate natural gas pipelines act as common carriers to transport natural gas; they are not part of natural gas exploration or production activities. The SHP links ACP with access to multiple supply basins throughout the United States. The ACP and SHP will connect growing demand areas in Virginia and North Carolina with growing supply areas in the Appalachian region and provide access to the Dominion South Point supply hub, consisting of abundant supplies on the DTI system that are sourced from a wide variety of upstream pipeline interconnects and diverse production areas. More specifically, the ACP will provide up to 1.5 bcf/d of firm natural gas transportation service into West Virginia, Virginia, and North Carolina.

The ACP will receive gas on behalf of its customers at two new interconnections: one between the ACP and DTI facilities (both existing facilities and new facilities proposed for the SHP) in Harrison County, West Virginia, to be known as the Marts Junction Interconnection; and one between the ACP and existing Transcontinental Gas Pipe Line Company, LLC (Transco) facilities in Buckingham County, Virginia, to be known as the Buckingham Interconnect. The natural gas will be delivered to various new customer interconnects in West Virginia, Virginia, and North Carolina. Additionally, the ACP will lease capacity on a pipeline owned and operated by Piedmont to enable certain deliveries in North Carolina.

[3] In comments filed with the FERC, several individuals said that demand for natural gas in Virginia and North Carolina could be met by existing pipeline systems citing this study by the DOE. The study did not conclude, as some suggested, that no additional pipeline capacity is needed to meet the increased demand for natural gas. Instead, the study found that the expected increase in pipeline capacity over the study period will be modest relative to previous expansions in pipeline capacity.

Of the new firm transportation capacity of up to 1.5 bcf/d proposed by the ACP, 1,360,000 Dth/d (approximately 1.33 bcf/d) is currently subscribed pursuant to precedent agreements with six customers. These customers are major utilities and local distribution companies in the region. The precedent agreements demonstrate the need for the Projects, the demand for new gas supplies indicated in the studies noted above, and the desire for access to a new supply region. The remaining unsubscribed capacity will be awarded and contracted for in accordance with Commission policies applicable to open-access interstate pipelines and the provisions of applicable FERC gas tariffs.

The proposed receipt and delivery points on the ACP system are depicted on Figure 1.2-1. The natural gas supplied to each delivery point will be provided to local distribution companies (LDCs), power generators, and other interstate pipeline companies. Table 1.2-1 provides a breakdown of the existing customer commitments for the ACP. The intended use of the gas supplied to each delivery point is summarized in Table 1.2-2.

As noted above, the ACP will serve the growing energy needs of various customers in Virginia and North Carolina. Over 90 percent of the new pipeline system's capacity has been contracted for in binding precedent agreements with major utilities and local distribution companies in the region as shown in Table 1.2-2. The ACP is not designed to export natural gas overseas; this is not a component of the purpose and need of the ACP. Moreover, there are no licensed terminals to export liquefied natural gas in either Virginia or North Carolina.

TABLE 1.2-1

Existing Customer Commitments for the Atlantic Coast Pipeline

Customer	Primary Receipt Point	Delivery Locations	MDTQ [a] (Dth/d) [b]
Virginia Power Services, Inc.	Marts Junction Interconnect	Randolph County, WV Buckingham County, VA Brunswick County, VA Greensville County, VA City of Chesapeake, VA Northampton County, NC	300,000
Duke Energy Progress, Inc.	Marts Junction Interconnect Buckingham Interconnect	Buckingham County, VA Johnston County, NC Robeson County, NC	452,750
Duke Energy Carolinas, LLC	Marts Junction Interconnect Buckingham Interconnect	Buckingham County, VA Johnston County, NC Robeson County, NC	272,250
Piedmont Natural Gas Company, Inc.	Marts Junction Interconnect Buckingham Interconnect	Buckingham County, VA Johnston County, NC Cumberland County, NC Robeson County, NC	160,000
Public Service Company of North Carolina, Inc.	Marts Junction Interconnect	Johnston County, NC	100,000
Virginia Natural Gas, Inc.	Marts Junction Interconnect	City of Chesapeake, VA	75,000

[a] MDTQ = maximum daily transportation quantity

[b] Dth/d = dekatherms per day.

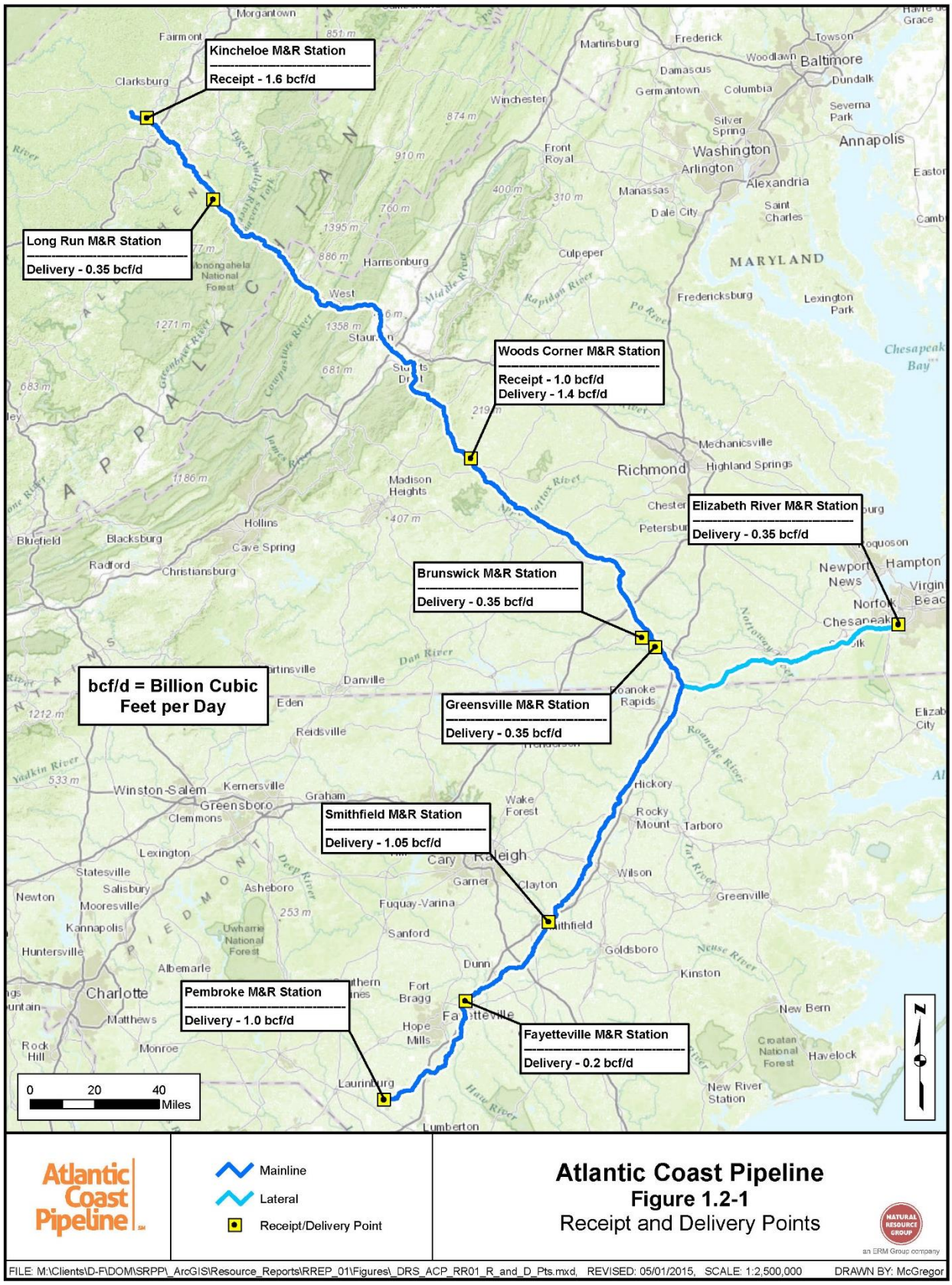
Kincheloe M&R Station
Receipt - 1.6 bcf/d
Long Run M&R Station
Delivery - 0.35 bcf/d
Woods Corner M&R Station
Receipt - 1.0 bcf/d
Delivery - 1.4 bcf/d
Elizabeth River M&R Station
Delivery - 0.35 bcf/d
Brunswick M&R Station
Delivery - 0.35 bcf/d
Greensville M&R Station
Delivery - 0.35 bcf/d
Smithfield M&R Station
Delivery - 1.05 bcf/d
Fayetteville M&R Station
Delivery - 0.2 bcf/d
Pembroke M&R Station
Delivery - 1.0 bcf/d
bcf/d = Billion Cubic Feet per Day
0 20 40 Miles
N
Mainline
Lateral
Receipt/Delivery Point
Atlantic Coast Pipeline
Figure 1.2-1
Receipt and Delivery Points
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TABLE 1.2-2

Intended Use of the Natural Gas by Delivery Point for the Atlantic Coast Pipeline

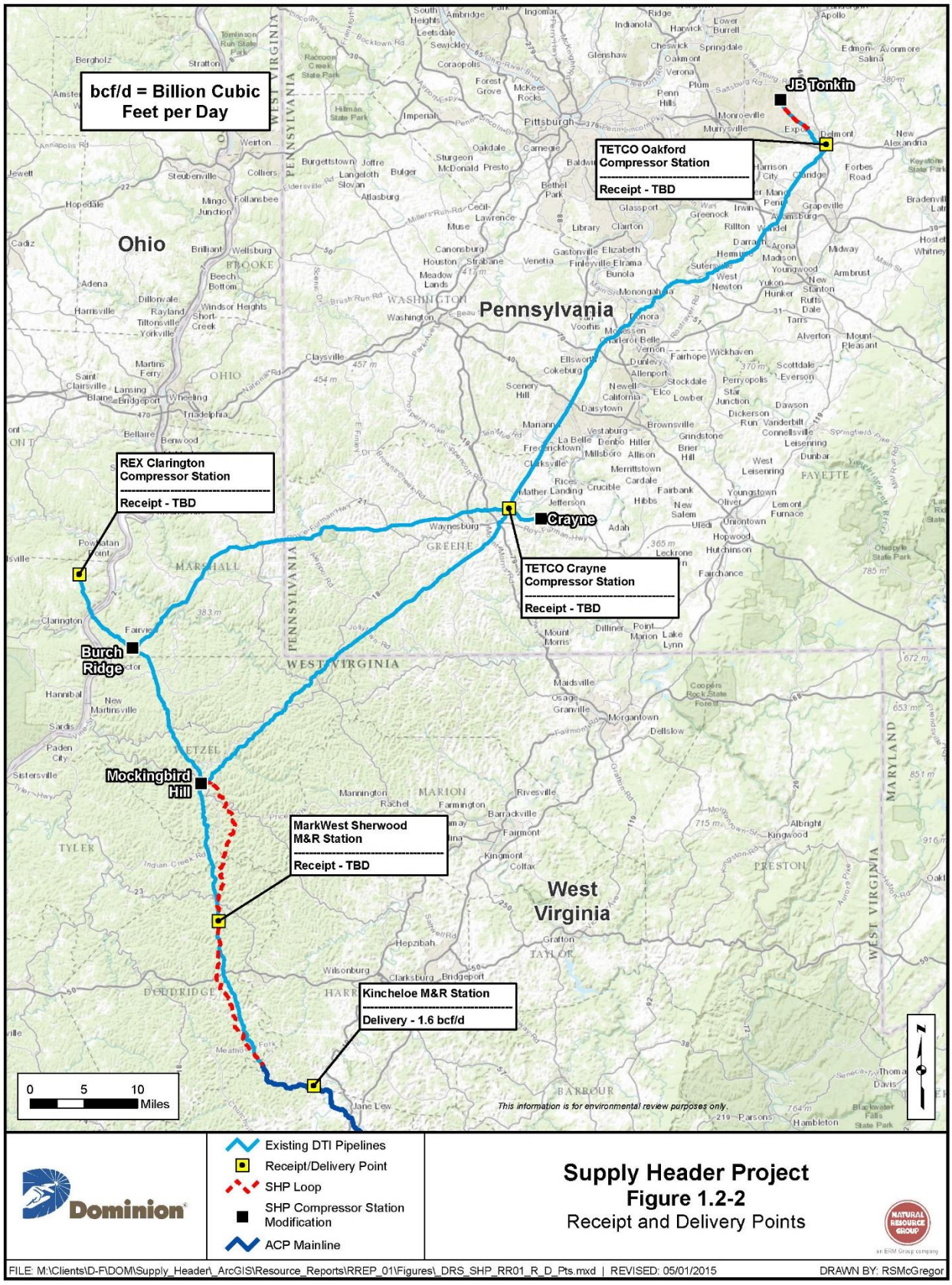
Delivery Point	Interconnect	Intended Use of the Natural Gas
Long Run M&R Station	Columbia Gas Transmission	Columbia Gas Transmission delivers gas supplies to LDCs, power generators, and other interstate pipelines. The LDCs, in turn, deliver gas supplies to residential, commercial, and industrial customers, and also to power generators.
Woods Corner M&R Station	Transcontinental Gas Pipe Line Company	Transcontinental Gas Pipe Line Company delivers gas supplies to LDCs, power generators, and other interstate pipelines. The LDCs, in turn, deliver gas supplies to residential, commercial, and industrial customers, and also to power generators.
Smithfield M&R Station	Piedmont Natural Gas	Piedmont is an LDC which delivers gas supplies to residential, commercial, and industrial customers, and also to power generators.
Fayetteville M&R Station	Piedmont Natural Gas	Piedmont is an LDC which delivers gas supplies to residential, commercial, and industrial customers, and also to power generators.
Pembroke M&R Station	Piedmont Natural Gas	Piedmont is an LDC which delivers gas supplies to residential, commercial, and industrial customers, and also to power generators.
Elizabeth River M&R Station	Virginia Natural Gas	Virginia Natural Gas is an LDC which delivers gas supplies to residential, commercial, and industrial customers, and also to power generators.
Brunswick M&R Station	Virginia Power	This is a power-generating site (under construction).
Greenville M&R Station	Virginia Power	This is a power-generating site (proposed).

Supply Header Project

One of the critical requirements of Atlantic's customers is to have access to a low cost supply hub with a large volume of transactions characterized by multiple buyers and sellers willing to trade natural gas on a daily basis and into the futures market (liquidity). Dominion South Point (DOMSP), which is representative of transactions on the DTI pipeline system south of Armstrong County, Pennsylvania, is one of the most highly liquid trading hubs in America, far surpassing most others in the area. This significant liquidity continues to expand with the abundance of production and processing volumes in West Virginia, Pennsylvania, and Ohio combined with DTI's connectivity with the upstream interstate pipeline network. DOMSP trades at a significant discount to the Henry Hub, a nationally significant distribution hub located in Louisiana. Going forward, it is expected that DOMSP will continue to trade at a deep discount to the Henry Hub.[4] DOMSP is also characterized by seasonal pricing stability, and is not typically exposed to the extreme winter price spikes in the Northeast market area.

The SHP will provide Atlantic's customers with access to DOMSP and multiple physical interconnecting entities including upstream natural gas pipelines. This will allow Atlantic's end-use customers to control a diverse suite of supply options providing them access to physical interconnects with upstream suppliers in addition to the multitude of market participants who have access to DOMSP. In total, the SHP will enable DTI to deliver up to 1.5 bcf/d of natural gas to SHP shippers, including Atlantic, which has committed to 1,360,000 Dth/d (approximately 1.33 bcf/d) of the planned capacity of the SHP. The remaining unsubscribed capacity on the SHP will be awarded and contracted for in accordance with Commission policies applicable to open-access interstate pipelines and the provisions of applicable FERC gas tariffs. The proposed receipt and delivery points on the SHP system are depicted on Figure 1.2-2.

[4] BENTEK NE Market Call (April 2015).


bcf/d = Billion Cubic Feet per Day
JB Tonkin
TETCO Oakford Compressor Station
Receipt - TBD
REX Clarington Compressor Station
Receipt - TBD
Crayne
TETCO Crayne Compressor Station
Receipt - TBD
Burch Ridge
Mockingbird Hill
MarkWest Sherwood M&R Station
Receipt - TBD
Kincheloe M&R Station
Delivery - 1.6 bcf/d
Ohio
Pennsylvania
West Virginia
0 5 10 Miles
This information is for environmental review purposes only.
Existing DTI Pipelines
Receipt/Delivery Point
SHP Loop
SHP Compressor Station Modification
ACP Mainline
Supply Header Project
Figure 1.2-2
Receipt and Delivery Points
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1.3 LOCATION AND DESCRIPTION OF FACILITIES

1.3.1 Atlantic Coast Pipeline

1.3.1.1 Pipeline Facilities

Atlantic proposes to construct approximately 556.0 miles of natural gas transmission pipelines in West Virginia, Virginia, and North Carolina. This includes two new mainline pipelines (AP-1 and AP-2) and three new lateral pipelines (AP-3, AP-4, and AP-5). Detailed route maps depicting the locations of these facilities are provided in Appendices 1A (topographic maps) and 1B (aerial photos). Table 1.3.1-1 provides summary information on the crossing length of each pipeline by County/City and State/Commonwealth.

The AP-1 mainline, which will consist of 42-inch outside diameter pipeline, will originate at a new interconnect with DTI facilities (both existing facilities and new facilities proposed for the SHP) in Lewis County, West Virginia. From this point, the pipeline will extend approximately 80 miles to the southeast through West Virginia, passing west of Buckhannon in Upshur County and crossing through Randolph and Pocahontas Counties. After entering Virginia, the pipeline will continue for approximately 165 miles to the southeast, crossing through Highland, Augusta, Nelson, Buckingham, Cumberland, Prince Edward, and Nottoway Counties, and entering Dinwiddie County. In Augusta County, the pipeline will pass west and south of the Cities of Staunton and Waynesboro, and in Cumberland and Prince Edward Counties, the pipeline will pass north and east of the town of Farmville. In Dinwiddie County, near the Fort Picket Military Reservation, the pipeline will turn to the south/southeast and continue for approximately 48 miles to the Commonwealth of Virginia/State of North Carolina line, crossing through Brunswick and Greensville Counties. The pipeline will terminate just south of the Commonwealth/State line in Northampton County, North Carolina at proposed Compressor Station 3.

The AP-2 mainline, which will consist of 36-inch outside diameter pipeline, will originate at the southern terminus of AP-1 at Compressor Station 3 in Northampton County, North Carolina. From this point, the pipeline will extend to the southwest for approximately 109 miles, crossing through Northampton, Halifax, Nash, Wilson, and Johnston Counties. The pipeline will pass west of Rocky Mount in Nash County, west of Wilson in Wilson County, and east of Selma in Johnston County. At the Johnston/Sampson County line, the pipeline will turn west/southwest and continue for approximately 73 miles, crossing through Sampson County and southeast of Fayetteville in Cumberland County. It will terminate at a new interconnect with an existing Piedmont distribution pipeline in Robeson County, North Carolina.

The AP-3 lateral, which will consist of 20-inch outside diameter pipeline, will originate at Compressor Station 3 in Northampton County, North Carolina, just south of the State of North Carolina/Commonwealth of Virginia line. From this point, the pipeline will extend east/northeast for approximately 77.6 miles crossing through Northampton County, North Carolina; Greensville and Southampton Counties, Virginia; and the Cities of Suffolk and Chesapeake, Virginia. The pipeline will pass south of the City of Franklin in Southampton County, and south of the City of Portsmouth in Chesapeake. The pipeline will generally parallel the south side of U.S. Highway 58W through the City of Suffolk. It will terminate at a new interconnect with an existing Virginia Natural Gas pipeline on the east side of the Southern Branch Elizabeth River in the City of Chesapeake.

TABLE 1.3.1-1

Proposed Pipeline Facilities for the Atlantic Coast Pipeline [a]

Pipeline Facility	County/City and State/Commonwealth	Begin Milepost	End Milepost	Length (miles)
AP-1	Harrison County, WV	0.0	1.0	1.0
	Lewis County, WV	1.0	20.7	19.6
	Upshur County, WV	20.7	42.6	21.9
	Randolph County, WV	42.6	67.4	24.8
	Pocahontas County, WV	67.4	80.2	12.8
	Highland County, VA	80.2	105.4	25.2
	Augusta County, VA	105.4	153.8	48.4
	Nelson County, VA	153.8	180.4	26.6
	Buckingham County, VA	180.4	206.2	25.8
	Cumberland County, VA	206.2	215.1	9.0
	Prince Edward County, VA	215.1	220.2	5.1
	Nottoway County, VA	220.2	243.3	23.1
	Dinwiddie County, VA	243.3	255.0	11.7
	Brunswick County, VA	255.0	275.7	20.7
	Greensville County, VA	275.7	292.7	17.0
	Northampton County, NC	292.7	292.8	<0.1
	Subtotal			**292.8**
AP-2	Northampton County, NC	292.8	302.0	9.2
	Halifax County, NC	302.0	326.0	24.0
	Nash County, NC	326.0	357.8	31.8
	Wilson County, NC	357.8	369.6	11.8
	Johnston County, NC	369.6	406.5	36.9
	Sampson County, NC	406.5	414.4	7.9
	Cumberland County, NC	414.4	452.0	37.6
	Robeson County, NC	452.0	474.3	22.3
	Subtotal			**181.5**
AP-3	Northampton County, NC	0.0	12.1	12.1
	Greensville County, VA	12.1	12.4	0.3
	Southampton, County VA	12.4	39.1	26.7
	City of Suffolk, VA	39.1	67.0	27.9
	City of Chesapeake, VA	67.0	77.6	10.6
	Subtotal			**77.6**
AP-4	Brunswick County, VA	0.0	3.1	3.1
	Subtotal			**3.1**
AP-5	Greensville County, VA	0.0	1.0	1.0
	Subtotal			**1.0**
ACP Total		–	–	**556.0**

[a] The numbers in this table have been rounded for presentation purposes. As a result, the totals may not reflect the sum of the addends.

The AP-4 pipeline lateral, which will consist of 16-inch outside diameter pipeline, will originate approximately at MP 274.5 of the AP-1 mainline near Lawrenceville in Brunswick County, Virginia. The lateral will extend approximately 3 miles due west to a new interconnect with a Dominion Virginia Power (DVP) electric generating facility currently under construction.

The AP-5 pipeline lateral, which will consist of 16-inch outside diameter pipeline, will originate approximately at MP 276.7 of the AP-1 mainline in Greensville County, Virginia. The pipeline will extend approximately 1 mile to the south/southwest to an interconnection with a proposed DVP electric generating facility.

The design factor and wall thickness for each pipeline will adhere to USDOT requirements. The pipe will be manufactured in accordance with American Petroleum Institute (API) Standards and all applicable Federal and State/Commonwealth regulations for design, permitting, construction, operation, and maintenance. A corrosion protection external coating will be applied to each pipeline and all buried facilities, and cathodic protection will be provided by an impressed current system on each pipeline.

As proposed, the capacity of the new pipeline system will be up to 1.5 bcf/d of natural gas. The maximum allowable operating pressure of the pipelines will be 1,440 pounds per square inch gauge.

A majority of the proposed pipeline facilities (522.8 miles; 94 percent) will be built across privately owned lands. In addition to private lands, the proposed route of the AP-1 mainline will cross approximately:

- 17.9 miles of U.S. Forest Service (USFS) lands in the Monongahela National Forest (MNF);
- 11.8 miles of USFS lands in the George Washington National Forest (GWNF), including a crossing of the Appalachian Trail;
- 0.1 mile of National Park Service (NPS) lands at the Blue Ridge Parkway;
- 1.3 miles of State lands in West Virginia in the Huttonsville Wildlife Management Area (WMA); and
- 0.4 mile of Commonwealth lands in Virginia in the Highland WMA.

In addition to private lands, the proposed route of the AP-3 lateral will cross approximately 1.7 miles of U.S. Fish and Wildlife Service (FWS) lands in the Great Dismal Swamp National Wildlife Refuge and less than 0.1 mile of State lands in North Carolina managed by the North Carolina Department of Natural Resources. No Federal or State/Commonwealth lands are crossed by the proposed routes for the AP-2 mainline and AP-4 and AP-5 laterals. Additional information on the public lands crossed by the ACP is provided in Resource Report 8.

Atlantic and DTI collocated the proposed pipeline facilities with existing infrastructure to the maximum extent practicable. The majority of the proposed pipeline facilities will be

constructed along a new (greenfield) corridor generally due to a lack of existing pipeline infrastructure in West Virginia, Virginia, and North Carolina between the proposed receipt and delivery points required for the ACP. In some places, there are existing electric transmission lines in the vicinity of the pipeline routes, but these span terrain features, such as steep side slopes, which cannot safely be crossed by a buried pipeline. In total, approximately 32.9 miles (6 percent) of the proposed pipelines are parallel to existing linear corridor facilities, including pipelines, electric transmission lines, roads, and railroads; the remainder (523.1 miles; 94 percent) is greenfield. Additional information on existing linear corridor facilities in the vicinity of the ACP Project area is provided in Resource Report 8.

1.3.1.2 Aboveground Facilities

In addition to the proposed pipeline facilities, the ACP will require construction of three compressor stations, nine M&R stations, 29 valves, eight sets of pig launcher and receiver sites, and associated appurtenances. The approximate locations of these facilities are depicted in the route maps provided as Appendices 1A and 1B. The location of each facility by milepost and County/City is listed in Table 1.3.1-2. [5] Preliminary plot plans for the proposed compressor and M&R stations are provided in Appendix 1C.

Compressor Station 1 will be built approximately at MP 6.8 of the AP-1 mainline in Lewis County, West Virginia. The station will take natural gas from the outlet of the proposed Kincheloe M&R Station and discharge into the AP-1 mainline. The station will contain four gas-driven turbines that will provide a combined 55,015 horsepower (hp) of compression. The station will include approximately six structures (compressor, auxiliary, office, utility gas, drum storage, and storage building), with a chain-link security fence installed around the periphery of the site. Equipment at the station will include gas filter/separators, gas coolers, inlet air filters, exhaust silencers, tanks, blowdown silencers, heaters, and auxiliary generators. [6]

Compressor Station 2 will be built approximately at MP 186.0 in Buckingham County, Virginia, where the AP-1 mainline will intersect existing Transco transmission pipelines. The station will take natural gas from both the AP-1 mainline and the existing Transco pipelines. The station will be bi-directional with the ability to discharge into the AP-1 mainline downstream of the compressor station as well as the existing Transco pipelines. The station will contain four gas-driven turbines, which combined will provide approximately 40,645 hp of compression. Like Compressor Station 1, the station will include approximately six structures (e.g., compressor, auxiliary, office, utility gas, drum storage, and storage building(s)), with a chain-link security fence installed around the periphery of the site. Equipment at the station will include gas filter/separators, gas coolers, inlet air filters, exhaust silencers, tanks, blowdown silencers, heaters, and auxiliary generators. [7]

[5] Locations of aboveground facilities are preliminary and subject to change.

[6] Based on preliminary engineering. This information may be updated when engineering is further advanced and more information is available.

[7] Based on preliminary engineering. This information may be updated when engineering is further advanced and more information is available.

TABLE 1.3.1-2

Proposed Aboveground Facilities for the Atlantic Coast Pipeline

Aboveground Facility	County/City and State/Commonwealth	Approximate Milepost
Compressor Stations		
AP-1 Mainline		
Compressor Station 1	Lewis County, WV	6.8
Compressor Station 2	Buckingham County, VA	186.0
Compressor Station 3	Northampton County, NC	292.8
Metering and Regulating Stations		
AP-1 Mainline		
Kincheloe M&R Station	Lewis County, WV	6.8
Long Run M&R Station	Randolph County, WV	45.8
Woods Corner M&R Station	Buckingham County, VA	186.0
AP-2 Mainline		
Smithfield M&R Station	Johnston County, NC	384.6
Fayetteville M&R Station	Cumberland County, NC	424.4
Pembroke M&R Station	Robeson County, NC	474.3
AP-3 Lateral		
Elizabeth River M&R Station	City of Chesapeake, VA	77.6
AP-4 Lateral		
Brunswick M&R Station	Brunswick County, VA	3.1
AP-5 Lateral		
Greensville M&R Station	Greensville County, VA	1.0
Valves [a]		
AP-1 Mainline		
Valve Site 1	Lewis County, WV	6.8
Valve Site 2	Upshur County, WV	26.5
Valve Site 3	Upshur County, WV	40.0
Valve Site 4	Randolph County, WV	56.3
Valve Site 5	Pocahontas County, WV	74.1
Valve Site 6	Augusta County, VA	109.7
Valve Site 7	Augusta County, VA	126.0
Valve Site 8	Augusta County, VA	134.8
Valve Site 9	Nelson County, VA	TBD
Valve Site 10	Nelson County, VA	TBD
Valve Site 11	Buckingham County, VA	204.8
Valve Site 12	Nottoway County, VA	224.5
Valve Site 13	Dinwiddie County, VA	244.5
Valve Site 14	Brunswick County, VA	260.3
AP-2 Mainline		
Valve Site 15	Halifax County, NC	312.9
Valve Site 16	Nash County, NC	332.8
Valve Site 17	Nash County, NC	341.7
Valve Site 18	Nash County, NC	355.6
Valve Site 19	Johnston County, NC	370.6
Valve Site 20	Johnston County, NC	401.2
Valve Site 21	Cumberland County, NC	415.5
Valve Site 22	Cumberland County, NC	427.7
Valve Site 23	Cumberland County, NC	436.1
Valve Site 24	Cumberland County, NC	445.4
Valve Site 25	Robeson County, NC	460.1
AP-3 Lateral		
Valve Site 26	Southampton County, VA	22.1
Valve Site 27	City of Suffolk, VA	42.1
Valve Site 28	City of Suffolk, VA	61.3
Valve Site 29	City of Chesapeake, VA	TBD

TABLE 1.3.1-2 (cont'd)

Proposed Aboveground Facilities for the Atlantic Coast Pipeline

Aboveground Facility	County/City and State/Commonwealth	Approximate Milepost
Pig Launcher/Receiver Sites		
AP-1 Mainline		
Site 1 (launcher)	Harrison County, WV	0.0
Site 2 (launcher/receiver)	Highland County, VA	90.1
Site 3 (launcher/receiver)	Buckingham County, VA	186.0
Site 4 (launcher/receiver)	Northampton County, NC	292.8
AP-2 Mainline		
Site 5 (launcher/receiver)	Johnston County, NC	384.6
Site 6 (receiver)	Robeson County, NC	474.3
AP-3 Lateral		
Site 4 (launcher)	Northampton County, NC	0.0
Site 7 (receiver)	Chesapeake County, VA	77.6
AP-4 Lateral		
Site 8 (launcher)	Brunswick County, VA	0.0
Site 9 (receiver)	Brunswick County, VA	3.1
AP-5 Lateral		
Site 10 (launcher)	Greensville County, VA	0.0
Site 11 (receiver)	Greensville County, VA	1.0

[a] There are no valves along the AP-4 and AP-5 pipeline laterals.

Compressor Station 3 will be located approximately at MP 292.8 in Northampton County, North Carolina at the intersection of the AP-1 and AP-2 mainlines and the AP-3 lateral. The station will take natural gas from the AP-1 mainline and discharge into both the AP-2 mainline and the AP-3 lateral. The station will contain three gas-driven compressors which combined will provide 21,745 hp of compression. Like Compressor Stations 1 and 2, the station will include approximately six structures (e.g., compressor, auxiliary, office, utility gas, drum storage, and storage building(s)), with a chain-link security fence installed around the periphery of the site. Equipment at the site will include gas filter/separators, gas coolers, inlet air filters, exhaust silencers, tanks, blowdown silencers, heaters, and auxiliary generators. [8]

Metering and Regulating Stations

Atlantic will construct nine M&R stations at the locations identified in Table 1.3.1-2. The Kincheloe M&R Station and the Woods Corner M&R Station will be built on the same site and within the same fenceline as Compressor Stations 1 and 2, respectively. The other seven M&R stations will be built at receipt or delivery points along the pipelines. Table 1.3.1-3 identifies the receipt and delivery volumes for each station.

[8] Based on preliminary engineering. This information may be updated when engineering is further advanced and more information is available.

TABLE 1.3.1-3

Metering and Regulating Stations for the Atlantic Coast Pipeline

Station	Description	Receipt Volume (bcf/d) [a, b]	Delivery Volume (bcf/d) [a, c]	Bi-Directional
Kincheloe M&R Station	This station will take natural gas from DTI's existing TL-360 mainline and the proposed AP-1 mainline and discharge into Compressor Station 1.	1.60	Not applicable	No
Long Run M&R Station	This station will take natural gas from the proposed AP-1 mainline and discharge into an existing Columbia Gas WB pipeline.	Not applicable	0.35	No
Woods Corner M&R Station	This station will take natural gas from the proposed AP-1 mainline and the existing Transco pipelines and have the ability to discharge into all of these pipelines.	1.00	1.40	Yes
Smithfield M&R Station	This station will take natural gas from the proposed AP-2 mainline and discharge into an existing Piedmont pipeline.	Not applicable	1.05	No
Fayetteville M&R Station	This station will take natural gas from the proposed AP-2 mainline and discharge into an existing Piedmont pipeline.	Not applicable	0.20	No
Pembroke M&R Station	This station will take natural gas from the proposed AP-2 mainline and discharge into an existing Piedmont pipeline.	Not applicable	1.0	No
Elizabeth River M&R Station	This station will take natural gas from the proposed AP-3 lateral and discharge into an existing Virginia Natural Gas pipeline.	Not applicable	0.35	No
Brunswick M&R Station	This station will take natural gas from the proposed AP-4 lateral and discharge to a Dominion Virginia Power electric generating facility which currently is under construction.	Not applicable	0.35	No
Greensville M&R Station	This station will take natural gas from the proposed AP-5 lateral and discharge to a proposed Dominion Virginia Power electric generating facility.	Not applicable	0.35	No

[a] bcf/d = billion cubic feet per day.

[b] The ACP has been designed to provide operational flexibility and sufficient capacity to receive fuel gas. This is why this value exceeds 1,500 mmscf/d.

[c] The delivery volumes identified in this table total 5,050 mmscf/d, which exceeds the receipt volume of 1,600 mmscf/d. This is because the customers of the ACP have contracted for flexibility (redundancy) among their various delivery points along the system. Additionally, the ACP has been designed with operational flexibility above the contracted level.

In general, each M&R station will contain two dekatherm buildings (used to house equipment such as gas chromatographs, communications equipment, etc.), a regulation building, and possibly a meter building. Equipment at each station will include gas filter/separators, gas meters, and regulators, and may include gas heaters and/or odorization equipment. Each station will be surrounded by a chain-link security fence.

Valve Sites

Twenty-nine valves will be installed along the proposed pipelines at the locations identified in Table 1.3.1-2. The 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 periphery of each valve site. The valves will allow DTI, as operator, to segment the pipelines for safety, operations, and maintenance purposes.

Pig Launchers/Receivers

Eight sets of pig launchers and/or receivers will be installed at the locations identified in Table 1.3.1-2. Several of the pig launcher/receiver assemblies will be built on the same sites and within the same fencelines as other aboveground facilities. These include pig launcher/receiver assemblies at Compressor Stations 2 and 3 and the Smithfield M&R Station, and pig receiver

assemblies at the Pembroke, Elizabeth River, Brunswick, and Greensville M&R Stations. The pig launchers/receivers will be used to run pipeline inspection tools, called pigs, through the pipeline system.

1.3.2 Supply Header Project

1.3.2.1 Pipeline Facilities

DTI proposes to construct approximately 3.9 miles of pipeline loop in Pennsylvania (TL-636) and approximately 32.8 miles of pipeline loop in West Virginia (TL-635). Detailed route maps depicting the locations of these facilities are provided in Appendices 1A (topographic maps) and 1B (aerial photos). Table 1.3.2-1 provides summary information on the crossing length of each pipeline by County and State/Commonwealth.

TABLE 1.3.2-1

Proposed Pipeline Facilities for the Supply Header Project [a]

Pipeline Facility	County/City and State/Commonwealth	Begin Milepost	End Milepost	Length (miles)
TL-636	Westmoreland County, PA	0.0	3.9	3.9
	Subtotal	**0.0**	**3.9**	**3.9**
TL-635	Harrison County, WV	–	–	0.6
	Doddridge County, WV	0.6	22.4	21.8
	Tyler County, WV	22.4	23.1	0.7
	Wetzel County, WV	23.1	32.8	9.7
	Subtotal	–	–	**32.8**
SHP Total		–	–	**36.7**

[a] The numbers in this table have been rounded for presentation purposes. As a result, the totals may not reflect the sum of the addends.

The TL-636 loop, which will consist of 30-inch outside diameter pipeline, will originate at the JB Tonkin Compressor Station in Westmoreland County, Pennsylvania. From this point, the pipeline will extend approximately 3.9 miles to the southeast where it will terminate at a connection with DTI's existing TL-591 pipeline, just north of the Town of Delmont.

The TL-635 loop, which will consist of 36-inch outside diameter pipeline, will originate at a connection with Atlantic's proposed AP-1 pipeline just south of the Harrison/Doddridge County line in West Virginia. From this point, the pipeline will extend to the north/northwest for approximately 10 miles into Doddridge County. It will then head to the north for approximately 23 miles, crossing Doddridge, Tyler, and Wetzel Counties, terminating at the expanded Mockingbird Hill Compressor Station.

The design factor and wall thickness for each pipeline will adhere to USDOT requirements. The pipe will be manufactured in accordance with API Standards and all applicable Federal and State/Commonwealth regulations for design, permitting, construction, operation, and maintenance. A corrosion protection external coating will be applied to each pipeline and all buried facilities, and cathodic protection will be provided by an impressed current system on each pipeline.

The SHP will enable DTI to deliver up to 1.5 bcf/d of natural gas to Atlantic and other shippers. The maximum allowable operating pressure of the pipelines will be 1,440 pounds per

square inch gauge. Receipt and delivery points on the pipeline system are depicted on Figure 1.2-2.

A majority of the proposed SHP pipeline loops (33.1 miles; 90 percent) will cross privately owned lands. The proposed route of the TL-635 loop will not cross Federal land, but will cross approximately 3.6 miles of West Virginia Division of Natural Resources lands in the Lewis Wetzel Wildlife Management Area. No Federal or State/Commonwealth lands are crossed by the proposed route for the TL-636 loop. Additional information on the public lands crossed by the SHP is provided in Resource Report 8.

The proposed TL-636 pipeline loop of LN-25 will mostly be collocated with DTI's existing pipeline rights-of-way. The proposed TL-635 pipeline loop of TL-360 will be parallel to existing linear corridor facilities, including pipelines, electric transmission lines, and roads for approximately 13.4 miles (41 percent). Additional information on existing linear corridor facilities in the vicinity of the SHP Project area is provided in Resource Report 8.

1.3.2.2 Aboveground Facilities

In addition to the proposed pipeline loops, the SHP will require modifications at four existing compressor stations and installation of five valves, two sets of pig launcher and receiver sites, and associated appurtenances. The approximate locations of these facilities are depicted in the route maps provided as Appendices 1A and 1B. The location of each facility by milepost and County is listed in Table 1.3.2-2. The existing compressor stations are shown on Figures 1.3.2-1 through 1.3.2-4. Preliminary plot plans for the proposed compressor station modifications are provided in Appendix 1C.

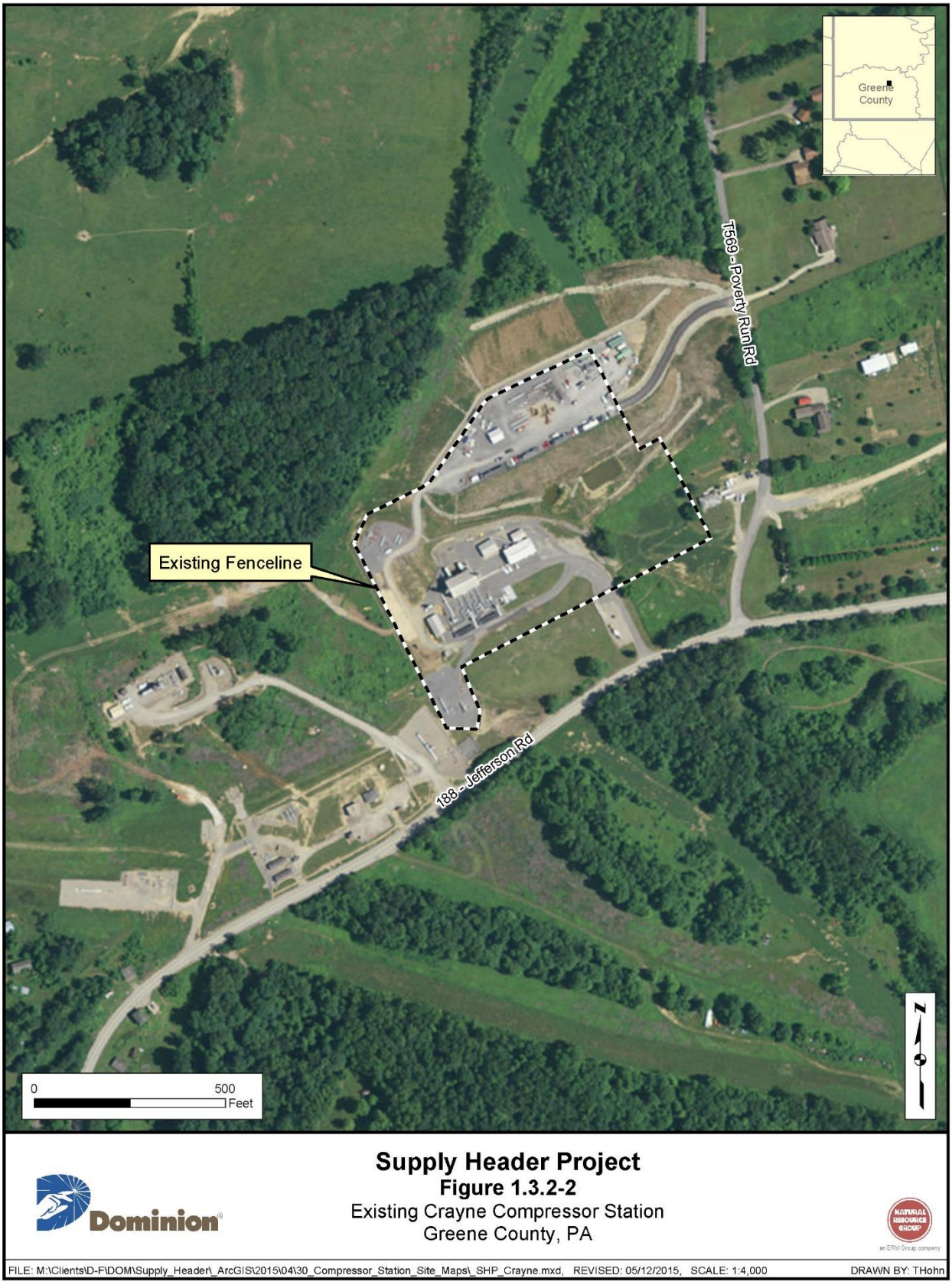
TABLE 1.3.2-2

Proposed Aboveground Facilities for the Supply Header Project

Aboveground Facility	County and State/Commonwealth	Approximate Milepost
Compressor Station Modifications		
JB Tonkin Compressor Station	Westmoreland County, PA	3.9
Crayne Compressor Station	Greene County, PA	NA
Burch Ridge Compressor Station	Marshall County, WV	NA
Mockingbird Hill Compressor Station	Wetzel County, WV	32.8
Valves		
TL-636		
Valero Gate Junction	Westmoreland County, PA	0.0
JB Tonkin Compressor Station	Westmoreland County, PA	3.9
TL-635		
Marts Junction	Harrison County, WV	0.0
Valve Site 1	TBD	TBD
Mockingbird Hill Compressor Station	Wetzel County, WV	32.8
Pig Launcher/Receiver Sites		
TL-636		
Valero Gate Junction (receiver)	Westmoreland County, PA	0.0
JB Tonkin Compressor Station (launcher)	Westmoreland County, PA	3.9
TL-635		
Marts Junction (receiver)	Harrison County, WV	0.0
Mockingbird Hill Compressor Station (launcher)	Wetzel County, WV	32.8

Supply Header Project
Figure 1.3.2-1
Existing JB Tonkin Compressor Station
Westmoreland County, PA

FILE: M:\Clients\D-F\DOM\Supply_Header_ArcGIS\2015\04\30_Compressor_Station_Site_Maps_SHP_JB_Tonkin.mxd, REVISED: 05/12/2015, SCALE: 1:4,000 DRAWN BY: THohn


Greene County
T569 - Poverty Run Rd
Existing Fenceline
188 - Jefferson Rd
0
500
Feet
N
Supply Header Project
Figure 1.3.2-2
Existing Crayne Compressor Station
Greene County, PA
Dominion
NATURAL RESOURCE GROUP
an ERM Group company
FILE: M:\Clients\D-F\DOM\Supply_Header_ArcGIS\2015\04\30_Compressor_Station_Site_Maps_SHP_Crayne.mxd, REVISED: 05/12/2015, SCALE: 1:4,000
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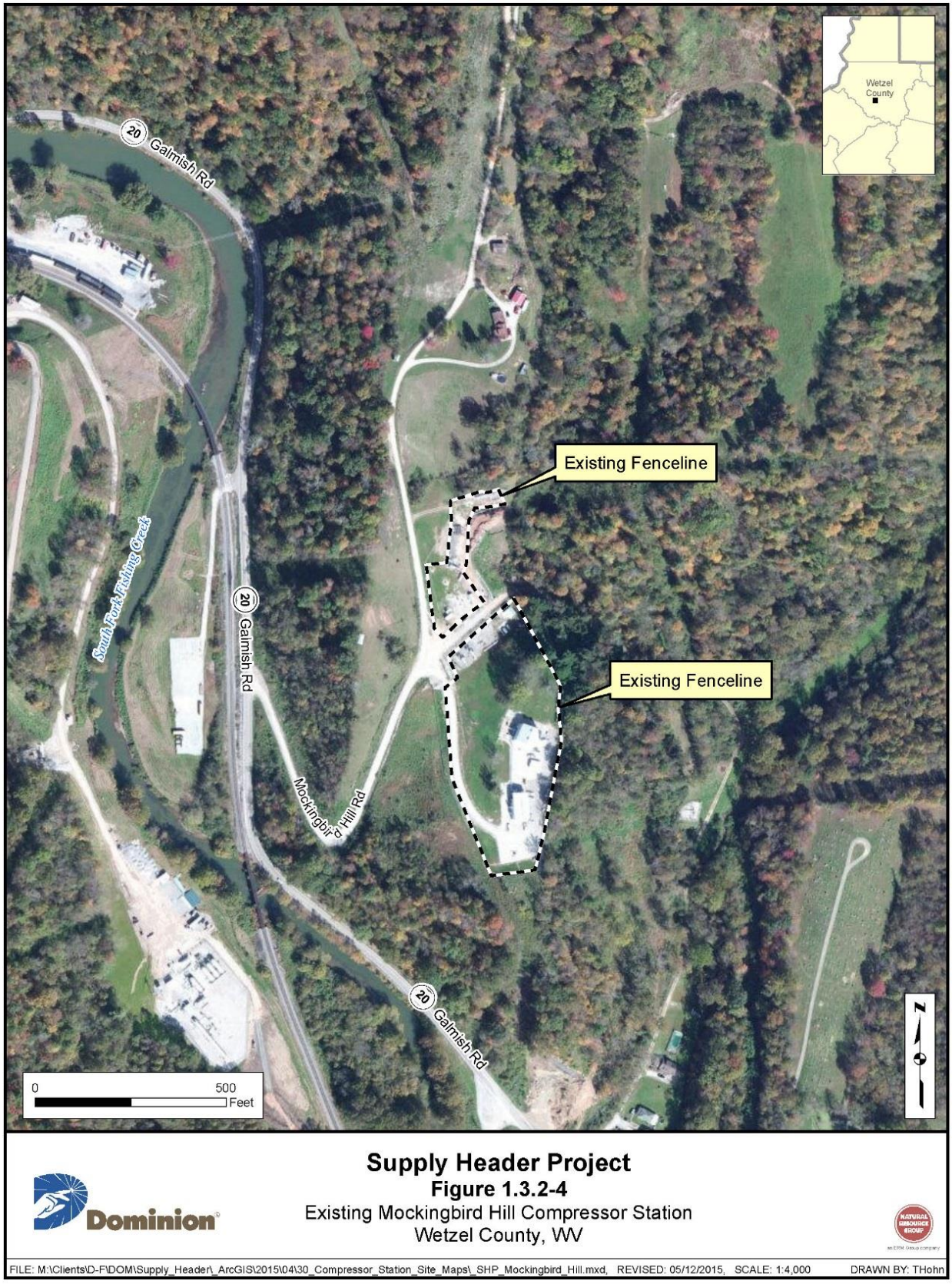
Supply Header Project
Figure 1.3.2-3
Existing Burch Ridge Compressor Station
Marshall County, WV

FILE: M:\Clients\D-F\DOM\Supply_Header_ArcGIS\2015\04\30_Compressor_Station_Site_Maps_SHP_Burch_Ridge.mxd, REVISED: 05/12/2015, SCALE: 1:4,000 DRAWN BY: THohn


Wetzel County
20 Galmish Rd
Existing Fenceline
Existing Fenceline
South Fork Fishing Creek
20 Galmish Rd
Mockingbird Hill Rd
20 Galmish Rd
0
500
Feet
N
Supply Header Project
Figure 1.3.2-4
Existing Mockingbird Hill Compressor Station
Wetzel County, WV
Dominion
FILE: M:\Clients\D-F\DOM\Supply_Header_ArcGIS\2015\04\30_Compressor_Station_Site_Maps_SHP_Mockingbird_Hill.mxd, REVISED: 05/12/2015, SCALE: 1:4,000 DRAWN BY: THohn

Compressor Stations

The JB Tonkin Compressor Station currently has one natural gas-driven reciprocating engine which provides 6,000 hp of compression. The proposed modifications at this compressor station will include the addition of two new gas-driven turbines which will provide a combined 26,815 hp of additional compression. The new facilities will take natural gas from LN-19, LN-25, and TL-474 and discharge into the new TL-636 loop, LN-25, and TL-342. The modifications also will include one new compressor building and expansion to the existing auxiliary building within the existing chain-link security fenced-in site. Equipment at the station will include gas filter/separators, gas coolers, inlet air filters, exhaust silencers, tanks, blowdown silencers, heaters, and auxiliary generators. [9]

The existing Crayne Compressor Station currently has three natural gas-driven turbines each of which provide 7,800 hp of compression, for a combined total of 23,400 hp of compression. The proposed modifications at this compressor station will include the addition of one new natural gas-driven turbine which will provide 7,700 hp of additional compression. The new facilities will take natural gas from TL-591 and discharge into TL-590, TL-342, and TL-492. The modifications also will include expansion to the existing compressor building within the existing chain-link security fenced-in site. Equipment at the station will include gas filter/separators, gas coolers, inlet air filters, exhaust silencers, tanks, blowdown silencers, heaters, and auxiliary generators. [10]

The existing Burch Ridge Compressor Station currently has one natural gas-fired turbine which provides 6,130 hp of compression. The proposed modifications at the Burch Ridge Compressor Station will include the installation of crossover piping to allow for bi-directional flow between TL-590 and TL-377. No additional compression, structures, or equipment will be added at this station.

The existing Mockingbird Hill Compressor Station currently has one natural gas-driven turbine that provides 7,800 hp of compression. The proposed modifications at this compressor station will include the addition of three new natural gas-driven turbines that will provide a combined 42,715 hp of additional compression. The new facilities will take natural gas from TL-342, TL-377, TL-430, and TL-492 and discharge into the new TL-635 loop and TL-360. The proposed modifications will also include five new structures (compressor, auxiliary, utility gas, drum storage, and storage buildings), with a chain-link security fence installed around the periphery of the expanded site. New equipment at the station will include gas filter/separators, gas coolers, inlet air filters, exhaust silencers, tanks, blowdown silencers, heaters, and auxiliary generators. [11]

[9] Based on preliminary engineering. This information may be updated when engineering is further advanced and more information is available.

[10] Based on preliminary engineering. This information may be updated when engineering is further advanced and more information is available.

[11] Based on preliminary engineering. This information may be updated when engineering is further advanced and more information is available.

Metering and Regulating Stations

No new M&R stations are being proposed for the SHP.

Valve Sites

Five valves will be installed along the proposed SHP pipeline loops at the locations identified in Table 1.3.2-2. The 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 periphery of each valve site. The valves will allow DTI to segment the pipelines for safety, operations, and maintenance purposes.

Pig Launchers/Receivers

Four pig launchers and/or receivers will be installed at the locations identified in Table 1.3.2-2. Two of the pig launcher/receiver assemblies will be built on the same sites and within the same fencelines as the modifications at the JB Tonkin and Mockingbird Hill Compressor Stations. The pig launchers/receivers will be used to run pigs through the pipeline system.

1.4 LAND REQUIREMENTS

Atlantic Coast Pipeline

Construction of the ACP will affect approximately 13,273.7 acres of land, including the permanent pipeline right-of-way, temporary construction right-of-way, additional temporary workspace (ATWS), aboveground facility sites, access roads, and pipe storage and contractor yards. Following construction, approximately 5,294.7 acres, including the temporary construction right-of-way, ATWS, temporary workspace at aboveground facility sites, and pipe storage and contractor yards, will revert to preconstruction conditions and uses. The remaining approximately 7,979.0 acres, including the permanent pipeline easement, permanent aboveground facility sites, and access roads, will be retained for operation of the new pipeline system. A summary of the land requirements for the ACP is provided in Table 1.4-1 below. Additional information on the land requirements for the Project is provided in Resource Report 8.

Supply Header Project

As shown in Table 1.4-2, construction of the SHP will affect approximately 831.1 acres of land, including the permanent pipeline right-of-way, temporary construction right-of-way, ATWS, aboveground facility sites, access roads, and pipe storage and contractor yards. Following construction, approximately 449.9 acres, including the temporary construction right-of-way, ATWS, temporary workspace at aboveground facility sites, and pipe storage and contractor yards, will revert to preconstruction conditions and uses. The remaining approximately 381.2 acres, including the permanent pipeline easement, permanent aboveground facility sites, and access roads, will be retained for operation of the new pipeline system. Additional information on the land requirements for the SHP is provided in Resource Report 8.

TABLE 1.4-1

Summary of Land Requirements for the Atlantic Coast Pipeline [a]

Facility	Land Affected During Construction (acres)	Land Affected During Operations (acres)
Pipeline Facilities		
Pipeline Right-of-Way [b]		
AP-1	4,559.7	2,659.8
AP-2	2,456.6	1,095.4
AP-3	769.7	469.8
AP-4	29.1	18.9
AP-5	11.0	7.0
Subtotal	**7,826.1**	**4,250.9**
Additional Temporary Workspace [c]		
AP-1	399.2	0.0
AP-2	200.6	0.0
AP-3	100.3	0.0
AP-4	3.9	0.0
AP-5	0.5	0.0
Subtotal	**704.5**	**0.0**
Access Roads [d]	3,636.0	3,636.0
Existing Roads	TBD	TBD
To-Be-Constructed Roads	TBD	TBD
Other Work Areas [e]	960.0	0.0
Ground Beds (Cathodic Protection)	44.1	44.1
Aboveground Facilities		
Compressor Stations [f]		
Compressor Station 1	20.0	10.0
Compressor Station 2	20.0	10.0
Compressor Station 3	20.0	10.0
Subtotal	**60.0**	**30.0**
Metering and Regulating Stations [g]		
Kincheloe M&R Station	0.0	0.0
Long Run M&R Station	5.0	2.0
Woods Corner M&R Station	0.0	0.0
Smithfield M&R Station	5.0	2.0
Fayetteville M&R Station	5.0	2.0
Pembroke M&R Station	5.0	2.0
Elizabeth River M&R Station	5.0	2.0
Brunswick M&R Station	5.0	2.0
Greensville M&R Station	5.0	2.0
Subtotal	**35.0**	**14.0**

TABLE 1.4-1 (cont'd)

Summary of Land Requirements for the Atlantic Coast Pipeline [a]

Facility	Land Affected During Construction (acres)	Land Affected During Operations (acres)
Valves [h]	0.0	0.0
Pig Launchers/Receivers [i]		
Site 1	2.0	1.0
Site 2	2.0	1.0
Site 3	0.0	0.0
Site 4	0.0	0.0
Site 5	0.0	0.0
Site 6	0.0	0.0
Site 7	0.0	0.0
Site 8	2.0	1.0
Site 9	0.0	0.0
Site 10	2.0	1.0
Site 11	0.0	0.0
Subtotal	**8.0**	**4.0**
ACP Total	**13,273.7**	**7,979**

[a] The numbers in this table have been rounded for presentation purposes. As a result, the totals may not reflect the sum of the addends.

[b] Estimate based on the typical right-of-way configurations for each pipeline as described in Section 1.4.1.1.

[c] Estimate based on the typical configurations of ATWS as described in Section 1.4.1.2.

[d] Estimate based on the assumption that up to 1,000 miles of access roads, each measuring up to 30 feet in width, will be required for construction and operation of the proposed facilities.

[e] Estimate based on the assumption that 12 yards measuring up to 80 acres each will be required during construction.

[f] Estimate based on the assumption that 20 acres will be required to construct each compressor station, of which 10 acres will be retained for operation of the ACP.

[g] Estimate based on the following assumptions: no additional land will be required for construction and operation of the Kincheloe or Woods Corner M&R stations, which will be built on the same sites and within the same fencelines as Compressor Stations 1 and 2, respectively. For all other stations, 5.0 acres will be required to construct each station, of which 2.0 acres at each site will be retained for operation of the ACP.

[h] Estimate based on the assumption that construction activities will occur within the temporary construction right-of-way for the pipelines, and that the permanent valve sites will be within the permanent easements for the pipeline facilities.

[i] Estimate based on the following assumptions: no additional land will be affected by construction or operation of the pig launcher/receiver assemblies installed on the same sites and within the same fencelines as Compressors Stations 2 and 3 and the Smithfield, Pembroke, Elizabeth River, Brunswick, and Greensville M&R Stations; for all other sites, 2 acres will be required to construct each facility, of which 1 acre at each site will be retained for operation of the ACP.

TABLE 1.4-2

Summary of Land Requirements for the Supply Header Project [a]

Facility	Land Affected During Construction (acres)	Land Affected During Operations (acres)
Pipeline Facilities		
Pipeline Right-of-Way [b]		
TL-636	51.4	23.4
TL-635	429.5	198.5
Subtotal	**480.9**	**222.0**
Additional Temporary Workspace [c]		
TL-636	2.1	0.0
TL-635	16.8	0.0
Subtotal	**18.9**	**0.0**
Access Roads [d]	127.3	127.3
Existing Roads	TBD	TBD
New To-Be-Constructed Roads	TBD	TBD
Other Work Areas [e]	160.0	0.0
Ground Beds (Cathodic Protection)	10.0	10.0
Aboveground Facilities		
Compressor Station Modifications [f]		
JB Tonkin	10.0	5.0
Crayne	10.0	5.0
Burch Ridge	0.0	0.0
Mockingbird Hill	10.0	10.0
Subtotal	**30.0**	**20.0**
Valves [g]	0.0	0.0
Pig Launchers/Receivers [h]		
JB Tonkin Compressor Station	0.0	0.0
Valero Gate Junction	2.0	1.0
Mockingbird Hill Compressor Station	0.0	0.0
Marts Junction	2.0	1.0
Subtotal	**4.0**	**2.0**
SHP Total	**831.1**	**381.2**

[a] The numbers in this table have been rounded for presentation purposes. As a result, the totals may not reflect the sum of the addends.

[b] Estimate based on the typical right-of-way configurations for each pipeline as described in Section 1.4.1.1.

[c] Estimate based on the typical configurations of ATWS as described in Section 1.4.1.2.

[d] Estimate based on the assumption that up to 35.0 miles of temporary access roads, each measuring up to 30 feet in width, will be required for construction and operation of the proposed facilities.

[e] Estimate based on the assumption that two yards measuring up to 80 acres each will be required during construction.

[f] Estimate based on the assumption that 10.0 acres will be required for the modifications at the JB Tonkin, Crayne, and Mockingbird Hill Compressor Stations, of which 5.0 acres will be retained for operation of the SHP. Work at the Burch Ridge Compressor Station will be contained within the fenceline of the existing facility.

[g] Estimate based on the assumption that construction activities will occur within the temporary construction right-of-way for the pipelines, and that the permanent valve sites will be within the permanent easements for the pipeline facilities.

[h] Estimate based on the following assumptions: no additional land will be affected by construction or operation of the pig launcher/receiver assemblies installed on the same sites and within the same fencelines as the modifications at the JB Tonkin and Mockingbird Hill Compressor Stations; for the other two sites, 2 acres will be required to construct each facility, of which 1 acre at each site will be retained for operation of the SHP.

1.4.1 Pipeline Rights-of Way and Associated Work Areas

1.4.1.1 Pipeline Rights-of-Way

Appendix 1D contains cross section diagrams depicting typical widths and configurations of the proposed permanent and temporary rights-of-way for the ACP and SHP pipeline facilities.

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 right-of-way 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 a letter dated April 28, 2015, FERC staff commented on the need of utilizing a 75-foot-wide permanent easement during operation of the proposed AP-1 mainline, and asked whether a reduced permanent easement width could be utilized for the planned facility. The Interstate Natural Gas Association of America (2013) recommends an approximate width of 60 feet for the permanent easement along a typical 42-inch-diameter pipeline, dependent on trench depth, soil type, and terrain. A permanent easement of 60 feet is generally considered acceptable for maintenance and integrity excavations in a standard installation with approximately 3 feet of cover.

In West Virginia and northwestern 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 along side slopes). Installation along the ridgelines may require the pipe 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 in part to the techniques needed to construct along narrow ridgelines. The surface of ridgelines may be temporarily lowered to create a level construction right-of-way (125 feet wide). Excavation of the trench will begin from the leveled work area. When the temporary right-of-way is restored to pre-construction contours, the depth of cover over the pipeline could exceed the minimum of 3 feet by an additional 7 feet or more.

For pipeline construction, the top width of the excavated pipe trench will typically range from 8 to 15 feet (see Section 1.5.1.3). This assumes that construction personnel will not be required to work in the trench. In areas of steep terrain where construction personnel will likely be required to work in the trench, the top of the trench will typically be 30 feet wide. If it is necessary to expose the installed pipeline for maintenance activities during operations, a wider trench would need to be excavated. Unlike the initial installation of the pipeline, the lowering of the surface of the ridgeline to create a level construction right-of-way would not be an option during operation due to the lack of temporary workspace outside the permanent easement. Therefore, the trench would have to daylight to the natural grade of the ridgeline resulting in a wider trench at the top.

In determining the width of the permanent right-of-way needed along narrow ridgelines and steep terrain for operation of the AP-1 mainline, the following assumptions were made:

- 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
- 1V:1H grade (45 degrees) on the trench walls.

Based on these assumptions, if it is necessary to expose the installed pipeline for maintenance activities, the width at the top of the trench could be approximately 40 feet along ridgelines in areas with steep terrain. A 60-foot-wide permanent right-of-way would not provide adequate space to safely maneuver people and equipment in the event that the trench needs to be excavated during operations. For this reason, a permanent right-of-way of 75 feet is required.

While a 60-foot-wide permanent right-of-way is typical for 42-inch-diameter pipelines, this does not take into account the nature of steep terrain nor the special construction and maintenance methods this requires. Atlantic has carefully considered the operations and maintenance requirements in steep terrain and determined that a 75-foot-wide right-of-way is necessary for the AP-1 mainline. This will provide for improved safety conditions and minimize requirements for off-right-of-way workspace during maintenance operations.

For the AP-2 mainline, the construction corridor in non-agricultural uplands will measure 110 feet in width, with a 35-foot-wide spoil side and a 75-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 right-of-way will be reduced to 75 feet, with 25 feet on the spoil side and 50 feet on the working side. Following construction, a 50-foot-wide permanent easement will be maintained for operation of the pipeline.

For the AP-3, AP-4, and AP-5 pipeline laterals, the width of the construction corridor in non-agricultural uplands and in wetlands will measure 75 feet in width, with a 25-foot-wide spoil side and 50-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. Following construction, a 50-foot-wide permanent easement will be maintained for operation of each pipeline.

For the TL-636 and TL-635 pipeline loops, the construction corridor in non-agricultural uplands in areas that are collocated with existing rights-of-way will measure 100 feet in width, with a 25-foot-wide spoil side and a 75-foot-wide working side. The construction corridor in non-agricultural uplands in areas that are not collocated with existing rights-of-way will measure 110 feet in width, with a 35-foot-wide spoil side and a 75-foot-wide working side. In areas where full width topsoil segregation is required, 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 right-of-way will be reduced to 75 feet, with 25 feet on the spoil side and 50 feet on the working side. Following construction, a 50-foot-wide permanent easement will be maintained for operation of the pipeline.

Following construction of the ACP and SHP pipelines, land within the temporary construction right-of-way will be restored to preconstruction conditions and uses. Additionally, although 7,979.0 acres and 381.2 acres, respectively, will be maintained as permanent easement for operation of the ACP and SHP pipelines, impacts in areas such as cultivated fields and pastures will be short term. These areas will be restored to preconstruction conditions and uses following installation of the pipeline.

1.4.1.2 Additional Temporary Workspace

In addition to the construction rights-of-way, 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 or where special construction techniques are implemented as well as at tie-ins with existing pipeline facilities, utility crossings, truck turnaround areas, and spread mobilization/de-mobilization areas. Figures depicting typical workspace dimensions at select crossings are provided in Appendix 1D. Additional information on the locations and required dimensions of ATWS is provided in Resource Report 8.

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. For the AP-2 mainline, the AP-3, AP-4, and AP-5 laterals, and the TL-636 and TL-635 loops, ATWS measuring 25 by 100 feet will typically be required on both sides of the corridor and both sides of the crossing at wetlands, waterbodies, roads, and railroads. Following construction of the pipelines, ATWS will be restored to pre-existing conditions and uses.

1.4.1.3 Access Roads

Atlantic and DTI are in the process of identifying roads which will be used to provide access to the proposed ACP and SHP pipeline rights-of-way and other facilities during construction and operation of the Projects. Atlantic and DTI will utilize existing roads to the extent practicable, but some new roads may need to be built in remote areas. Additionally, new roads will need to be built to provide access to aboveground facility sites (i.e., compressor and M&R stations, valves, and pig launcher/receiver assemblies) during operations. For purposes of this draft, Atlantic and DTI assume that approximately 1,000 miles and 35 miles, respectively, of temporary and permanent access roads will be required for construction and operation of the ACP and SHP. Additional information on access roads will be provided in the final Resource Report 1.

1.4.1.4 Other Work Areas

Temporary pipe storage and contractor yards will be needed to store equipment and stage construction activities. Atlantic and DTI are in the process of identifying these areas for the Projects. For purposes of this draft, Atlantic and DTI assume that 12 yards and 2 yards, respectively, each measuring up to 80 acres, will be required during construction of the ACP and SHP. Following construction, the pipe storage and contractor yards will be restored to pre-existing conditions and uses. Additional information on pipe storage and contractor yards will be provided in the final Resource Report 1.

1.4.1.5 Cathodic Protection System

Cathodic protection will be provided by an impressed current system on each pipeline. The system is proposed to include 80 ground beds and 10 ground beds, respectively, at various locations along the ACP pipelines and SHP pipeline loops for the installation of anodes perpendicular to each pipeline. The ground beds will measure approximately 30 feet in width by 800 feet in length. Information on the locations of the ground beds will be provided in the final Resource Report 1.

1.4.2 Aboveground Facilities

1.4.2.1 Compressor Stations

Engineering design for the new compressor stations proposed for the ACP and the compressor station modifications proposed for the SHP is ongoing. For purposes of this draft, Atlantic assumes that 20 acres will be needed for construction of each new compressor station for the ACP, of which 10 acres will be maintained for operation of the ACP. The remaining 10 acres at each site will be restored to preconstruction conditions and uses. DTI assumes that 10.0 acres at each site will be needed for the modifications at the JB Tonkin, Crayne, and Mockingbird Hill Compressor Stations for the SHP. All 10 acres at the Mockingbird Hill Compressor Station will be retained for operation of the SHP. Approximately 5.0 acres at JB Tonkin and Crayne Compressor Stations will be retained for operation. The remaining 5.0 acres at each site will be restored to preconstruction conditions and uses. Work at the Burch Ridge Compressor Station will be contained within the fenceline of the existing facility and will not impact additional land.

Preliminary plot plans for the new compressor stations proposed for the ACP and the compressor station modifications proposed for the SHP are provided in Appendix 1C. Additional information on the ACP and SHP compressor stations, including final plot plans for each facility, will be provided in the final Resource Report 1.

1.4.2.2 Metering and Regulating Stations

Engineering design for the proposed M&R stations for the ACP is ongoing. No additional land will be required for construction and operation of the Kincheloe and Woods Corner M&R Stations, which will be built on the same sites and within the same fencelines as Compressor Stations 1 and 2, respectively. For purposes of this draft, Atlantic assumes that 5 acres will be needed for construction of each of the remaining M&R stations listed in

Table 1.4-1, of which 2 acres at each site will be retained for operation of the ACP. The remaining 3 acres at each site will be restored to preconstruction conditions and uses. No new M&R stations are proposed for the SHP.

Preliminary plot plans for the proposed M&R stations for the ACP are provided in Appendix 1C. Additional information on the M&R stations, including final plot plans, will be provided in the final Resource Report 1.

1.4.2.3 Valves

No additional land will be affected by construction and operation of valves. Valve construction will occur within the construction rights-of-way for the AP-1, AP-2, and AP-3 pipelines, and for the SHP pipeline loops. Following construction, a 75- by 75-foot area will be maintained within the permanent pipeline easement for valves installed along the AP-1 mainline, and a 50- by 50-foot area will be maintained within the permanent pipeline easements for valves installed along the other AP-2 and AP-3 pipelines and the SHP pipeline loops. No valves are planned along the AP-4 or AP-5 laterals.

1.4.2.4 Pig Launchers and Receivers

Engineering design for pig launcher and receiver facilities is ongoing. For the ACP, no additional land will be required for construction and operation of the pig launcher and/or receiver assemblies installed at Compressor Stations 2 and 3 and at the Smithfield, Pembroke, Elizabeth River, Brunswick, and Greensville M&R Stations. Similarly, no additional land will be required for construction and operation of the pig launcher and receiver assemblies installed for the SHP at the JB Tonkin and Mockingbird Hill Compressor Stations. For purposes of this draft, Atlantic and DTI assume that 2 acres will be needed for construction of each of the remaining pig launcher/receiver facilities listed in Tables 1.4-1 and 1.4-2, of which 1 acre at each site will be retained for operation of the ACP and SHP. The remaining 1 acre at each site will be restored to preconstruction conditions and uses.

1.5 CONSTRUCTION AND RESTORATION PROCEDURES

The ACP and SHP will be designed, constructed, operated, and maintained in accordance with USDOT regulations codified at 49 CFR 192, *Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards*; with FERC regulations codified at 18 CFR 380.15, *Siting and Maintenance Requirements*; and with other applicable Federal and State/Commonwealth regulations, except as otherwise specified in the FERC Application or approved by the appropriate regulatory agency.

Atlantic and DTI will adopt and implement the 2013 versions of the FERC's *Upland Erosion Control, Revegetation, and Maintenance Plan* (Plan) and *Wetland and Waterbody*

Construction and Mitigation Procedures (Procedures). [12] Atlantic and DTI additionally will prepare and implement the following construction, restoration, and mitigation plans:

- *Spill Prevention, Control, and Countermeasures Plan* (SPCC Plan);
- *Horizontal Directional Drill Fluid Monitoring, Operations, and Contingency Plan* (HDD Plan);
- *Timber Removal Plan*;
- *Contaminated Media Plan*;
- *Traffic and Transportation Management Plan*;
- *Invasive Plant Species Management Plan*;
- *Blasting Plan*;
- *Winter Construction Plan*;
- *Plan for Unanticipated Discovery of Historic Properties or Human Remains during Construction;*
- *Karst Monitoring and Mitigation Plan*;
- *Restoration and Rehabilitation Plan;*
- *Migratory Bird Plan*; and
- *Fire Prevention and Suppression Plan*.

Copies of these plans will be provided in Appendix 1F of the final Resource Report 1.

Atlantic and DTI will also prepare a set of construction alignment sheets or similar scale maps which depict the locations of erosion and sediment controls in construction work areas. The alignment sheets will be based on the Plan and Procedures as well as State/Commonwealth and local regulations or guidelines applying the strictest applicable standards. The guidelines will include the West Virginia Department of Environmental Protection's *Erosion and Sediment Control Best Management Practice Manual* (2006); the Virginia Department of Environmental Quality's *Virginia Erosion and Sediment Control Handbook* [13] (1992); the North Carolina Department of Environment and Natural Resources' *North Carolina Erosion and Sediment Control Planning and Design Manual* (2013); and the Pennsylvania Department of Environmental Protection's *Erosion and Sediment Pollution Control Program Manual* (2012). Atlantic and DTI anticipate filing the alignment sheets with the Implementation Plan for the Projects.

[12] Copies of the FERC's Plan and Procedures are available on the FERC's website at http://www.ferc.gov/industries/gas/enviro/guidelines.asp. Proposed modifications to the Plan and Procedures are identified in Appendix 1E.

[13] Hardcopy 1992 editions identify this as a Virginia Department of Conservation and Recreation document; the online version identifies this as a Virginia Department of Environmental Quality document.

1.5.1 General Pipeline Construction Procedures

Construction of the proposed pipelines will follow industry-standard practices and procedures as described below. In a typical scenario, construction involves a series of discrete activities conducted in a linear sequence. These include survey and staking; clearing and grading; trenching; pipe stringing, bending, and welding; lowering-in and backfilling; hydrostatic testing; final tie-in; commissioning; and right-of-way cleanup and restoration. Figure 1.5.1-1 illustrates each of the steps in a typical construction sequence. A description of each step in the process is provided below.

1.5.1.1 Survey and Staking

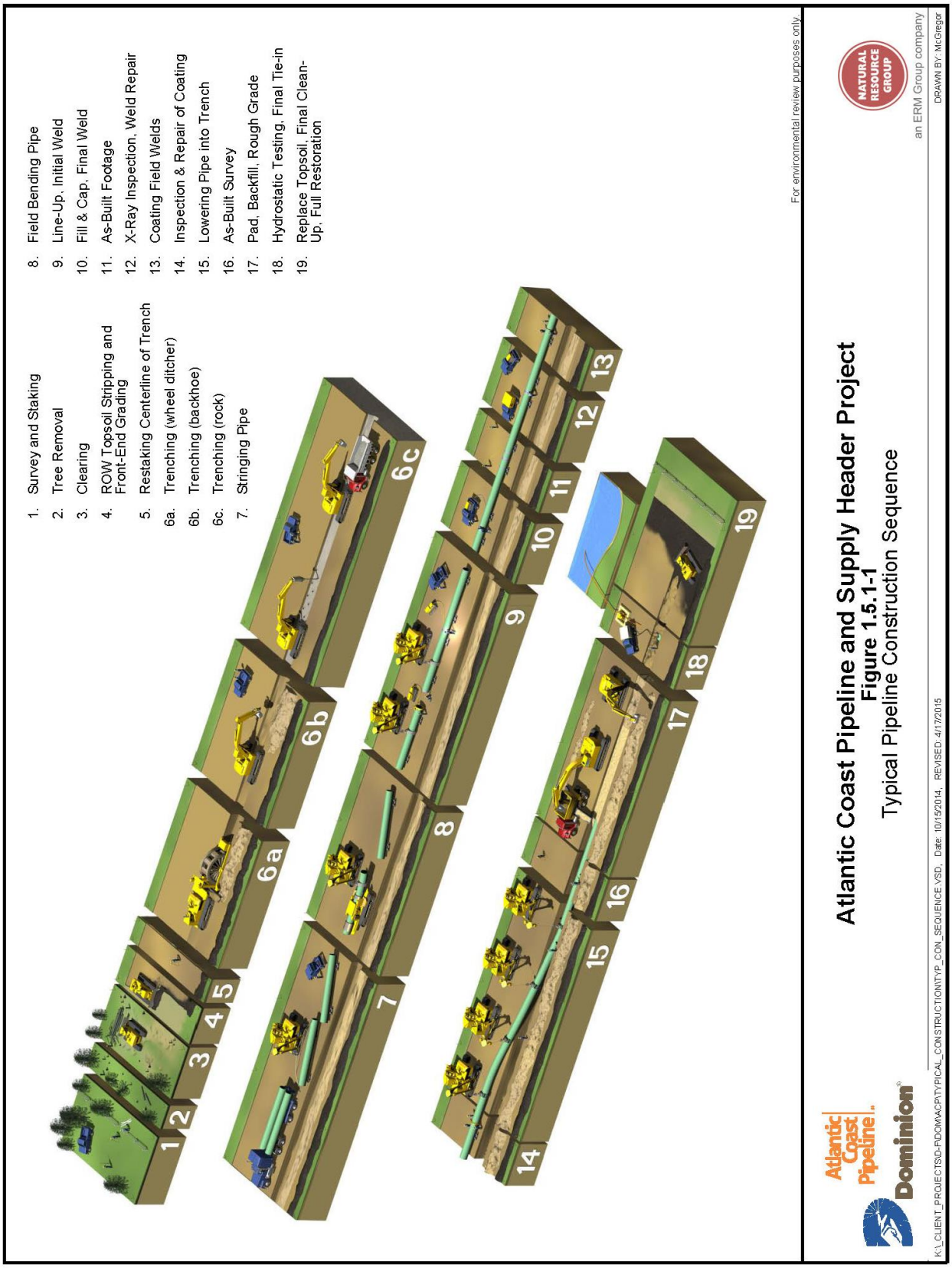
Affected landowners will be notified before the preconstruction survey and staking are conducted. After these notifications, Atlantic's and DTI's survey contractor will stake the pipeline centerlines and limits of the construction right-of-way and ATWS areas. Wetland boundaries and other environmentally sensitive areas will also be marked at this time.

1.5.1.2 Clearing and Grading

Prior to beginning ground-disturbing activities, Atlantic's and DTI's construction contractors will coordinate with the One-Call systems in Pennsylvania, West Virginia, Virginia, and North Carolina to have existing underground utilities (e.g., cables, conduits, and pipelines) identified and flagged. Once this process is complete, the clearing crew will mobilize to the construction areas. Fences along the rights-of-way will be cut and braced, and temporary gates and fences will be installed to contain livestock, if present. The clearing crew will then clear the work area of vegetation and other obstacles, including trees, stumps, logs, brush, and rocks.

To the extent feasible, Atlantic and DTI will minimize tree removal during construction. Cleared vegetation and stumps will be either burned, chipped (except in wetlands), or hauled offsite to a commercial disposal facility. Burning will be conducted in accordance with State/Commonwealth and local burning requirements or permits in uplands; burning will not be conducted in wetlands. Timber removal will be conducted in accordance with the *Timber Removal Plan*, which will identify the schedule and methods for timber removal and salvage from the construction right-of-way. The *Timber Removal Plan* will be provided in Appendix 1F of the final Resource Report 1.

Following clearing, the construction right-of-way and ATWS will be graded where necessary to provide a level work surface to allow safe passage of construction equipment and emergency vehicles. More extensive grading will be required in steep side slope or vertical areas and where necessary to prevent excessive bending of the pipelines. Graded topsoil will be segregated in accordance with the Plan and Procedures, where required. Typically, topsoil will be segregated from subsoil in cultivated and rotated croplands, managed pastures, residential areas, and hayfields, unless Atlantic or DTI is instructed by a landowner or land managing agency not to do so or Atlantic or DTI import topsoil in accordance with the Plan.


1. Survey and Staking
2. Tree Removal
3. Clearing
4. ROW Topsoil Stripping and Front-End Grading
5. Restaking Centerline of Trench
6a. Trenching (wheel ditcher)
6b. Trenching (backhoe)
6c. Trenching (rock)
7. Stringing Pipe
8. Field Bending Pipe
9. Line-Up, Initial Weld
10. Fill & Cap, Final Weld
11. As-Built Footage
12. X-Ray Inspection, Weld Repair
13. Coating Field Welds
14. Inspection & Repair of Coating
15. Lowering Pipe into Trench
16. As-Built Survey
17. Pad, Backfill, Rough Grade
18. Hydrostatic Testing, Final Tie-in
19. Replace Topsoil, Final Clean-Up, Full Restoration
For environmental review purposes only
Atlantic Coast Pipeline
Dominion
Atlantic Coast Pipeline and Supply Header Project
Figure 1.5.1-1
Typical Pipeline Construction Sequence
NATURAL RESOURCE GROUP
an ERM Group company
K:_CLIENT_PROJECTS\D-F\DOMMACP\TYPICAL_CONSTRUCTION\TYP_CON_SEQUENCE.VSD, Date: 10/15/2014, REVISED: 4/17/2015
DRAWN BY: McGregor

The depth of topsoil removed will depend on soil conditions and landowner requests or land managing agency requirements. In accordance with the Plan, and in areas where topsoil segregation is required, Atlantic and DTI will segregate at least 12 inches of topsoil in deep soils (more than 12 inches of topsoil) and the entire topsoil layer in shallow soils (less than 12 inches of topsoil). Excavated topsoil will be placed on the edge or edges of the construction right-of-way as shown in the construction typicals provided in Appendix 1D.

If the ground is relatively flat and does not require topsoil segregation or grading, the existing vegetative mat will be peeled and removed similar to topsoil and stockpiled along the right-of-way for use in restoration. In areas disturbed by grading, and as required by the Plan and Procedures, temporary erosion and sediment controls will be installed within the right-of-way to minimize erosion. The erosion and sediment controls will be inspected and maintained throughout the construction and restoration phases of the Projects, as appropriate, and as required by the Plan and Procedures.

1.5.1.3 Trenching

Pipe trench will be excavated by rotary trenching machines, track-mounted backhoes, or other similar equipment. Trench spoil will be deposited adjacent to the trench within the construction right-of-way. The trench for each pipeline will be excavated to a depth that provides sufficient cover over the pipeline after backfilling. The typical dimensions of each pipeline trench will vary depending on a number of factors, such as the diameter of the pipe being installed and the substrate in the vicinity of the trench (see Table 1.5.1-1). The bottom width of the trench will be sufficient to accommodate the diameter of the pipeline and sufficient pad material around it (typically approximately 1 foot on either side of the pipeline). The top width will vary to allow the sides of the trench to be adapted to local soil conditions at the time of construction. If trench dewatering is required within or off of the construction right-of-way, it will be conducted in accordance with the Plan and Procedures and applicable permits in a manner that will not cause erosion or result in silt-laden water flowing into a wetland or waterbody.

In areas where topsoil segregation is required, subsoil from trench excavations will be placed adjacent to the topsoil in a separate pile to allow for proper restoration of the soil during backfilling and restoration. Gaps will be left between the topsoil and subsoil piles to prevent stormwater runoff from backing up or flooding. Mixing of topsoil and subsoil piles will be prevented by separating them physically or with a mulch or silt fence barrier, where necessary, to accommodate reduced workspace.

When rock or rocky formations are encountered, tractor-mounted mechanical rippers or rock trenchers will be used for breaking up the rock prior to excavation. In areas where mechanical equipment or other means cannot be used to break up or loosen boulders or shallow bedrock, blasting will be required (see Section 1.5.2.8 below). Locations where blasting could be required are identified in Resource Report 6.

TABLE 1.5.1-1

Typical Trench Dimensions for the Atlantic Coast Pipeline and Supply Header Project

Pipeline	Outside Diameter	Cover	Top Width (feet)	Trench Depth (feet)	Typical Depth of Cover (feet)
Atlantic Coast Pipeline					
AP-1	42-inch	Non-agricultural upland	8–15	7.5	3
		Agricultural	8–15	8.5	4
		Wetland	15–20	7.5	3
		Road, railroad, and waterbody crossings	15–20	9.5	5 or more
		Steep terrain	30	13.5	7 or more
AP-2	36-inch	Non-agricultural upland	8–15	7	3
		Agricultural	8–15	8	4
		Wetland	15–20	7	3
		Road, railroad, and waterbody crossings	15–20	9	5 or more
AP-3	20-inch	Non-agricultural upland	5–10	6	3
		Agricultural	5–10	7	4
		Wetland	10–15	6	3
		Road, railroad, and waterbody crossings	10–15	8	5 or more
AP-4	16-inch	Non-agricultural upland	5–10	6	3
		Agricultural	5–10	7	4
		Wetland	10–15	6	3
		Road, railroad, and waterbody crossings	10–15	8	5 or more
AP-5	16-inch	Non-agricultural upland	5–10	6	3
		Agricultural	5–10	7	4
		Wetland	10–15	6	3
		Road, railroad, and waterbody crossings	10–15	8	5 or more
Supply Header Project					
TL-636	36-inch	Non-agricultural upland	8–15	7	3
		Agricultural	8–15	8	4
		Wetland	15–20	7	3
		Road, railroad, and waterbody crossings	15–20	9	5 or more
TL-635	30-inch	Non-agricultural upland	8–15	7	3
		Agricultural	8–15	8	4
		Wetland	15–20	7	3
		Road, railroad, and waterbody crossings	15–20	9	5 or more

1.5.1.4 Pipe Stringing, Bending, and Welding

Individual joints of pipe (up to 80 feet long) will be trucked to the construction right-of-way and strung along the trenchline in a single, continuous line. Individual sections of pipe will be bent, where necessary, to allow for a uniform fit with the contours at the bottom of the trench

and horizontal points of inflection. Typically, a track-mounted, hydraulic pipe-bending machine will tailor the shape of the pipe to conform to the contours of the terrain. After the pipe sections are bent, they will be welded together into long sections and placed on temporary supports.

Welding is a crucial phase of pipeline construction because the integrity of the pipeline depends on this process. Each weld must exhibit the same structural integrity with respect to strength and ductility. Welding will be conducted in compliance with 49 CFR 192 and API Standard 1104, *Welding of Pipelines and Related Facilities*. Completed welds will be visually and radiographically inspected. Welds that do not meet established specifications will be repaired or removed. Following welding and after inspection, pipe weld joints will be coated with an epoxy coating in accordance with required specifications. The coating will be inspected for defects, and repaired, if necessary, prior to lowering the pipe into the trench.

1.5.1.5 Lowering-in and Backfilling

Prior to lowering-in, the trench will be inspected to confirm it is free of rocks and other debris that could damage the pipe or its protective coating. Dewatering may be necessary to inspect the bottom of the trench in areas where water has accumulated. If dewatering is required, it will be conducted in accordance with the Plan and Procedures and applicable permits in a manner that will not cause erosion or result in silt-laden water flowing into a wetland or waterbody.

The pipe will be lifted from the temporary supports and lowered into the trench using side-boom tractors. As necessary, trench breakers (stacked sand bags or foam) will be installed in the trench around the pipe in steeply sloped areas to prevent movement of subsurface water along the pipeline. After lowering-in, the trench will be backfilled with previously excavated materials using bladed equipment or backhoes. If the excavated material is rocky, the pipeline will be protected with a rock shield or covered with other suitable fill (e.g., crushed limestone rock). Excavated rock will then be used to backfill the trench to the top of the existing bedrock profile in the trench, except that large rock will be buried on the working side of the two-tone cut where the contractor levels the ground for construction. This will prevent large rocks from migrating into the pad material in the trench and making contact with the pipe. Additionally, excavated rock may be crushed with a rock pulverizer and incorporated into fill or used as gravel to upgrade access roads. Excavated material not required for backfill will be removed and disposed of at approved upland disposal sites. Coal ash and/or coal byproduct will not be utilized as fill material for backfilling the trench. [14]

1.5.1.6 Hydrostatic Testing

After backfilling and all other construction activities that could affect the pipeline are complete, each pipeline will be hydrostatically tested in sections to verify that each system is free from leaks and will provide the required margin of safety at operating pressures. Individual sections of pipeline to be tested will be determined by water availability and terrain conditions. Water for hydrostatic testing will be obtained from surface or groundwater sources in accordance with State/Commonwealth regulations and required permits. As practicable, water will be

[14] In comments filed with the Commission, one commenter said that coal ash will be used to backfill the pipeline trench.

transferred from one test section to another to reduce the amount of water that is required for testing. Once hydrostatic testing is complete, the test water will be discharged in accordance with the Plan and Procedures and applicable permits through an approved discharge structure to remove turbidity or suspended sediments (i.e., dirt left in the pipe during construction). Alternatively, the water will be hauled offsite for disposal at an approved location.

During hydrostatic testing, internal pressures and durations will be in accordance with 49 CFR 192 and applicable permit conditions. If leaks are found during testing, the leaks will be repaired and the section of pipe retested until the required specifications are met. Additional information on hydrostatic testing is provided in Resource Report 2.

1.5.1.7 Final Tie-in and Commissioning

After hydrostatic testing, the final tie-ins on each pipeline will be completed and commissioning will commence. Commissioning involves activities to verify that equipment is properly installed and working; controls and communications systems are functional; and the pipeline is ready for service. The pipeline will be cleaned, dried, and inspected using in-line inspection tools (pigs) to detect anomalies in the pipe that may have been introduced during construction, and prepared for service by purging the line of air and loading the line with natural gas.

1.5.1.8 Clean-Up and Restoration

Final cleanup will begin after backfilling and as soon as weather and site conditions permit. A concerted effort will be made to complete final cleanup (including final grading and installation of permanent erosion control devices) within timeframes required by permits, in accordance with landowner requests, or as required by the Plan and Procedures. Construction debris will be collected and taken to an approved disposal facility. Preconstruction contours will be restored as closely as possible. Segregated topsoil will be spread over the surface of the right-of-way, and permanent erosion controls will be installed.

Revegetation measures will be implemented in accordance with the Plan and Procedures or as directed by the appropriate land managing agency. Disturbed, non-cultivated work areas will be stabilized and seeded as soon as possible after final grading, weather and soil conditions permitting, subject to the recommended seeding dates for the seed mixes used to revegetate different areas along the pipelines. Seeding will stabilize the soil, improve the appearance of the area disturbed by construction, and in some cases, restore native flora.

Markers showing the location of the pipeline will be installed intermittently along the pipeline rights-of-way according to ACP and SHP specifications as well as at fence, road, and railroad crossings to identify DTI as the operator of the new pipelines. The markers will convey emergency information in accordance with applicable government regulations, including USDOT safety requirements. Special markers providing information and guidance to aerial patrol pilots also will be installed.

1.5.2 Specialized Pipeline Construction Procedures

In addition to standard pipeline construction methods, Atlantic and DTI will use special construction techniques where warranted by site-specific conditions, e.g., when constructing across waterbodies, wetlands, roads, highways, railroads, steep terrain, karst areas, agricultural areas, and residential areas; when blasting through rock; or when working in winter conditions. Each of these specialized measures is described below. Illustrations of select crossing methods are provided in Appendix 1D.

1.5.2.1 Waterbody Crossings

Atlantic and DTI will use the open-cut, flume, dam-and-pump, conventional bore, cofferdam, or horizontal directional drill (HDD) methods to construct the pipelines across waterbodies. In each case and for each method, Atlantic and DTI will adhere to the measures specified in the Procedures; site-specific modifications to the Procedures as requested by Atlantic and DTI and approved by the FERC (see Appendix 1E); and any additional requirements identified in Federal or State/Commonwealth waterbody crossing permits, including applicable permits and approvals from the U.S. Army Corps of Engineers and various State/Commonwealth agencies (see Section 1.12). A complete list of the waterbodies along the proposed pipeline routes, and the construction method proposed for each crossing, is provided in Resource Report 2.

During the clearing and grading phase of construction, temporary bridges will be installed across waterbodies in accordance with the Procedures to allow construction equipment and personnel to cross. The bridges may include clean rock fill over culverts, timber mats supported by flumes, railcar flatbeds, flexi-float apparatuses, or other types of spans. Construction equipment will be required to use the bridges, except that the clearing and bridge installation crews will be allowed one pass through waterbodies before bridges are installed. The temporary bridges will be removed when construction and restoration activities are complete.

ATWS will be required on both sides of waterbody crossings to stage construction equipment, fabricate the pipeline, and store construction materials. Except as requested in this ER and approved by the Commission, the ATWS will be located at least 50 feet away from the water's edge at each waterbody (with the exception of site-specific modifications as requested by Atlantic and DTI and approved by the FERC).

Clearing adjacent to waterbodies will involve the removal of trees and brush from the construction right-of-way and ATWS areas. Woody vegetation within the construction right-of-way will be cleared to the edge of each waterbody. Sediment barriers may be installed at the top of the bank if no herbaceous strip exists. Initial grading of the herbaceous strip will be limited to the extent needed to create a safe approach to the waterbody and to install temporary bridges.

During clearing, sediment barriers will be installed and maintained across the right-of-way adjacent to waterbodies and within ATWS to minimize the potential for sediment runoff. Silt fence and/or straw bales located across the working side of the right-of-way 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 right-of-way in lieu of silt fences and/or straw bales.

Typically, equipment refueling and lubricating at waterbodies will take place in upland areas that are 150 feet or more from the edge of the waterbody and any adjacent wetlands. However, there will be certain instances where equipment refueling and lubricating may be necessary in or near waterbodies. For example, stationary equipment, such as water pumps for withdrawing hydrostatic test water, may need to be operated continuously on the banks of waterbodies and may require refueling in place. Atlantic and DTI's SPCC Plan will address, among other items, the handling of fuel and other materials associated with the Projects. The SPCC Plan will be provided in Appendix 1F of the final Resource Report 1. As required by the Procedures, the SPCC Plan will be available during construction on each construction spread.

After the pipeline is installed across a waterbody using one of the methods described below, the trench will be backfilled with native material excavated from the trench. If present and moved prior to construction, larger rocks or boulders will be replaced in the stream channel within the construction area following backfill of the trench. The streambed profile will be restored to pre-existing contours and grade conditions to prevent scouring. The stream banks will then be restored as near as practicable to pre-existing conditions and stabilized. Stabilization measures could include seeding, tree planting, installation of erosion control blankets, or installation of riprap materials, as appropriate. Jute thatching or bonded fiber blankets will be installed on banks of waterbodies or road crossings to stabilize seeded areas. Temporary erosion controls will be installed immediately following bank restoration. The waterbody crossing area will be inspected and maintained until restoration of vegetation is complete.

Open-Cut Method

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.

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 waterbody) for use as backfill. A prefabricated segment of pipeline will then be placed into the trench using side-boom tractors. Concrete coating or set-on 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, Atlantic and 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).

Flume Method

The flume crossing method consists of isolating and temporarily diverting the flow of water across the trenching area through one or more large-diameter, smooth steel flume pipes placed in the waterbody. This method allows for trenching activities to occur within a relatively dry stream or riverbed (beneath the flume pipes containing the water flow), thereby avoiding the introduction of sediment and turbidity into the waterbody. The flume method is typically used to cross small to intermediate flowing waterbodies that support coldwater or other significant fisheries.

For each waterbody where the flume method is implemented, a sufficient number of adequately sized flume pipes will be installed in the waterbody to accommodate the highest anticipated flows during construction. Atlantic and DTI will use stream gauge data from the U.S. Geological Survey to determine the highest anticipated flows during the time the flume crossing is in effect. As noted above, the duration of in-stream construction activities (excluding blasting, if required) will be limited to 24 hours across minor waterbodies and 48 hours across intermediate waterbodies. In the absence of stream gauge data, Atlantic's and DTI's engineers and Environmental Inspectors will estimate the highest anticipated flows based on the width of the waterbody at the ordinary high water mark, the depth of the waterbody, existing flows at the time of the crossing, and the weather forecast at the time of the crossing. As a contingency, Atlantic and DTI will stage additional flume pipes at the crossing in the event that the volume of flow increases due to a precipitation event.

Prior to installation, Atlantic and DTI will inspect the flume pipes to confirm that they are free of dirt, grease, oil, or other pollutants. After placing the pipes in the waterbody, sand- or pea gravel-filled bags, water bladders, or metal wing deflectors will be placed in the waterbody around the flume pipes upstream and downstream of the proposed trench. These devices will serve to dam the stream and divert the water flow through the flume pipes, thereby isolating the water flow from the construction work area between the dams.

After installation of the flume pipes, any remaining standing water between the dams will be pumped out. Pump intakes will be appropriately screened to prevent entrainment of aquatic species. Additionally, any fish trapped in the dewatered area will be removed and returned to the flowing waterbody. Leakage from the dams or subsurface flow from below the waterbody bed may cause water to accumulate in the trench once trenching has begun. If water accumulates in this area, it may be periodically pumped out and discharged into energy dissipation/sediment filtration devices as required by the Procedures. Such devices include geotextile filter bags or straw bale structures. Alternatively, the water will be discharged into well-vegetated areas away from the edge of the waterbody, to prevent silt-laden water from entering the waterbody.

Backhoe-type excavators located on the banks of the waterbody will be used to excavate a trench under the flume pipe across the dewatered streambed. Spoil excavated from the waterbody trench will be placed and stored on the bank above the high water mark and a minimum of 10 feet from the edge of the waterbody. Once the trench is excavated, a prefabricated segment of pipe will be installed beneath the flume pipes. The trench will then be

backfilled with the native material excavated from the trench across the waterbody bed. The banks will be stabilized before removing the dams and flume pipes and returning flow to the waterbody channel.

The flume method has proven to be an effective technique for constructing pipelines across sensitive waterbodies. The potential for the introduction of turbidity or suspended sediments is limited because sediment generated during trench excavation and backfilling operations is isolated to the dewatered area between dams. When flumes are installed properly, the operation of the flume is generally stable and can be installed and left in place for periods prior to and following the installation of the waterbody pipeline crossing. The flume method also provides for continued fish passage through the construction work area via the flume pipes during the crossing.

Dam-and-Pump Method

The dam-and-pump method may be used as an alternative to the flume method. It generally is preferred for waterbodies where hard bedrock occurs and in-stream blasting is required. The dam-and-pump method is similar to the flume method except that 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 around the construction work area will be installed in the waterbody. Additional back-up pumps will be on site at all times 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 of aquatic species. Energy-dissipation devices 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 waterbody. Trench plugs will be maintained between the upland trench and the waterbody crossing. After backfilling, the dams will be removed and the banks restored and stabilized as described above.

Conventional Bore

In some cases, waterbodies may be crossed by conventional subsurface boring beneath the waterbody. Boring involves installing a short segment of prefabricated 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 a hole 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 not cause erosion or result in silt-laden water flowing into the waterbody or adjacent wetlands. The prefabricated section of the pipeline will be pulled through the hole under the waterbody. For long crossings, sections of pipe may be welded into a pipe string before being pulled through the borehole. Like the HDD method described below, use of this method will eliminate direct surface impacts on waterbodies, but there are limitations to its use. This method cannot typically be used to cross waterbodies with saturated soils in the substrate because it is not possible to maintain the integrity of the borehole in this condition.

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 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. The 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, fish trapped in the temporary diversion structure will be removed and returned to the flowing waterbody. Construction equipment will then enter the isolated section of the waterbody from the adjacent bank, 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 will then exit 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, the fabric sheets and steel frame sections will be disassembled, and the structure will be reinstalled from the opposite bank with enough overlap of the initial excavation area so that the installed section of the pipeline will be accessible for tie-in to the next section of pipe. The dewatering and construction process will then be repeated from the opposite bank to complete the crossing of the waterbody.

Horizontal Directional Drill Method

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 right-of-way between the entry and exit points of the drill. The method is sometimes used to install pipelines underneath sensitive resources or areas that present difficulties associated with construction or access using typical installation methods. HDDs can provide certain advantages over typical construction methods, such as avoidance of surface disturbance, riparian tree clearing, or in-stream construction.

For each HDD crossing, electric grid guide wires will be laid by hand on the ground along the pipeline centerline to create an electromagnetic sensor grid. The grid will be used by the HDD operator to steer the drill head during drilling. The sensor grid will be fabricated by installing several stakes along the drill path and wrapping them with an insulated coil wire. The wire will be energized with a portable generator, which will create a magnetic field that can be used to track the drill bit. No ground or surface disturbing activities will be required for installation of the guide wires. In thickly vegetated areas, however, a small pathway measuring approximately 2 to 3 feet in width may need to be cut with hand tools to create a path for the wires.

To complete each HDD, a drill rig will be placed on the entry side of the crossing and a small-diameter pilot hole will be drilled along a predetermined path beneath the waterbody using a powered drill bit. As drilling progresses, additional segments of drill pipe will be inserted into the pilot hole to extend the length of the drill. The drill bit will be steered and monitored throughout the process to maintain the designated path of the pilot hole. Once the pilot hole is complete, the electric sensor grid will be removed and the hole will be enlarged to accept the pipeline.

To enlarge the pilot hole, a larger reaming tool will be attached to the end of the drill on the exit side of the hole. The reamer will be drawn back through the pilot hole to the drill rig on the entry side of the hole. Drill pipe sections will be added to the rear of the reamer as it progresses toward the rig, allowing a string of drill pipe to remain in the hole at all times. Several passes with progressively larger reaming tools will be required to enlarge the hole to a sufficient diameter to accommodate the pipeline. The final hole will be approximately 12 inches larger than the pipeline to be installed.

Throughout the drilling process, a fluid mixture consisting of water and bentonite clay (a naturally occurring mineral) will be pumped into the drill hole to lubricate the bit, transport cuttings to the surface, and maintain the integrity of the hole. Water for the mixture will be pumped from the waterbody to the drill site through a hose or temporary network of irrigation-

type piping or trucked in from another source. The pump intake will be appropriately screened to prevent entrainment of aquatic species. Small pits will be dug at or near the entry and exit points for the HDD to temporarily store the drilling fluid and cuttings. The fluid and cuttings will be pumped from the pits to an on-site recycling unit where the fluid will be processed for reuse.

The pipeline segment (also called a pull section) to be installed beneath the surface feature will be fabricated on the right-of-way or in the ATWS on the exit side of the crossing while the drill hole is reamed to size. Once assembled, the pull section will be coated with fusion-bonded epoxy (FBE). A sacrificial abrasion resistant overlay will be applied over the FBE coating for protection from abrasive materials that may be encountered as the pull section is installed. Additionally, the pull section will be inspected and hydrostatically tested prior to installation. A steel bullhead will be welded onto the front end of the pull section to aid in pulling the pipe through the drill hole. After the hole is completed, the pipeline segment will be attached to the drill string on the exit side of the hole and pulled back through the hole toward the drill rig.

As the pipeline is being installed, excess drilling fluid will be collected and incorporated into the soil in an upland area or disposed of at an appropriate facility. If water is left over from the drilling process, it will be discharged in accordance with the Plan and Procedures and applicable permits into a well-vegetated upland area or an energy dissipation/sediment filtration device, such as a geotextile filter bag or straw bale dewatering structure, at the site.

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. Depending on the orientation of the natural fracture or substrate, the drilling fluid may move laterally or vertically from the drill hole. If the drilling fluid moves laterally, the release may not be evident on the ground. For an inadvertent return to be evident on the surface there must be a preferential pathway extending vertically from the drill hole to the surface of the ground. The volume of fluid released in an inadvertent return will be dependent on a number of factors, including the size of the pathway, the permeability of the geologic material, the viscosity of the fluid, and the pressure of the hydraulic drilling system.

Atlantic and DTI will prepare an HDD Plan (to be provided in Appendix 1F of the final Resource Report 1), which will describe the measures to be implemented in the event of an inadvertent return. If a release occurs on land, including within a wetland, a small pit will be excavated at the release site to contain the spread of the fluid, and a pump will be used to transfer the fluid from the pit into a containment vessel. If an inadvertent return occurs in a waterbody it will be more difficult to contain because the fluid will be dispersed into the water and carried downstream. In this situation, an attempt will be made to plug the flow path by adding thickening agents to the drilling fluid, such as additional bentonite, cottonseed hulls, or other non-hazardous materials. Atlantic and DTI will consult with and obtain permission from the appropriate State/Commonwealth regulatory agencies regarding the use of additives during the HDD (or conventional bore) process and confirm that additives will not violate water quality standards.

The HDD method will not be used in areas with the potential to contain karst features (see Section 1.5.2.5 below) due to the potential for drilling fluid to enter aquifers through pre-existing voids or conduits in limestone or dolomite bedrock. This will avoid the potential for drilling fluid to reach groundwater and wells in karst areas. In other areas, Atlantic and DTI will monitor source waters along and near the drill path, such as seeps and springs, for inadvertent returns. Atlantic and DTI will implement the measures identified in the HDD Plan (to be provided in Appendix 1F of the final Resource Report 1) to control and clean-up the inadvertent return, test the water for water quality, and provide an alternate supply of water to affected landowners until the inadvertent return is remediated. Additionally, as described in Resource Report 2, Atlantic and DTI will conduct pre- and post-construction testing of wells within 150 feet of construction areas for water quality and yield.

In most cases, horizontal directional drilling can continue during an inadvertent return. In some situations, however, the HDD may fail due to refusal of the drill bit or collapse of the hole in non-cohesive, unstable substrate. In cases where drilling fails, construction will be completed using one of the alternative crossing methods described above, subject to review and approval of the Commission and any required permits or authorizations for the crossing.

For the ACP, the HDD method is currently being evaluated for the following six river crossings pending the results of geotechnical investigations and final engineering:

- the James River crossing approximately at MP 180.4 of the AP-1 mainline at the Nelson/Buckingham County line in Virginia;
- the Roanoke River crossing approximately at MP 302.0 of the AP-2 mainline at the Northampton/Halifax County line, North Carolina;
- the Cape Fear River crossing approximately at MP 443.7 of the AP-2 mainline in Cumberland County, North Carolina;
- the Nottoway River crossing approximately at MP 33.2 of the AP-3 lateral in Southampton County, Virginia;
- the Blackwater River crossing approximately at MP 39.1 of the AP-3 lateral at the Southampton County/City of Suffolk line in Virginia; and
- the Southern Branch Elizabeth River crossing (part of the Intracoastal Waterway) approximately at MP 76.6 of the AP-3 lateral in the City of Chesapeake, Virginia.

Other HDD crossings for the ACP could be evaluated as a result of ongoing engineering design or consultation with permitting agencies. Additional information on HDD crossings, including site-specific crossing plans, will be provided as Appendix 1G in the final Resource Report 1. For the SHP, the HDD method is not currently anticipated for river crossings.

1.5.2.2 Wetland Crossings

Construction across wetlands will be conducted in accordance with the Procedures, site-specific modifications to the Procedures requested by Atlantic and DTI and approved by the FERC (see Appendix 1E), and any additional requirements identified in Federal or

State/Commonwealth wetland crossing permits. Typical methods for construction across wetlands are described below. A list of wetland crossings along the proposed pipeline route is provided in Resource Report 2.

In accordance with the Procedures, the width of the construction right-of-way 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 spoil. 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 Atlantic and 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 right-of-way clearing, excavating the trench, fabricating and installing the pipeline, backfilling the trench, and restoring the right-of-way. In areas where there is no reasonable access to the right-of-way 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.

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.

During clearing, sediment barriers, such as silt fences, straw bales, 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 right-of-way at the base of slopes adjacent to wetland boundaries. Silt fences and/or straw bales installed across the working side of the right-of-way 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 right-of-way in lieu of silt fences or straw bales. Sediment barriers will also be installed within wetlands along the edge of the right-of-way, where necessary, to minimize the potential for sediment to run off the construction right-of-way 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 or straw bale structure, 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.

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 right-of-way 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 right-of-way and disposed of at an approved disposal facility.

1.5.2.3 Road, Highway, and Railroad Crossings

Construction across paved roads, highways, and railroads will be conducted in accordance with the 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. 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. Depending on the locations of entry and exit points for the waterbody HDDs described above, paved roads or highways adjacent to these waterbodies may also be crossed by HDD.

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. Atlantic and DTI will take measures such as posting signs at open-cut road crossings for safety and to minimize traffic disruptions.

Atlantic and DTI will work with the Counties crossed by the ACP and SHP pipeline routes and applicable land managing agencies to apply for permits and develop road mitigation that might be necessary for construction and operation of the Projects.

A list of road crossings and the proposed construction method for each crossing is provided in Resource Report 5.

1.5.2.4 Steep Terrain

Portions of the AP-1 mainline route extend across steep, mountainous terrain in West Virginia and Virginia, along and in the vicinity of the Allegheny, Shenandoah, and Blue Ridge Mountain ranges, including areas within the MNF and GWNF. In mountainous areas, pipelines are typically routed along ridges and hills running perpendicular to the slope (i.e., along the natural fall of the slope) to provide a flat surface for construction vehicles and other equipment. Except for short distances and in unique circumstances, pipelines are not typically routed laterally along the sides of ridges and hills (i.e., on side slopes). As described in more detail below, construction on side slopes requires cut-and-fill grading to create a flat surface for construction vehicles and equipment. Relative to construction along the natural fall of a slope, cut-and-fill grading typically requires additional workspace and is more challenging to restore.

Special construction techniques will be required in areas where the slope exceeds 35 percent and/or where the proposed pipeline crosses side slope. A licensed geotechnical expert will be actively involved in the design of steep terrain crossings to minimize impacts. This technical oversight will continue into the construction phase of the ACP. A summary of areas along the route with slope greater than 35 percent is provided in Resource Report 6.

In areas with steep terrain, temporary sediment barriers, such as reinforced silt fence and straw bales, will be set up during clearing to prevent the movement of disturbed sediment off the right-of-way. Temporary slope breakers will be installed during grading in accordance with the Plan to reduce runoff velocity and divert water off the construction corridor into stable, well-vegetated areas or through energy dissipation devices.

As noted above, pipeline construction along ridgelines may require the pipe 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 in part to the techniques needed to construct along narrow ridgelines. The surface of ridgelines may be temporarily lowered to create a level construction right-of-way (125 feet wide). Excavation of the trench will begin from the leveled work area. When the temporary right-of-way is restored to pre-construction contours, the depth of cover over the pipeline could exceed the minimum of 3 feet by an additional 7 feet or more.

Pipe installation and construction activities across steep slopes will be similar to the typical methods described above, but equipment will be tethered via winch lines to other equipment or “deadmen” at the top of slopes for the safety of work crews. Equipment used to

prepare the construction corridor and excavate the trench will be suspended from a series of winch tractors to maintain control of the equipment and provide an additional level of safety. All construction equipment and their winch lines will be inspected prior to operation to confirm the equipment is operable and sound. Spoil piles adjacent to the trench will be protected by temporary sediment barriers to keep excavated soils on the right-of-way.

Pipe joints will be stockpiled at the top or bottom of each slope. A side-boom tractor suspended from a winch will carry one joint at a time up or down the slope and place the joint along the trenchline. The joint will then be lowered into the ditch by a tractor. Welders will connect the joint to the previous joint within the trench to assemble the pipeline. Once welding is complete, the welds will be visually and radiographically inspected. The weld joints will be hand coated with FBE in accordance with required specifications. The coating will be inspected for defects, and repaired, if necessary.

Sand, foam, and/or cement trench breakers will be installed in the trench along the pipeline to prevent or slow the movement of water along the trench. The spacing of the trench breakers will be in accordance with the Plan or as determined by ACP or SHP engineers. The pipeline will be padded and the trench backfilled by equipment tethered to the winch tractors.

The surface of the right-of-way will be restored to original contours, and permanent slope breakers will be installed in accordance with the Plan. Erosion control blankets, in lieu of mulch, will be installed on steep slopes to provide stabilization for vegetation. Grades in excess of 3:1 will be stabilized with degradable blanket mulch such as jute mesh, wood excelsior, or fibers until the vegetation is established. The area will be monitored until revegetation is successful and temporary erosion control devices can be removed.

In limited areas where the pipeline crosses laterally along the side of a slope, cut-and-fill grading could be necessary to create a safe, flat work terrace. Generally, on steep side slopes, soil from the high side of the right-of-way will be excavated and moved to the low side of the right-of-way to create a safe and level work surface. After the pipeline is installed, soil from the low side of the right-of-way will be returned to the high side, and the slope's original contours will be restored.

1.5.2.5 Karst Areas

Based on review of maps from the U.S. Geological Survey, West Virginia Department of Environmental Protection, and Virginia Department of Mines, Minerals, and Energy, portions of the AP-1 mainline route in West Virginia and Virginia cross areas with the potential to contain karst features (Dicken et al., 2005; Hubbard, 1983; Nicholson et al., 2005; West Virginia Department of Environmental Protection, 1998). A detailed desktop assessment and field survey is being conducted by a geotechnical expert to identify sinkholes and other karst features (e.g., cave entrances, closed depressions, and sinking streams) along the proposed pipeline route in these areas. This technical oversight will continue into the construction phase of the ACP. Atlantic will file a report on the results of the karst assessment with the final Resource Report 6. As warranted, Atlantic will make minor route adjustments to avoid areas containing dense concentrations of features, such as sinkholes, which are indicative of karst development.

Atlantic and DTI will prepare and implement a *Karst Monitoring and Mitigation Plan* (to be provided in Appendix 1F of the final Resource Report 1), which will identify construction and restoration practices in karst areas. Erosion and sediment controls will be installed prior to construction along the edge of the right-of-way and in other work areas upslope of known sinkholes or other karst features with a direct connection to the phreatic zone of the karst (i.e., groundwater). Refueling activities and the handling of fuel and other materials in the vicinity of these features will be conducted in accordance with the SPCC Plan. Additionally, Atlantic 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 features are uncovered, they will be evaluated by a geotechnical contractor to determine the need for mitigation measures, such as stabilization. A typical 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.

1.5.2.6 Agricultural Areas

In actively cultivated and rotated croplands, pastures, orchards, nurseries, and residential areas, topsoil will be removed and segregated in accordance with the Plan. Typically, topsoil will be removed over the entire width of the construction right-of-way (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 right-of-way will be de-compacted prior to final grading and restoration.

Where livestock fences (including electric fences) need to be cut to access the construction right-of-way, Atlantic and 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 Projects. Further, Atlantic and 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, Atlantic and DTI will install temporary fencing around the right-of-way in areas where the pipe trench is left open overnight. Additionally, Atlantic and DTI will confer with landowners regarding a potential grazing deferment to allow vegetation to establish within the right-of-way after construction of the Projects is complete.

Atlantic and 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. Atlantic and DTI will implement temporary tile line repairs to maintain the functionality of tile drainage systems during construction. Prior to backfilling the trench, Atlantic and DTI will employ a qualified tile contractor for permanent tile repairs. Following completion of construction and restoration, Atlantic and DTI will work with landowners to repair or correct tile drainage problems due to construction of the Projects.

In agricultural lands, the pipelines will be buried at depths sufficient to provide a minimum of 4 feet of cover in order 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.

As part of the land acquisition process, Atlantic and DTI will seek easement agreements with affected landowners for the pipeline right-of-way across actively cultivated areas. Compensation for financial impacts associated with crop damage or losses caused by construction of the ACP and SHP will be addressed during easement discussions.

1.5.2.7 Residential Areas

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

Atlantic and DTI are in the process of identifying residential structures near or adjacent to the proposed ACP and SHP pipeline routes. In general, Atlantic and DTI will reduce the width of the construction right-of-way or adjust the pipeline centerline to avoid occupied structures. For any residences within 50 feet of a construction work area, Atlantic and DTI will implement the following mitigation measures during construction:

- avoid the removal of mature trees and landscaping unless necessary to construct the pipeline or for the safe operation of construction equipment;
- restore lawns and landscaping within the construction work area after backfilling the trench; and
- install construction fencing at the edge of the construction work area for a distance of 100 feet on either side of the residence, and maintain the fencing throughout the open trench phases of construction.

Atlantic and DTI will prepare site-specific construction mitigation plans for residences located within 50 feet of the construction work area for the ACP and SHP, and provide these plans as attachments to the final Resource Report 8. The plans will identify the mitigation measures Atlantic and DTI will implement at each residence to promote safe and efficient pipeline installation with minimal impact on residents.

Following construction, debris will be removed and residential areas will be restored as practicable to preconstruction conditions. Atlantic and DTI will coordinate with residential landowners to attempt to meet special requests regarding restoration.

1.5.2.8 Blasting

It is anticipated that blasting will be required in areas where hard shallow bedrock or boulders are encountered that cannot be removed by conventional excavation with a backhoe trencher, by ripping with a bulldozer followed by backhoe excavation, or by hammering with a backhoe-attached device followed by excavation. Resource Report 6 identifies areas along the proposed pipeline routes by milepost where hard shallow bedrock is anticipated and blasting could be required.

Strict safety precautions will be adhered to when blasting is required to clear the right-of-way and fracture the ditch. Care will be taken to avoid damage to underground structures, cables, conduits, and pipelines as well as underground watercourses or springs. Atlantic and DTI will provide adequate notice to adjacent landowners or tenants in advance of blasting to protect property or livestock. Blasting will be performed during daylight hours in compliance with Federal and State/Commonwealth codes and ordinances, manufacturers' prescribed safety procedures, and industry practices. Additionally, a *Blasting Plan* will be developed to identify blasting procedures, including safety, use, storage, and transportation of explosives, consistent with safety requirements as defined by Federal and State/Commonwealth regulations. This plan will be provided in Appendix 1F of the final Resource Report 1.

1.5.2.9 Winter Construction/Snow Removal

Atlantic and DTI do not expect that construction activities will occur in frozen ground conditions, but construction could occur during times of snowfall in Pennsylvania, West Virginia, and Virginia, particularly at higher elevations. DTI's *Winter Construction Plan*, which will be provided in Appendix 1F of the final Resource Report 1, will identify best management practices for construction activities during winter.

As necessary, snow will be removed from construction work areas to expose soils for grading and excavation. Snow removal will be limited to active construction areas and areas needed to maintain access to the construction right-of-way. Snow will be bladed or pushed to the edges of the right-of-way with a motor-grader, snowplow, or bulldozer fitted with a "shoe" to minimize impacts on underlying soils and vegetation, and stockpiled within the right-of-way or in approved ATWS areas. Snow will not be bladed off the right-of-way. Alternatively, in the event of extreme snow events or significant snowdrifts, snow may be blown off the right-of-way using industrial blowers mounted to construction vehicles. In all cases, snow removal equipment will access the ACP Project area and SHP Project area from approved access roads, and will operate from within the construction right-of-way or approved ATWS areas.

Snow will be removed from both the working and spoil sides of the construction right-of-way prior to topsoil segregation and grading to prevent mixing of snow with excavated spoil. Any snow which accumulates on the right-of-way during construction will be removed and stockpiled along the edges of the construction right-of-way or in approved ATWS areas, or blown off the right-of-way, as described above. Large accumulations of snow on excavated spoil piles will be removed as practicable prior to backfilling. Snow will not be mixed with spoil during backfilling to the extent practicable.

Snow also will be removed, as necessary, from approved access roads by plowing to the edges of the road or blowing off the road to allow safe access to the construction right-of-way. The access roads will be maintained in accordance with applicable permit requirements and landowner agreements.

Gaps will be left in stockpiled snow piles based on an assessment of drainage patterns to allow water to drain off of the right-of-way during thaw. Gaps will also be left in stockpiled snow at drainage crossings. Environmental Inspectors (EIs; see Section 1.8.3 below) will work with the construction contractors to identify sites where large accumulations of melting snow could flow away from the right-of-way causing erosion. Erosion control devices and diversion

berms will be installed in these areas, as appropriate, in accordance with the Plan and Procedures.

1.5.2.10 Fire Prevention and Suppression

As indicated above, Atlantic and DTI will prepare and implement a *Fire Prevention and Suppression Plan*, which will identify strategies to facilitate immediate actions to extinguish or control construction-related fires and strategies to control and monitor planned burns. The plan will establish protocols and lines of communication for reporting fires, identify the fire suppression equipment that will be present during planned burns, and outline the fire training that will be provided to construction personnel. The plan will be provided in Appendix 1F of the final Resource Report 1.

1.5.2.11 Federal Lands

As noted above, the route for the proposed AP-1 mainline crosses approximately 29.7 miles of USFS lands in the MNF and GWNF (including the Appalachian Trail), and approximately 0.1 mile of NPS lands at the Blue Ridge Parkway. The route of the proposed AP-3 lateral crosses approximately 1.7 miles of FWS land in the Great Dismal Swamp National Wildlife Refuge. For these crossings, Atlantic will prepare a Plan of Development (POD) or Construction, Operations, and Maintenance Plan (COM Plan), which will identify construction procedures and mitigation measures to be implemented on federally managed lands. The POD or COM Plan will be appended to the Record of Decision and the Right-of-Way Grant issued by the Bureau of Land Management for the MNF, GWNF, and Great Dismal Swamp National Wildlife Refuge, and by the NPS for the Blue Ridge Parkway. Copies of the POD or COM Plan will be filed with the Commission.

As noted above, the proposed routes for the AP-2 mainline, the AP-4 and AP-5 laterals, and the TL-635 and TL-636 pipeline loops do not cross any Federal land.

Appalachian Trail/Blue Ridge Parkway

Atlantic is evaluating use of the HDD method to install the AP-1 mainline beneath the Blue Ridge Parkway, a portion of the GWNF, the Appalachian Trail, and private land approximately at MP 153.8 at the Augusta/Nelson County line in Virginia. Additional information on this crossing, including a site-specific crossing plan, will be provided as Appendix 1G in the final Resource Report 1.

1.5.3 Aboveground Facility Construction Procedures

1.5.3.1 Compressor Stations and Metering and Regulating Stations

Construction of new compressor and M&R stations for the ACP and modifications to existing compressor stations for the SHP will occur concurrently with construction of the pipelines. The construction methods for these facilities will be similar and include a standard sequence of events. Construction will begin with clearing and grading of the sites to establish level grades for the facilities. Subsequent construction activities will include:

- preparing foundations;

- installing underground piping;
- erecting and installing buildings, compressors, and auxiliary equipment;
- installing and testing aboveground piping and control equipment;
- cleaning up the work area;
- paving or graveling permanent access roads and parking areas; and
- installing security fence.

Once construction is complete, disturbed areas that are not covered with foundations, paving, or gravel will be finish-graded and seeded. The stations will be fenced for security, and safety and control devices will be installed and tested.

1.5.3.2 Valves

Construction of valves along the pipelines will include grading, installing the underground assembly, testing the control equipment, cleaning up the work area, and graveling the site area. Valve construction will be concurrent with pipeline construction, with installation of valves occurring after hydrostatic testing of the pipeline. At each site, the disturbed area will be stabilized with gravel within a chain-link security fence and/or by seeding in disturbed areas outside the fence line. Permanent access roads will be constructed to each site.

1.5.3.3 Pig Launchers and Receivers

Construction of pig launcher/receiver assemblies will occur at the same time as other aboveground facilities. Construction activities will include clearing and grading, installation and testing of equipment, cleaning up the work area, graveling the site, and fencing the facilities. The disturbed areas will be stabilized with gravel within a chain-link security fence and/or by seeding outside the fence line. For the ACP, pig launcher/receiver assemblies will be installed within the same fencelines as Compressor Stations 2 and 3 and the Smithfield M&R Station, and pig receiver assemblies will be installed within the same fencelines as the Pembroke, Elizabeth River, Brunswick, and Greensville M&R Stations. For the SHP, two launcher/receiver assemblies will be installed within the same fencelines as the modifications at the JB Tonkin and Mockingbird Hill Compressor Stations. At these sites, construction activities associated with the installation of pig launcher/receiver assemblies will be managed during construction at the compressor or M&R stations.

1.6 CONSTRUCTION SCHEDULE

Subject to receipt of the required permits and regulatory approvals, Atlantic and DTI anticipate that construction of the ACP and SHP will commence in the Fall of 2016. Initial construction activities along the pipeline rights-of-way and in other work areas will begin in September 2016. The ACP pipelines will be built along 12 spreads, although the number and definition of spreads may change depending on the needs of construction. Construction of the pipelines is expected to occur over a 2-year period beginning in January 2017. The SHP pipelines will be built along two spreads, with construction occurring over a 2-year period beginning in January 2017. Construction of aboveground facilities for the Projects will begin in the Spring of 2017. Atlantic and DTI anticipate that all facilities will be placed in service by November 2018. Key milestone dates for the construction schedule are summarized in Table 1.6-1.

TABLE 1.6-1

Construction Schedule by Spread for the Atlantic Coast Pipeline and Supply Header Project [a]

Spread	Approximate Mileposts	Counties/Cities and States/Commonwealths	Begin Construction	Finish Construction
ATLANTIC COAST PIPELINE				
Initial Construction Activities				
Initial Site Preparation (2017 spreads)	By spread	See below	September 2016	January 2017
Tree Clearing (2017 spreads)	By spread	See below	October 2016 [b]	March 2017
Initial Site Preparation (2018 spreads)	By spread	See below	September 2017	January 2018
Tree Clearing (2018 spreads)	By spread	See below	October 2017 [b]	March 2018
Construction of Pipeline Spreads				
Spread 1 (AP-1)	0.0–28.0	Harrison, Lewis, and Upshur Counties, WV	January 2017	December 2017
Spread 2 (AP-1)	28.0–53.0	Upshur and Randolph Counties, WV	January 2018	October 2018
Spread 3 (AP-1)	53.0–89.0	Randolph and Pocahontas Counties, WV and Highland County, VA	January 2017	December 2017
Spread 4 (AP-1)	89.0–121.0	Highland and Augusta Counties, VA	January 2018	October 2018
Spread 5 (AP-1)	121.0–180.0	Augusta and Nelson Counties, VA	January 2018	October 2018
Spread 6 (AP-1)	180.0–237.0	Nelson, Buckingham, Prince Edward, and Nottoway Counties, VA	January 2017	December 2017
Spread 7 (AP-1)	237.0–296.0	Nottoway, Dinwiddie, Brunswick, and Dinwiddie Counties, VA	January 2018	October 2018
Spread 8 (AP-2)	296.0–356.0	Greensville County, VA and Northampton, Halifax, and Nash Counties, NC,	January 2017	December 2017
Spread 9 (AP-2)	356.0–418.0	Nash, Wilson, Johnson, and Sampson Counties, NC	January 2018	October 2018
Spread 10 (AP-2)	418.0–474.0	Cumberland and Robeson Counties, NC	January 2018	October 2018
Spread 11 (AP-3)	0.0–78.0	Northampton County, NC, Greensville and Southampton Counties, VA, and the Cities of Suffolk and Chesapeake, VA	January 2018	October 2018
Spread 12 (AP-4; AP-5)	0.0–3.1; 0.0-1.0	Brunswick County, VA; Greensville County, VA	January 2018	October 2018
Construction of Compressor Stations				
Compressor Station 1	6.8	Lewis County, WV	April 2017	November 2018
Compressor Station 2	188.8	Buckingham County, VA	April 2017	November 2018
Compressor Station 3	295.5	Northampton County, NC	April 2017	November 2018
Construction of Metering and Regulating Stations				
Kincheloe	6.8	Lewis County, WV	April 2017	April 2018
Long Run	45.6	Randolph County, WV	July 2017	July 2018
Woods Corner	188.8	Buckingham County, VA	April 2017	April 2018
Smithville	385.9	Johnston County, NC	July 2017	July 2018
Fayetteville	385.9	Johnston County, NC	July 2017	July 2018
Pembroke	475.3	Robeson County, NC	July 2017	July 2018
Elizabeth River	75.7	City of Chesapeake, VA	July 2017	July 2018
Brunswick	3.1	Brunswick County, VA	July 2017	July 2018
Greensville	1.0	Greensville County, VA	July 2017	July 2018

TABLE 1.6-1 (cont'd)

Construction Schedule by Spread for the Atlantic Coast Pipeline and Supply Header Project

Spread	Approximate Mileposts	Counties/Cities and States/Commonwealths	Begin Construction	Finish Construction
SUPPLY HEADER PROJECT				
Initial Construction Activities				
Initial Site Preparation (Spread 1)	By spread	See below	September 2017	January 2018
Tree Clearing (Spread 1)	By spread	See below	October 2017 [b]	March 2018
Initial Site Preparation (Spread 2)	By spread	See below	September 2016	January 2017
Tree Clearing (Spread 2)	By spread	See below	October 2016 [b]	March 2017
Construction of Pipeline Spreads				
Spread 1 (TL-636)	0.0–3.8	Westmoreland County, PA	January 2018	October 2018
Spread 2 (TL-635)	0.0–32.8	Wetzel, Doddridge, Tyler, and Harrison Counties, WV	January 2017	October 2018
Construction of Compressor Station Modifications				
JB Tonkin	0.0	Westmoreland County, PA	April 2017	November 2018
Crayne	NA	Greene County, PA	April 2017	November 2018
Burch Ridge	NA	Marshall County, WV	April 2017	November 2018
Mockingbird Hill	0.0	Wetzel County, WV	April 2017	November 2018

[a] The number and timing of the construction spreads are subject to change dependent upon construction and permit requirements.

[b] The start of tree clearing is dependent upon the results of the environmental surveys and agency consultations.

Construction activities will typically occur approximately 14 hours per day, seven days per week. Activities on the pipeline rights-of-way will mostly occur from 6 am to 8 pm; however, there may be situations where construction personnel will work 24-hour shifts, seven days per week (e.g., on HDDs, stream crossings, hydrostatic testing, final tie-in welds, etc.). Twenty-four hour construction may occur at aboveground facilities (compressor stations, M&R stations, etc.). As warranted, nighttime noise and lighting will be monitored.

1.7 CONSTRUCTION AND OPERATIONS WORKFORCE

The number of construction workers required for each component of the Projects will vary over the construction period. Atlantic estimates that approximately 7,395 full-time equivalent workers will be used to build the ACP at peak construction. This includes peak averages of 885 full-time equivalent workers and inspectors per pipeline spread, 75 full-time equivalent workers per compressor station, and 30 full-time equivalent workers for the M&R stations (Section 5.2.2 of Resource Report 5 shows the detailed basis for these estimates).[15] DTI estimates that approximately 1,035 full-time equivalent workers will be used to construct the SHP at peak construction. This includes 800 full-time equivalent workers and 85 inspectors per pipeline spread and 150 full-time equivalent workers for compressor stations.

[15] For the ACP, approximately half of the full-time equivalent workers for the pipeline spreads are expected to work in 2017 and 2018. The remainder is expected to work in 2018.

The workforces for the Projects will include superintendents, foremen, equipment operators, laborers, compliance monitors, construction craft inspectors, and EIs. Additional construction personnel associated with survey, testing, and specialized construction methods (e.g., HDD or blasting) may also be assigned to a spread. Atlantic and DTI estimate that 50 percent of the workforces for the Projects will be local workers who reside within commuting distance of the ACP Project area or SHP Project area. The remaining 50 percent are expected to be non-local workers who temporarily relocate to the ACP Project area or SHP Project area for the period of construction.

Once the proposed facilities are placed in service, Atlantic estimates that 82 permanent employees will be hired to support operation and maintenance of the ACP. DTI estimates that 11 permanent employees will be hired to support operation and maintenance of the SHP.

Additional discussion regarding the construction and operational workforces for the Projects is provided in Resource Report 5.

1.8 ENVIRONMENTAL COMPLIANCE, TRAINING, AND INSPECTION

Atlantic and DTI are committed to constructing and operating the Projects in a manner that will minimize environmental impacts and comply with applicable permits and approvals, the Plan and Procedures and other environmental plans or requirements described in this ER. Atlantic and DTI will train company and contractor personnel to familiarize them with environmental plans, permit requirements, and other conditions. EIs will be hired to monitor compliance during the construction and restoration phases of the Projects. Atlantic and DTI will be responsible for ensuring the implementation of environmental requirements during construction of the Projects.

1.8.1 Environmental Compliance

Atlantic and DTI will incorporate relevant environmental requirements and environmental mitigation plans into the construction bid documents for the Projects. Additionally, Atlantic and DTI will review these materials with prospective contractors in a pre-bid meeting. These steps notwithstanding, the contractor(s) selected for the Projects will be required to comply with all relevant requirements regardless of whether they were described in bid documents or discussed at the meeting.

Atlantic and DTI will conduct environmental training prior to commencement of construction activities so that contractors are aware of the environmental requirements of the Projects. During construction, if a contractor does not comply with the environmental requirements, Atlantic and DTI will direct the contractor to comply and may take other corrective actions as necessary, including issuing stop-work orders, until the contractor is in compliance.

1.8.2 Environmental Training

Prior to construction, Atlantic and DTI will conduct environmental training for all company and contractor personnel. The training program will focus on the Plan and Procedures, the POD or COM Plan, Certificate and permit conditions, and construction, restoration, and

mitigation plans. In addition, Atlantic and DTI will provide large-group training sessions before each work crew begins construction. Periodic follow-up training for groups of newly assigned personnel will be provided as necessary by the EIs. Besides training rosters, which will be kept to verify that personnel have been trained, Atlantic and DTI will issue hardhat stickers to be placed on each worker's hardhat as field verification that the worker has completed the training.

1.8.3 Environmental Inspection

Atlantic and DTI will assign an appropriate number of EIs per construction spread with additional inspectors, as necessary, to monitor environmental compliance during construction. The EIs will have peer status with other inspectors and will report directly to the spread chief inspector. The EIs will be responsible for the following: monitoring compliance with all environmental requirements of the Certificates as well as Federal and State/Commonwealth permits, clearances, and other approvals; evaluating the construction contractor's implementation of environmental mitigation measures; issuing corrective action and stop-activity orders to maintain environmental compliance; documenting compliance with the environmental requirements of the Projects; and preparing status reports for submittal to the FERC's environmental staff. The EIs will also act as liaisons between Atlantic and DTI and field representatives of environmental regulatory agencies that visit the ACP Project area or SHP Project area during construction. The EIs will have the authority to stop construction, if necessary, to maintain environmental compliance.

1.8.4 Third-Party Compliance Monitoring

In addition to the EIs, Atlantic and DTI will participate in a third-party compliance monitoring program during construction of the ACP and SHP, respectively. Under this program, Atlantic and DTI will fund a third-party contractor, to be selected and managed by the FERC, to provide environmental compliance monitoring services for the Projects. The third-party contractor will provide regular reports to FERC staff on compliance issues and assist FERC staff in screening and processing variance requests during construction.

1.9 OPERATIONS AND MAINTENANCE

DTI will operate and maintain the new ACP and SHP pipelines and aboveground facilities in accordance with all applicable Federal and State/Commonwealth requirements, including the minimum Federal safety standards identified in *Transportation of Natural and Other Gas by Pipeline*, 49 CFR 192. Operation and maintenance of the ACP facilities will be performed by or at the direction of DTI in its capacity as operator of the ACP pursuant to a Construction, Operation, and Maintenance Agreement with Atlantic. Operation and maintenance of the SHP facilities will also be performed by or at the direction of DTI.

The pipelines will be inspected periodically from the air and on foot, as required by applicable regulatory requirements. These surveillance activities will provide information on possible encroachments and nearby construction activities, erosion, exposed pipe, and other potential concerns that may affect the safety and operation of the pipelines. Pipeline markers and signs will be inspected and maintained or replaced, as necessary, to assure that pipeline locations are clearly identified. Aerial surveys of the pipeline system will be performed in accordance

with the requirements of 49 CFR 192. Field personnel will advise the appropriate operations personnel of new construction along or near the pipeline system. Line patrol of highway and railroad crossings will be completed as required by the USDOT. Valves will be inspected annually and the results documented.

In order to maintain accessibility of the rights-of-way and accommodate pipeline integrity surveys, vegetation along the rights-of-way will be cleared periodically, and as necessary, in accordance with the Plan and Procedures (except in areas crossed by HDD where vegetation maintenance will not be required). Active cropland will be allowed to revert to preconstruction use for the full width of the right-of-way. In non-cultivated uplands, the permanent easement for each pipeline will be maintained in an herbaceous state. In wetlands, the Procedures allow for a 10-foot-wide corridor centered over the pipeline to be permanently maintained in an herbaceous state. Additionally, the Procedures allow trees greater than 15 feet in height within 15 feet of the pipeline to be cut and removed from wetlands along the right-of-way. Where necessary and when required, DTI will use mechanical mowing or cutting along the right-of-way for normal vegetation maintenance. DTI will monitor the right-of-way for infestations of invasive species that may have been created or exacerbated by its construction activities, and will treat such infestations in consultation with landowners and applicable agencies.

DTI will adhere to the operations and maintenance procedures described in the Plan and Procedures, subject to any modifications approved by the FERC, as well as the POD or COM Plan, in the vicinity of wetlands, waterbodies, and upland areas. Additionally, operations and maintenance procedures, including record keeping, will be performed in accordance with USDOT requirements. Operation and maintenance of valves will be performed in accordance with information provided by the valve manufacturers.

Pipeline integrity surveys and vegetation maintenance may identify areas along the rights-of-way where permanent erosion control devices need to be repaired or additional erosion control devices may be needed. If problem areas are evident, erosion control devices will be repaired or installed, as necessary, and the right-of-way will be stabilized to prevent future degradation.

DTI personnel will perform regular operation and maintenance activities on equipment at the compressor and M&R stations. These activities will include calibration, inspection, and scheduled and routine maintenance. Operational testing will be performed on safety equipment to confirm proper functioning, and, as needed, corrective action.

1.10 PLANS FOR FUTURE EXPANSION OR ABANDONMENT

There are no current or reasonably foreseeable plans for future expansion or abandonment of the Projects. However, the ACP Foundation Shippers have a one-time right to request an increase in contracted capacity by participation in an optional expansion totaling up to 500,000 Dth/d (Optional Expansion). The potential occurrence of the Optional Expansion, as well as their participation in it, is limited to Foundation and Anchor Shippers and may be elected any time after the date of the issuance of the initial FERC Certificate to the date that is within four years after the in-service date of the ACP. The eventual timing, nature, and scope of an

Optional Expansion are unknown and cannot be determined unless and until one or more of the eligible participants exercise that right. ACP Foundation Shippers also have a stated right to request a Second Expansion. Atlantic has agreed that, upon such a request from a Foundation Shipper, it will determine the scope, location, and cost of the necessary facilities, and if mutually agreeable, Atlantic and the requesting shipper will work towards entering into an acceptable agreement. If the facilities are expanded in the future, including an expansion as part of the Optional Expansion or the Second Expansion, Atlantic and/or DTI will seek the appropriate authorizations from Federal, State/Commonwealth, and local agencies at that future time.

1.11 NONJURISDICTIONAL FACILITIES

A list of identified nonjurisdictional facilities is provided in Table 1.11-1. A description of these facilities, including the location of the new facilities, an assessment of the permits required to construct the facilities, and a discussion of the current status of regulatory review for each facility, is provided in Section 1.11.1 below. Information on any additional nonjurisdictional facilities will be provided in the final Resource Report 1.

TABLE 1.11-1

Nonjurisdictional Facilities

Project Sponsor	Location	Description
Dominion Virginia Power	Brunswick County, VA	The Brunswick Power Station, a 1,358-megawatt, natural gas fueled power station and associated transmission facilities (under construction)
Dominion Virginia Power	Greensville County, VA	The Greensville Power Station, an approximately 1,600-megawatt, natural gas fueled power station (proposed)
Piedmont Natural Gas	Wake, Johnson, Cumberland, Robeson, and Richmond Counties, NC	Modifications and additions at existing facilities (proposed)
Piedmont Natural Gas	Robeson, Scotland, and Richmond Counties, NC	Approximately 26 miles of 30-inch outside diameter natural gas pipeline (proposed)
Virginia Natural Gas	City of Chesapeake, Virginia	Approximately 5 miles of 20-inch outside diameter natural gas pipeline (proposed)

Some additional appurtenant nonjurisdictional facilities such as electric distribution lines to provide power to compressor and M&R stations (for station power and lighting, not compression) and microwave towers for communications may be required for the ACP. Atlantic is evaluating the need for these facilities, and will provide information on these facilities in the final Resource Report 1.

At this time, DTI has not identified any nonjurisdictional pipelines or aboveground facilities to be constructed in association with the SHP. Should such facilities be identified, DTI will provide information on those facilities in the final Resource Report 1.

1.11.1 Four-Factor Test

The FERC uses a four-factor test to determine whether there is sufficient Federal control and responsibility over a project as a whole to warrant environmental analysis of project-related nonjurisdictional facilities. These factors are:

1. whether the regulated activity comprises "merely a link" in a corridor type project;
2. whether there are aspects of a nonjurisdictional facility in the immediate vicinity of the regulated activity that uniquely determine the location and configuration of the regulated activity;
3. the extent to which the entire project would be within the FERC's jurisdiction; and
4. the extent of cumulative Federal control and responsibility.

Brunswick Power Station

DVP's Brunswick Power Station, which is currently under construction, consists of a 1,358-megawatt, combined cycle, natural gas fired power station on a 205-acre site near Lawrenceville in Brunswick County, Virginia. The project also includes approximately 13.5 miles of 500 kilovolt (kV) electric transmission line. Figure 1.11.1-1 depicts the location of these facilities relative to the ACP.

In November 2012, DVP submitted an application to the State Corporation Commission (SCC) of the Commonwealth of Virginia for a Certificate to construct and operate the Brunswick Power Station and associated electric transmission line. Documents associated with DVP's application and the SCC's review of the project, including environmental documents, may be accessed on the SCC's website (http://docket.scc.virginia.gov/vaprod/main.asp) under docket PUE-2012-00128. A list of the other permits or authorizations required for the project is provided in Table 1.11.1-1. The SCC completed its regulatory and environmental review of the project and issued a Certificate to DVP in August 2013. Construction of the facility began in the Fall of 2013 and is expected to be complete in the Summer of 2016.

With regard to the first factor of the four-factor test, the proposed ACP consists of a new, 556-mile-long, natural gas transmission system in West Virginia, Virginia, and North Carolina. The Brunswick Power Station is a power generating facility in Virginia. Therefore, the ACP is more than a "link" in a corridor type project.

With regard to the second factor, the location of the Brunswick Power Station was a consideration in routing the ACP to enable Atlantic to deliver natural gas to DVP at this site. Many other factors, however, were considered in the routing process, including the locations of other delivery points and required pipeline laterals (e.g., AP-3); terrain; engineering considerations; system requirements; crossings of public lands; and the potential for impacts on environmental resources. Moreover, many route alternatives and variations for the ACP were identified and evaluated as described in Resource Report 10. Therefore, while the location of the Brunswick Power Station was a factor, it did not uniquely affect the location and configuration of the ACP.

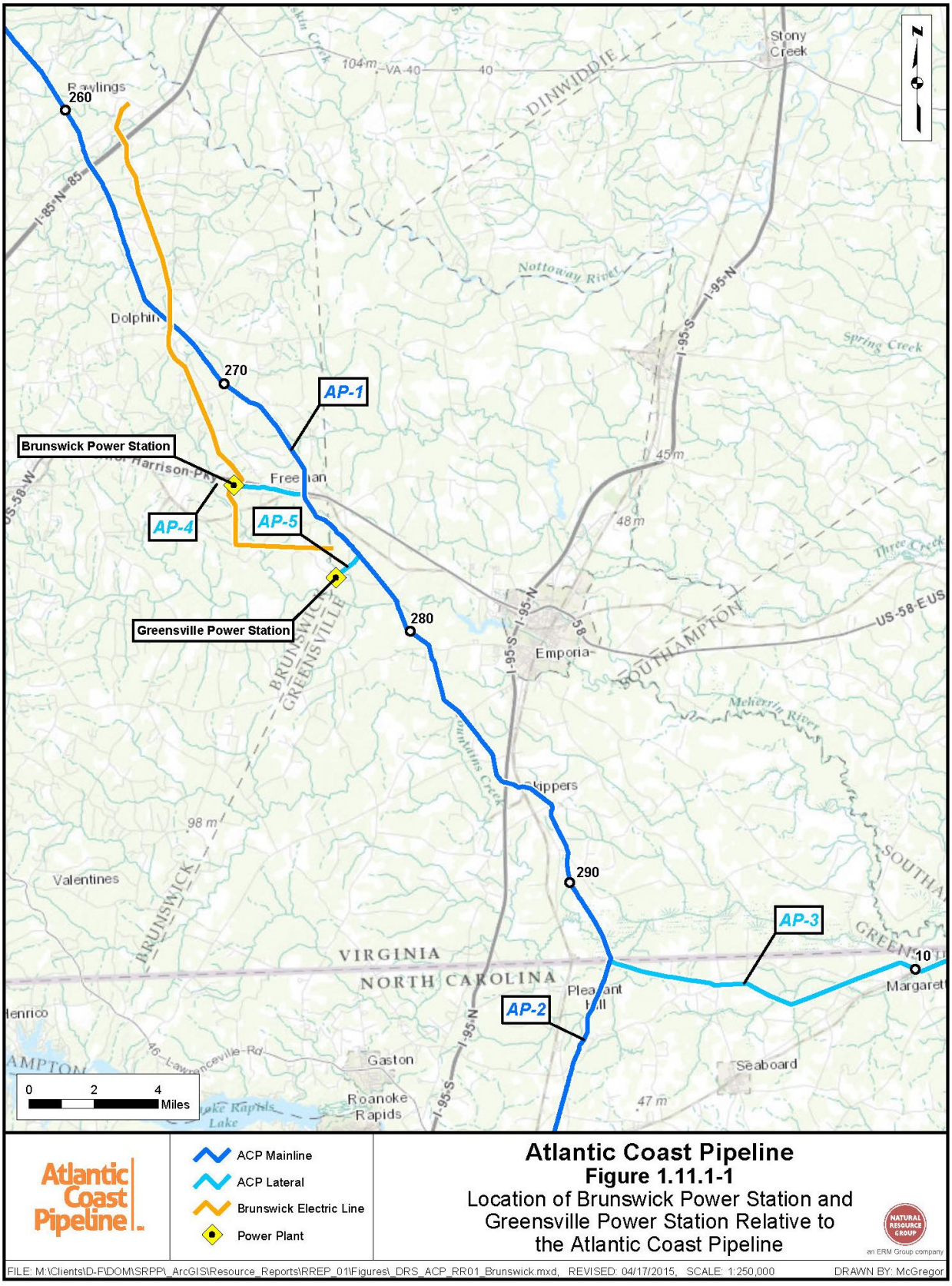

260
270
280
290
10
AP-1
AP-2
AP-3
AP-4
AP-5
Brunswick Power Station
Greensville Power Station
Stony Creek
DINWIDDIE
Nottoway River
Dolphin
Spring Creek
Three Creek
Meherrin River
Emporia
SOUTHAMPTON
BRUNSWICK
GREENSVILLE
Valentines
VIRGINIA
NORTH CAROLINA
Pleasant Hill
Margaret
Gaston
Roanoke Rapids
Seaboard
I-85-N
I-95-N
I-95-S
US-58-E
0 2 4 Miles
ACP Mainline
ACP Lateral
Brunswick Electric Line
Power Plant
Atlantic Coast Pipeline
Figure 1.11.1-1
Location of Brunswick Power Station and Greensville Power Station Relative to the Atlantic Coast Pipeline
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TABLE 1.11.1-1

Nonjurisdictional Facilities – Permit Table for the Brunswick Power Station

Agency	Permit/Authorization/Consultation	Status
Federal		
U.S. Army Corps of Engineers – Norfolk District	Department of the Army Permits under Section 404 of the Clean Water Act	Approved
U.S. Fish and Wildlife Service – Virginia Ecological Field Services Office	Consultation under Section 7 of the Endangered Species Act	Completed
Federal Aviation Commission	Part 77 Airspace Obstruction Analysis – Permanent Structures	Completed
State		
State Corporation Commission of the Commonwealth of Virginia	Certificate of Public Convenience and Necessity – Electric Generation Facility	Approved
Virginia Department of Environmental Quality – Air Division	Prevention of Significant Deterioration Air Permit	Approved
Virginia Department of Environmental Quality – Water Division	Water Quality Certificate under Section 401 of the Clean Water Act	Approved
Virginia Department of Environmental Quality – Water Division	Discharges of Stormwater Associated with Industrial Activities	Approved
Virginia Department on Conservation and Recreation	Discharges of Stormwater from Construction Activities	Approved
Virginia Department on Conservation and Recreation	Protected Species Consultation	Completed
Virginia Department of Game and Inland Fisheries	Protected Species Consultation	Completed
Virginia Department of Historic Resources	Consultation under Section 106 of the National Historic Preservation Act	Completed

With regard to the third factor, the Commission has no authority over the siting, permitting, licensing, funding, construction, or operation of the Brunswick Power Station. The SCC is the lead agency with jurisdiction over this facility. Therefore, the "entire project" is not within the FERC's jurisdiction.

With regard to the fourth factor, the Brunswick Power Station and associated electric transmission line is a private project primarily under the jurisdiction of the Commonwealth of Virginia. The Federal government has no financial involvement or stake in this facility, and no Federal lands have been affected by the project. The Federal authorizations required for the Brunswick Power Station were limited to permits or consultations regarding specific resources (e.g., air quality, waters of the U.S., federally-listed threatened and endangered species, and historic properties). No Federal agency has jurisdiction as a whole over the project. Therefore, there is no cumulative Federal control over or responsibility for the Brunswick Power Station.

Based on application of the four-factor test to the Brunswick Power Station and associated electric transmission line relative to the ACP, inclusion of this facility in the environmental analysis of the ACP is not warranted.

Greensville Power Station

In March 2015, DVP announced a proposal to construct and operate a new, approximately 1,600-megawatt, combined cycle, natural gas fired power station on a 1,143-acre site in Greensville County, Virginia. While it is not currently known if new electric transmission lines will be built in association with this facility, the site for the proposed Greensville Power

Station is adjacent to an existing DVP 500 kV transmission line and will have access to that facility. Figure 1.11.1-1 depicts the location of the proposed power station relative to the ACP.

Like the Brunswick Power Station, the Greensville Power Station is regulated by the SCC of the Commonwealth of Virginia. Other permits required for the project are listed in Table 1.11.1-2. Permit applications are expected to be submitted to regulatory agencies in the Summer of 2015. Pending the receipt of the required permits, DVP expects to begin construction of the power station in the Summer of 2016.

TABLE 1.11.1-2

Nonjurisdictional Facilities – Permit Table for the Greensville Power Station

Agency	Permit/Authorization/Consultation	Status
Federal		
U.S. Army Corps of Engineers – Norfolk District	Department of the Army Permits under Section 404 of the Clean Water Act	Pending
U.S. Fish and Wildlife Service – Virginia Ecological Field Services Office	Consultation under Section 7 of the Endangered Species Act	Pending
Federal Aviation Commission	Part 77 Airspace Obstruction Analysis – Permanent Structures	Pending
State		
State Corporation Commission of the Commonwealth of Virginia	Certificate of Public Convenience and Necessity – Electric Generation Facility	Pending
Virginia Department of Environmental Quality – Air Division	Prevention of Significant Deterioration Air Permit	Pending
Virginia Department of Environmental Quality – Water Division	Water Quality Certificate under Section 401 of the Clean Water Act	Pending
Virginia Department of Environmental Quality – Water Division	General Permit for Discharges of Stormwater from Construction Activities (VAR10) and General Permit for Discharges from Petroleum Contaminated Sites, Groundwater Remediation, and Hydrostatic Tests (VAG83)	Pending
Virginia Department on Conservation and Recreation	Protected Species Consultation	Pending
Virginia Department of Game and Inland Fisheries	Protected Species Consultation	Pending
Virginia Department of Historic Resources	Consultation under Section 106 of the National Historic Preservation Act	Pending

With regard to the first factor of the four-factor test, the proposed ACP consists of a new, 556-mile-long, natural gas transmission system in West Virginia, Virginia, and North Carolina. The Greensville Power Station is a power generating facility in Virginia. Therefore, the ACP is more than a "link" in a corridor type project.

With regard to the second factor, the proposed site for the Greensville Power Station was selected based in part on proximity to other existing and proposed utility systems, including the ACP. The proposed AP-5 lateral, which measures 1 mile in length, will connect the AP-1 mainline to the new power station. Therefore, the location of the Greensville Power Station did not uniquely affect the location and configuration of the ACP mainline facilities.

With regard to the third factor, the Commission has no authority over the siting, permitting, licensing, funding, construction, or operation of the Greensville Power Station. The SCC is the lead agency with jurisdiction over this facility. Therefore, the "entire project" is not within the FERC's jurisdiction.

With regard to the fourth factor, the Greensville Power Station is a private project primarily under the jurisdiction of the Commonwealth of Virginia. The Federal government has no financial involvement or stake in this facility, and no Federal lands will be affected by the project. The Federal authorizations required for the Greensville Power Station are limited to permits or consultations for impacts on specific resources (e.g., air quality, waters of the U.S., federally-listed threatened and endangered species, and historic properties). No Federal agency has jurisdiction as a whole over the project. Therefore, there is no cumulative Federal control or responsibility for the Greensville Power Station.

Based on application of the four-factor test to the Greensville Power Station relative to the ACP, inclusion of this facility in the environmental analysis of the ACP is not warranted.

Piedmont Facility Modifications and Additions

Piedmont is proposing modifications and additions at several of its existing facilities in response to the new gas supplies from the ACP (see Figure 1.11.1-2). These modification and additions will include:

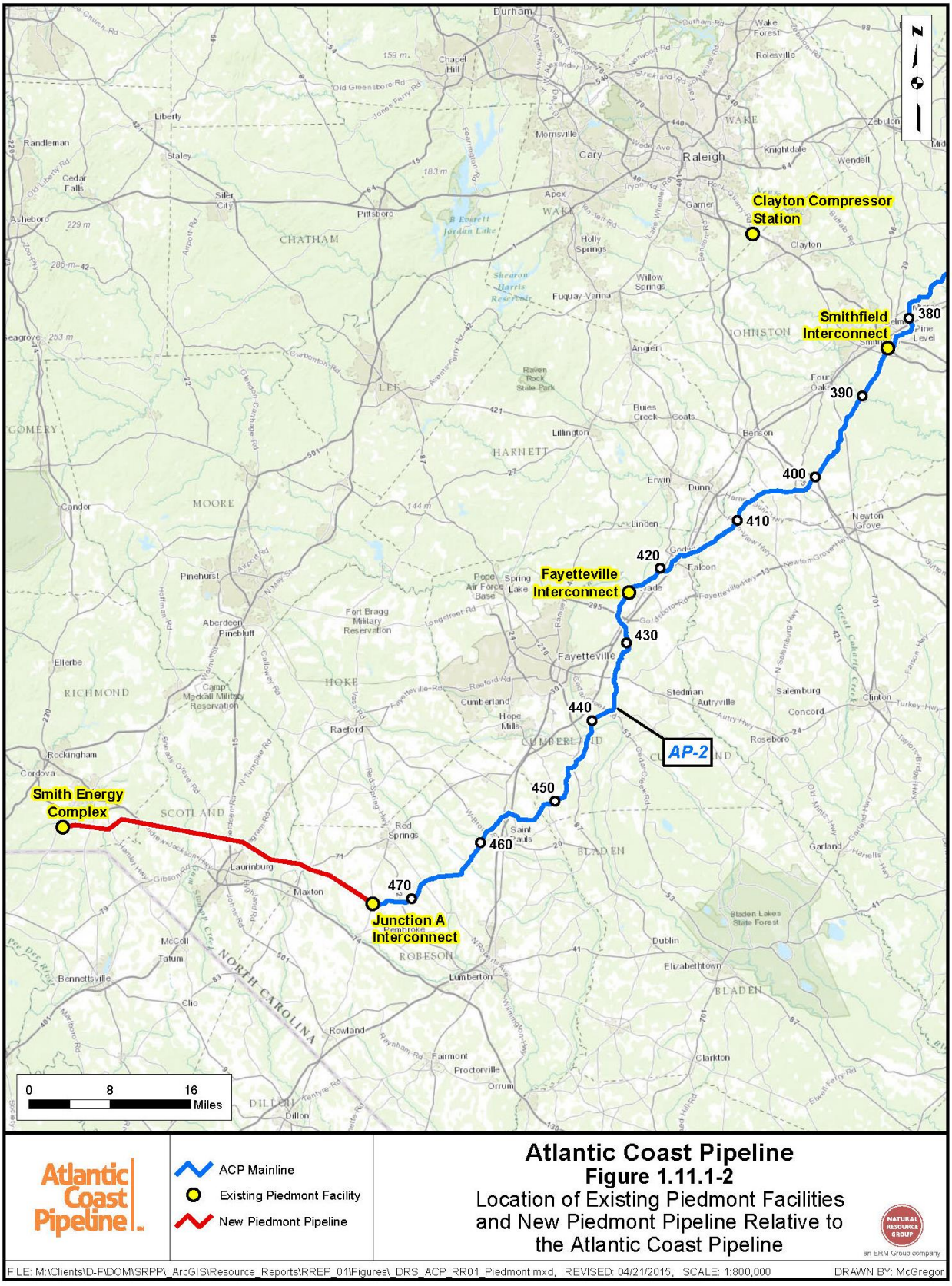
- Clayton Compressor Station – piping modifications, addition of valves and controls, and reconfiguration for bi-directional flow;
- Smithfield Interconnect – piping modifications and additions for interconnect;
- Fayetteville Interconnect – piping modifications and additions for interconnect;
- Junction A Interconnect – piping modifications and additions for interconnect; and
- Smith Energy Complex – piping modifications and addition of heaters and controls.

The planned modifications and additions will be conducted under the existing Certificates issued for the Piedmont facilities by the North Carolina Utilities Commission. Other permits required for the work are listed in Table 1.11.1-3. Permit applications are expected to be submitted to regulatory agencies in the Winter of 2017. Pending the receipt of the required permits, Piedmont expects to begin the modifications and additions in the Winter of 2018.

TABLE 1.11.1-3

Nonjurisdictional Facilities – Permit Table for the Piedmont Facility Modifications and Additions

Agency	Permit/Authorization/Consultation	Status
State		
North Carolina Department of Environment and Natural Resources – Division of Energy, Mineral, and Land Resources (or approved local government)	General Permit NCG 010000 to Discharge Stormwater under the National Pollutant Discharge Elimination System	Pending
North Carolina Department of Environment and Natural Resources – Division of Energy, Mineral, and Land Resources (or approved local government)	Approval of Erosion and Sediment Control Plan	Pending
North Carolina Department of Environment and Natural Resources – Division of Water Resources	Water Quality Certificate under Section 401 of the Clean Water Act	Pending


Clayton Compressor Station
Smithfield Interconnect
380
390
400
410
420
Fayetteville Interconnect
430
440
AP-2
450
460
470
Junction A Interconnect
Smith Energy Complex
0 8 16 Miles
ACP Mainline
Existing Piedmont Facility
New Piedmont Pipeline
Atlantic Coast Pipeline
Figure 1.11.1-2
Location of Existing Piedmont Facilities and New Piedmont Pipeline Relative to the Atlantic Coast Pipeline
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DRAWN BY: McGregor

Piedmont proposes these modification and additions to existing facilities on its system to allow for the receipt of gas from ACP under its transportation contract with ACP. The planned modifications and additions to be made by Piedmont at its existing Clayton Compressor Station also will allow Atlantic to lease capacity on Piedmont's existing system to allow for deliveries to one of the ACP other's customers. Under the lease, Atlantic will utilize capacity in the Piedmont pipeline as if it were Atlantic's own capacity while Piedmont will operate the pipeline. Atlantic and Piedmont will request authorization for this lease from the Commission concurrently with the Certificate application for the ACP. Even without the lease, however, Piedmont still would propose the same modifications and additions to its facilities.

With regard to the first factor of the four-factor test, the proposed ACP consists of a new, 556-mile-long, natural gas transmission system in West Virginia, Virginia, and North Carolina. The proposed modifications and additions would occur at existing Piedmont facilities. Therefore, the ACP is more than a "link" in a corridor type project. Atlantic will lease capacity on the Piedmont system, however, so that facilities related to that leased capacity (at the Clayton Compressor Station) could be viewed as similar to such a link. Again, however, Piedmont would propose the same modifications and additions to its system even if there were no lease with ACP.

With regard to the second factor, the modifications and additions at three of the five existing Piedmont facilities (i.e., Smithfield, Fayetteville, and Junction A) are associated with delivery points along the ACP, and the location of these facilities was a consideration in routing the pipelines. Piedmont's ability to lease capacity to Atlantic for deliveries to another customer also factored into the pipeline routing. While these are critical touch points for the ACP, many other factors were considered in the routing process as described above for the Brunswick Power Station. Moreover, many route alternatives and variations for the ACP were identified and evaluated as described in Resource Report 10. Therefore, while the location of the existing Piedmont facilities was a significant factor, it was one of many factors in determining the location and configuration of the ACP.

With regard to the third factor, the Commission has no authority over the siting, permitting, licensing, funding, or construction of the existing Piedmont facilities or the proposed modifications or additions. The North Carolina Utilities Commission is the lead agency with jurisdiction over these facilities. Atlantic and Piedmont will request Commission approval of the lease by Atlantic of capacity on Piedmont's system, made possible in part by the proposed modifications at the Clayton Compressor Station. However, the "entire project" is not within the FERC's jurisdiction as it pertains to these facilities.

With regard to the Clayton Compressor Station, Atlantic and Piedmont will request Commission approval of the lease by Atlantic of capacity in Piedmont's pipeline. The Commission, however, has no authority over the siting, permitting, licensing, funding, construction, or operation of the existing Piedmont facility. The North Carolina Utilities Commission is the lead agency with jurisdiction over this facility. Therefore, while this factor may be viewed as mixed, the "entire project" is not within the FERC's jurisdiction.

With regard to the fourth factor, no Federal authorizations will be required for the modifications and additions at the existing Piedmont facilities. Therefore, there will be no cumulative Federal control and responsibility over these facilities.

Based on application of the four-factor test to the proposed Piedmont facility modifications and additions, inclusion of the proposed modifications and additions in the environmental analysis of the ACP is not warranted.

New Piedmont Pipeline

Piedmont is proposing to construct, own, operate, and maintain approximately 26 miles of new 30-inch-diameter pipeline from the terminus of the AP-2 mainline to the existing Smith Energy Complex. The location of the proposed pipeline route is shown on Figure 1.11.1-2 above.

Piedmont will submit an application to the North Carolina Utilities Commission for a Certificate to construct, own, operate, and maintain the new pipeline facilities. Other permits required for the new pipeline are listed in Table 1.11.1-4. The Certificate application and other permit applications are expected to be submitted to regulatory agencies in the Winter of 2017. Pending the receipt of the required permits, Piedmont expects to begin construction of the new pipeline facilities in the Winter of 2018.

TABLE 1.11.1-4

Nonjurisdictional Facilities – Permit Table for the New Piedmont Pipeline

Agency	Permit/Authorization/Consultation	Status
Federal		
U.S. Army Corps of Engineers – Wilmington District	Department of the Army Permits under Section 404 of the Clean Water Act	Pending
U.S. Fish and Wildlife Service – North Carolina Ecological Field Services Office	Consultation under Section 7 of the Endangered Species Act	Pending
State		
North Carolina Utilities Commission	Certificate of Public Convenience and Necessity	Pending
North Carolina Department of Environment and Natural Resources – Division of Energy, Mineral, and Land Resources (or approved local government)	General Permit NCG 010000 to Discharge Stormwater under the National Pollutant Discharge Elimination System	Pending
North Carolina Department of Environment and Natural Resources – Division of Energy, Mineral, and Land Resources (or approved local government)	General Permit SWG040000- General Permit to Construct a Linear Utility Line and Associated Incidental Built-Upon Area	Pending
North Carolina Department of Environment and Natural Resources – Division of Energy, Mineral, and Land Resources (or approved local government)	Approval of Erosion and Sediment Control Plan	Pending
North Carolina Department of Environment and Natural Resources – Division of Water Resources	Water Quality Certificate under Section 401 of the Clean Water Act (including permission to use State-owned bottom lands)	Pending
North Carolina Department of Environment and Natural Resources – Division of Water Resources	Isolated and Other Non-404 Jurisdictional Wetlands and Waters Permit (including permission to use State-owned bottom lands)	Pending
North Carolina Department of Environment and Natural Resources – Division of Water Resources	Buffer Authorization (for riparian zone disturbance)	Pending
North Carolina Department of Environment and Natural Resources – Natural Heritage Program	Natural Heritage/Protected Species Consultation	Pending
North Carolina State Historic Preservation Office	Consultation under Section 106 of the National Historic Preservation Act	Pending
North Carolina Wildlife Commission	Protected Species Consultation	Pending

With regard to the first factor of the four-factor test, the proposed ACP consists of a new, 556-mile-long, natural gas transmission system in West Virginia, Virginia, and North Carolina. The new Piedmont project includes approximately 26 miles of pipeline that extends from the

southern terminus of the ACP. Therefore, the ACP is more than a "link" in a corridor type project.

With regard to the second factor, the location of the new Piedmont pipeline was selected to connect the existing Junction A Interconnect to the existing Smith Energy Complex. While the APC was designed to terminate at the existing Junction A Interconnect, the location of the new Piedmont pipeline did not affect the location and configuration of the ACP. The location of the new Piedmont pipeline and/or ACP could be altered and serve the same purpose.

With regard to the third factor, the Commission has no authority over the siting, permitting, licensing, funding, construction, or operation of the proposed pipeline facilities. The North Carolina Utilities Commission is the lead agency with jurisdiction over these facilities. Therefore, the "entire project" is not within the FERC's jurisdiction.

With regard to the fourth factor, the proposed Piedmont pipeline is a private project primarily under the jurisdiction of the State of North Carolina. The Federal government has no financial involvement or stake in this facility, and no Federal lands are expected to be affected by the project. The Federal authorizations required for the new pipeline will be limited to permits or consultations for impacts on specific resources. No Federal agency has jurisdiction as a whole over the project. Therefore, there is no cumulative Federal control over or responsibility for the proposed Piedmont pipeline facilities.

Based on application of the four-factor test to the new Piedmont pipeline facilities relative to the ACP, inclusion of the facilities in the environmental analysis of the ACP is not warranted.

New Virginia Natural Gas Pipeline

Virginia Natural Gas (VNG) is proposing to construct, own, operate, and maintain approximately 5 miles of 20-inch outside diameter natural gas pipeline between existing VNG facilities (including at the terminus of the proposed AP-3 lateral). This is a recently identified non-jurisdictional facility. Additional information on this facility will be provided in the final Resource Report 1.

1.12 PERMITS AND APPROVALS

Tables 1.12-1 and 1.12-2 list the Federal and State/Commonwealth environmental permits and approvals required to construct and operate the ACP and SHP, respectively, along with the status of each permit or approval. In each case, Atlantic and DTI have initiated the permitting or approval process through agency contacts and consultations. A summary of agency contacts to date and copies of select correspondence for the ACP and SHP are provided in Appendices 1H and 1I, respectively.

TABLE 1.12-1

Permit Table for the Atlantic Coast Pipeline

Agency	Permit/Approval/Consultation	Filing/Anticipated Filing Date	Anticipated Approval Date
Federal			
Federal Energy Regulatory Commission	Certificate of Public Convenience and Necessity under Section 7(c) of the Natural Gas Act	September 2015	July 2016
Bureau of Land Management	Right-of-Way Grant to cross Federal lands in the Monongahela National Forest, George Washington National Forest, and Great Dismal Swamp National Wildlife Refuge	September 2015	September 2016
National Oceanic and Atmospheric Administration – National Marine Fisheries Service	Consultation under Section 7 of the Endangered Species Act and Section 305 of the Magnuson-Stevens Act	August 2014	June 2016
National Park Service – Blue Ridge Parkway	Right-of-Way Grant and Special Use Permit to cross the Blue Ridge Parkway	September 2015	June 2016
U.S. Army Corps of Engineers – Huntington, Pittsburgh, Norfolk, and Wilmington Districts	Department of the Army Permits under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act	September 2015	September 2016
U.S. Fish and Wildlife Service – Great Dismal Swamp National Wildlife Refuge	Special Use Permit and Concurrence in the Right-of-Way Grant issued by the Bureau of Land Management to cross the Great Dismal Swamp National Wildlife Refuge	September 2015	June 2016
U.S. Fish and Wildlife Service – West Virginia, Virginia, and North Carolina Ecological Field Services Offices	Consultation under Section 7 of the Endangered Species Act	August 2014	June 2016
U.S. Forest Service – George Washington National Forest and the Appalachian Trail	Special Use Permit and Concurrence in the Right-of-Way Grant issued by the Bureau of Land Management to cross the George Washington National Forest and the Appalachian Trail as well as related amendments to Forest Management Plan	September 2015	September 2016
U.S. Forest Service – Monongahela National Forest	Special Use Permit and Concurrence in the Right-of-Way Grant issued by the Bureau of Land Management to cross the Monongahela National Forest as well as related amendments to Forest Management Plan	September 2015	September 2016
West Virginia			
West Virginia Department of Environmental Protection – Division of Air Quality	Air Permit – New Source Review Permit (or other applicable permit)	September 2015	September 2016
West Virginia Department of Environmental Protection – Oil and Gas Division	General Water Pollution Control Permit – Stormwater Associated with Oil and Gas Related Construction Activities	April 2016	July 2016
West Virginia Department of Environmental Protection – Division of Water and Waste Management	Water Quality Certificate under Section 401 of the Clean Water Act	September 2015	September 2016
West Virginia Department of Environmental Protection – Division of Water and Waste Management	General Water Pollution Control Permit – Stormwater Associated with Oil and Gas Related Construction Activities	April 2016	July 2016
West Virginia Department of Environmental Protection – Division of Water and Waste Management	National Pollutant Discharge Elimination System – Water Pollution Control Permit for Hydrostatic Testing Water – WV0113069	May 2016	August 2016
West Virginia Department of Environmental Protection – Division of Water and Waste Management	Large Quantity User Water Use Registration	May 2016	September 2016

TABLE 1.12-1 (cont'd)

Permit Table for the Atlantic Coast Pipeline

Agency	Permit/Approval/Consultation	Filing/Anticipated Filing Date	Anticipated Approval Date
West Virginia Division of Culture and History	Consultation under Section 106 of the National Historic Preservation Act	June 2014	September 2016
West Virginia Division of Natural Resources – Natural Heritage Program	Natural Heritage/Protected Species Consultation	August 2014	March 2016
West Virginia Division of Natural Resources – Office of Land and Streams	Stream Activity Permit (Joint Application with the Public Lands Corporation)	April 2016	September 2016
West Virginia Public Lands Corporation	Stream Activity Permit (Joint Application with the Division of Natural Resources)	April 2016	September 2016
County/Local	Floodplain Permits (as applicable)	November 2015	September 2016
County/Local	County/Local Permits (as applicable)	November 2015	September 2016
Virginia			
Virginia Department of Agriculture and Consumer Services	Protected Species Consultation (plant species)	April 2016	March 2016
Virginia Department of Conservation and Recreation	Virginia Scenic Rivers Clearance	October 2015	March 2016
Virginia Department of Environmental Quality – Coastal Zone Management Program	Consistency Determination under the Virginia Coastal Zone Management Program	August 2015	May 2016
Virginia Department of Environmental Quality – Air Division	Air Permit – New Source Review Permit (or other applicable permit)	September 2015	October 2016
Virginia Department of Environmental Quality – Water Division	Water Quality Certificate under Section 401 of the Clean Water Act (Joint Permit Application for the Water Quality Certificate, Virginia Water Protection Permit, River and Stream Crossing Permit, Department of the Army Permit, and Tidal Wetland Permit)	September 2015	September 2016
Virginia Department of Environmental Quality – Water Division	Virginia Water Protection Permit (Joint Permit Application for the Water Quality Certificate, Virginia Water Protection Permit, River and Stream Crossing Permit, Department of the Army Permit, and Tidal Wetland Permit)	September 2015	September 2016
Virginia Department of Environmental Quality – Water Division (or approved local government)	General Permit for Discharges of Stormwater from Construction Activities (VAR10)	April 2016	July 2016
Virginia Department of Environmental Quality – Water Division	General Permit for Discharges from Petroleum Contaminated Sites, Groundwater Remediation, and Hydrostatic Tests (VAG83)	May 2016	September 2016
Virginia Department of Environmental Quality – Water Division	Soil and Erosion Plan and Variance for Open Trench Length	April 2016	July 2016
Virginia Department of Environmental Quality – Office of Water Supply	Surface Water Withdrawal (Virginia Water Protection Permit)	May 2016	September 2016
Virginia Department of Environmental Quality	Ground Water Withdrawal Permit	December 2015	December 2016
Virginia Department of Game and Inland Fisheries	Natural Heritage/Protected Species Consultation	August 2014	March 2016
Virginia Department of Historical Resources	Consultation under Section 106 of the National Historic Preservation Act	June 2014	September 2016

TABLE 1.12-1 (cont'd)

Permit Table for the Atlantic Coast Pipeline

Agency	Permit/Approval/Consultation	Filing/Anticipated Filing Date	Anticipated Approval Date
Virginia Department of Transportation	Land Use Permit	November 2015	September 2016
Virginia Marine Resources Commission	River and Stream Crossing Permit (Joint Permit Application for the Water Quality Certificate, Virginia Water Protection Permit, River and Stream Crossing Permit, Department of the Army Permit, and Tidal Wetland Permit)	September 2015	September 2016
Virginia Marine Resources Commission	Submerged Lands Permit	September 2015	September 2016
Local Wetland Boards	Tidal Wetland Permit (Joint Permit Application for the Water Quality Certificate, Virginia Water Protection Permit, River and Stream Crossing Permit, Department of the Army Permit, and Tidal Wetland Permit)	September 2015	September 2016
County/City/Local	Floodplain Permits (as applicable)	November 2015	September 2016
County/City/Local	County/City/Local Permits (as applicable)	November 2015	September 2016
North Carolina			
North Carolina Department of Environment and Natural Resources – Division of Air Quality	Air Permit – Stationary Source Construction and Operation Permit	September 2015	September 2016
North Carolina Department of Environment and Natural Resources – Division of Energy, Mineral, and Land Resources (or approved local government)	General Permit NCG 010000 to Discharge Stormwater under the National Pollutant Discharge Elimination System	May 2016	September 2016
North Carolina Department of Environment and Natural Resources – Division of Energy, Mineral, and Land Resources (or approved local government)	General Permit SWG040000- General Permit to Construct a Linear Utility Line and Associated Incidental Built-Upon Area	May 2016	September 2016
North Carolina Department of Environment and Natural Resources – Division of Energy, Mineral, and Land Resources (or approved local government)	Approval of Erosion and Sediment Control Plan	May 2016	September 2016
North Carolina Department of Environment and Natural Resources – Division of Water Resources	Water Quality Certificate under Section 401 of the Clean Water Act (including permission to use State-owned bottom lands)	September 2015	September 2016
North Carolina Department of Environment and Natural Resources – Division of Water Resources	Isolated and Other Non-404 Jurisdictional Wetlands and Waters Permit (including permission to use State-owned bottom lands)	September 2015	September 2016
North Carolina Department of Environment and Natural Resources – Division of Water Resources	Buffer Authorization (for riparian zone disturbance)	August 2015	June 2016
North Carolina Department of Environment and Natural Resources – Natural Heritage Program	Natural Heritage/Protected Species Consultation	August 2014	March 2016
North Carolina State Historic Preservation Office	Consultation under Section 106 of the National Historic Preservation Act	June 2014	September 2016
North Carolina Wildlife Commission	Protected Species Consultation	August 2014	March 2016
County/Local	Floodplain Permits (as applicable)	November 2015	September 2016
County/Local	County/Local Permits (as applicable)	November 2015	September 2016

TABLE 1.12-2

Permit Table for the Supply Header Project

Agency	Permit/Approval/Consultation	Filing/Anticipated Filing Date	Anticipated Approval Date
Federal			
Federal Energy Regulatory Commission	Certificate of Public Convenience and Necessity under Section 7(c) of the Natural Gas Act	September 2015	July 2016
U.S. Army Corps of Engineers – Huntington and Pittsburgh Districts	Department of the Army Permits under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act	September 2015	September 2016
U.S. Fish and Wildlife Service – Pennsylvania and West Virginia Ecological Field Services Offices	Consultation under Section 7 of the Endangered Species Act	October 2014	June 2016
Pennsylvania			
Pennsylvania Department of Environmental Protection – Bureau of Air Quality	Air Quality Plan Approval	September 2015	September 2016
Pennsylvania Department of Environmental Protection – Bureau of Waterways Engineering and Wetlands	Water Quality Certificate under Section 401 of the Clean Water Act (issued jointly with Chapter 105 Permit)	September 2015	September 2016
Pennsylvania Department of Environmental Protection – Bureau of Waterways Engineering and Wetlands	Chapter 105 Water Obstruction and Encroachment Permit	September 2015	September 2016
Pennsylvania Department of Environmental Protection – Bureau of Waterways Engineering and Wetlands	Submerged Land License Agreement (issued jointly with Chapter 105 Permit)	September 2015	September 2016
Pennsylvania Department of Environmental Protection – Bureau of Point and Non-Point Source Management	National Pollutant Discharge Elimination System – Hydrostatic Testing Water Discharge General Permit – PAG-10	June 2016	August 2016
Pennsylvania Department of Environmental Protection -Bureau of Safe Drinking Water	Chapter 110 Water Withdrawal and Use Registration	September 2016	September 2016
Pennsylvania Department of Conservation and Natural Resources Pennsylvania Game Commission Pennsylvania Fish and Boat Commission	Natural Heritage/Protected Species Consultation	October 2014	March 2016
Pennsylvania Historical and Museum Commission, Bureau for Historic Preservation	Consultation under Section 106 of the National Historic Preservation Act	October 2014	September 2016
Westmoreland Conservation District Greene County Conservation District	Review of Erosion and Sediment Control Plan (required for Chapter105 Permit) and Issuance of ESCGP-2	July 2016	September 2016
County/Local	Floodplain Management Act (as applicable)	November 2015	September 2016
County/Local	County/Local Permits (as applicable)	November 2015	September 2016
West Virginia			
West Virginia Department of Environmental Protection – Division of Air Quality	Air Permit – New Source Review Permit (or other applicable permit)	September 2015	September 2016
West Virginia Department of Environmental Protection – Oil and Gas Division	General Water Pollution Control Permit – Stormwater Associated with Oil and Gas Related Construction Activities	April 2016	July 2016
West Virginia Department of Environmental Protection – Division of Water and Waste Management	Water Quality Certificate under Section 401 of the Clean Water Act	September 2015	September 2016

TABLE 1.12-2 (cont'd)

Permit Table for the Supply Header Project

Agency	Permit/Approval/Consultation	Filing/Anticipated Filing Date	Anticipated Approval Date
West Virginia Department of Environmental Protection – Division of Water and Waste Management	General Water Pollution Control Permit – Stormwater Associated with Oil and Gas Related Construction Activities	April 2016	July 2016
West Virginia Department of Environmental Protection – Division of Water and Waste Management	National Pollutant Discharge Elimination System – Water Pollution Control Permit for Hydrostatic Testing Water – WV0113069	May 2016	August 2016
West Virginia Department of Environmental Protection – Division of Water and Waste Management	Large Quantity User Water Use Registration	May 2016	September 2016
West Virginia Division of Culture and History	Consultation under Section 106 of the National Historic Preservation Act	October 2014	September 2016
West Virginia Division of Natural Resources – Natural Heritage Program	Natural Heritage/Protected Species Consultation	October 2014	March 2016
West Virginia Division of Natural Resources – Office of Land and Streams	Stream Activity Permit (Joint Application with the Public Lands Corporation)	April 2016	September 2016
West Virginia Public Lands Corporation	Stream Activity Permit (Joint Application with the Division of Natural Resources)	April 2016	September 2016
County/Local	Floodplain Permits (as applicable)	November 2015	September 2016
County/Local	County/Local Permits (as applicable)	November 2015	September 2016

1.13 FEDERAL LAND MANAGEMENT PLAN CONFORMANCE

The ACP will cross lands managed by the USFS, NPS, and FWS. In consultation with these agencies, Atlantic will review the appropriate land management plans to identify standards and guidelines applicable to the ACP. These standards and guidelines will be assessed to determine if the ACP will be consistent with the appropriate plans or if plan amendments are warranted. Resource Report 8 contains sections describing how the ACP will address the applicable standards and guidelines from these plans. As noted above, the proposed routes for the SHP pipeline loops do not cross any Federal lands.

1.14 STAKEHOLDER ENGAGEMENT ACTIVITIES

Atlantic and DTI developed comprehensive public outreach and consultation plans for the ACP and SHP, and began engaging stakeholders in May 2014 and October 2014, respectively. The goal of initial outreach was to provide preliminary information about the Projects to stakeholders, obtain input regarding a study corridor for the proposed pipeline facilities, and identify potential issues. Since initiating outreach activities, Atlantic and DTI have continued to engage stakeholders to provide updated information on the Projects, identify and meet with new stakeholders, seek input, and respond to issues.

For the ACP, Atlantic sent survey notification letters to landowners; met with landowners, elected officials (Federal, State/Commonwealth, and County/City/local), community leaders, business and civic groups, and non-governmental organizations (NGOs); and contacted other stakeholders by U.S. mail. The meetings included consultations with or presentations to elected officials and County boards in Counties along the proposed pipeline routes. For the SHP,

DTI sent survey notification letters to landowners and contacted elected officials via U.S. mail, email, and/or in-person meetings. The meetings and other communications with stakeholders have enabled Atlantic and DTI to provide information about the Projects; receive input into plans for design, construction, and operation of the Projects; answer questions about the Projects; and identify potential issues from various stakeholder groups.

Atlantic established a toll-free telephone number for landowners and a separate toll-free number for other interested stakeholders to call to obtain information about the ACP. A website (www.dom.com/ACpipeline) was created, and ACP and regulatory information has been and will continue to be posted to the website when available. Additionally, an ACP Facebook page was developed and launched, providing another source of information for stakeholders. DTI similarly established a toll-free telephone number for landowners and a separate toll-free number for other interested stakeholders to call to obtain information about the SHP. A website (www.dom.com/supplyheader) was created, and SHP and regulatory information has been and will continue to be posted to the website when available. Atlantic and DTI are communicating directly with landowners regarding the required field surveys and other pipeline routing activities on their land. Ongoing landowner contacts include communication through various contact vehicles, mailings, and discussions with land agents.

In addition to in-person outreach and meetings with landowners and other interested stakeholders, Atlantic has produced, hosted, and participated in a number of other communication opportunities for stakeholders to learn about the ACP and provide input. These include two rounds of informational Open Houses, a number of supplemental Open Houses associated with various route alternatives, presentations, information meetings, communications materials (e.g., fact sheets and frequently asked questions), and communications portals (e.g., email, voicemail, and mailing address). DTI has offered similar types of communication opportunities for stakeholders to learn about the SHP and provide input.

All identified stakeholders for the Projects, including landowners, elected officials, agencies, community leaders, business and civic groups, and NGOs, were sent a pre-filing notification letter advising these stakeholders of the start of the pre-filing process and providing instructions for accessing documents placed in the FERC dockets for the Projects.

The FERC issued a Notice of Intent (NOI) to prepare an Environmental Impact Statement for the Projects on Friday, February 27, 2015. The NOI opened the scoping period for the Projects and identified dates and locations for 10 public scoping meetings between March 9 and March 24, 2015. Atlantic and DTI representatives attended each of these meetings.

Atlantic and DTI believe that public engagement provides the opportunity for valuable input from stakeholders. To that end, Atlantic and DTI are committed to communicating with landowners and other stakeholders and will continue to refine the pipeline routes and mitigation plans, where feasible, in response to input received from landowners, the general public, agencies (including FERC environmental staff), and other stakeholders. As specified in 18 CFR 157.6, a notice will be published in local newspapers once the FERC issues Notices of Application for the Projects, and copies of the Applications to the Commission for the proposed facilities will be placed in public libraries located near the pipeline routes.

1.14.1 Public Open Houses

Atlantic and DTI hosted a total of 27 public Open Houses for the ACP and SHP in an effort to obtain input from potentially affected landowners and other stakeholders. An estimated 6,400 landowners and/or stakeholders attended these public Open Houses.

Initial Open Houses

Prior to pre-filing, Atlantic hosted 13 public Open Houses for the ACP during the weeks of September 15 and September 22, 2014 in an effort to obtain input from potentially affected landowners and other stakeholders. The public Open Houses were held in Buckhannon and Durbin, West Virginia; Monterey, Fishersville, Lovingston, Buckingham, Lawrenceville, and Franklin, Virginia; and Weldon, Nashville, Smithfield, Fayetteville, and Pembroke, North Carolina. The Open Houses were designed to provide the public with information regarding the purpose and need for the ACP, locations of the proposed facilities, Federal and State/Commonwealth regulatory processes, environmental field surveys, pipeline design, pipeline easements, construction activities, operations and safety, the schedule, and public and agency consultation processes. An additional goal of the Open Houses was to provide an opportunity for the ACP team to learn about issues identified by local stakeholders prior to submitting a request to initiate the pre-filing process on October 31, 2014. ACP team experts were available at the Open Houses to respond to questions, review maps of the proposed facilities, and gather feedback from attendees. ACP team experts staffed information booths specific to their respective expertise at each Open House (e.g., engineering and construction, environment, and public outreach).

Invitation letters for the initial Open Houses were sent to nearly 5,000 landowners, Federal and State/Commonwealth agencies, elected officials and their staffs, business and civic organizations, and tribal governments. Advertisements for the Open Houses were published in 30 local newspapers, including the newspaper of record in each affected County. In addition, the Open House schedule and invitation was posted on the ACP website and promoted via Facebook.

A table providing summary information on the number of attendees and key issues identified at each Open House is provided in Appendix 1J.

Pre-Filing Open Houses

After Atlantic's request to initiate the pre-filing process was accepted by the FERC, Atlantic hosted a second round of 11 Open Houses for the ACP from January 6 through January 22, 2015. The Open Houses were held in Fayetteville, Smithfield and Jackson, North Carolina; McKenney, Chesapeake, Blackstone, Lovingston, Monterey, and Fishersville, Virginia; and Elkins and Weston, West Virginia. The Open Houses were similar to the first round and designed to provide the public with information regarding the purpose and need for the ACP, locations of the proposed facilities, Federal and State/Commonwealth regulatory processes, environmental field surveys, the schedule, and public and agency consultation processes. In addition, Atlantic shared route variations completed since the previous round of Open Houses. ACP team experts were available to respond to questions, review maps, and gather feedback

from attendees. Additionally, FERC staff members were present at the meetings to gather input and respond to inquiries from attendees regarding the environmental review process for the ACP.

After DTI's request to initiate the pre-filing process for the was accepted by the FERC, DTI hosted two Open Houses for the SHP on January 26, 2015 in West Union, West Virginia and January 27, 2015 in Murrysville, Pennsylvania. The format of the events mirrored those of the ACP. The Open Houses were designed to provide landowners and the public with information about the SHP, including purpose and need, location of the proposed facilities, Federal and State/Commonwealth regulatory processes, environmental field surveys, and public and agency consultation processes. SHP team experts were available to respond to questions, review maps, and gather feedback from attendees. Representatives from the FERC also attended the Open Houses, and staffed an information area to gather input and respond to inquiries from attendees.

Atlantic and DTI used several vehicles to advertise the January 2015 Open Houses and invite stakeholders to attend. In November 2014, Atlantic and DTI sent pre-filing notification letters to approximately 4,500 ACP and 480 SHP stakeholders, including landowners, Federal and State/Commonwealth agencies, elected officials and their staffs, business and civic organizations, and tribal governments. The letters included "save the date" information for the January Open Houses. The letters were followed up with the first editions of the ACP and SHP newsletters in December 2014, which contained more detailed information regarding Open House dates, times, and locations. A reminder postcard was mailed in January 2015 so that all landowners and stakeholders were aware of the Open House dates.

Advertisements for the ACP Open Houses were published in 36 papers, including the County newspaper of record, local papers in the municipality where each Open House was held, and minority publications in each affected County. Advertisements for the SHP Open Houses were published in 14 local papers in the municipality where each Open House was held as well as regional papers, including the County newspaper of record and minority publications in each affected County. A radio ad ran on January 22 and 23, 2015 to highlight the dates, times and locations so that Open House information was publicized effectively in that area. The Open House schedule and invitations additionally were posted on the ACP and SHP websites and promoted via Facebook.

A table providing summary information on the number of attendees and key issues identified at each Open House is provided in Appendix 1J.

Supplemental Open Houses – Potential Route Alternatives

Atlantic hosted a number of supplemental Open Houses in Counties and Cities where major route alternatives were identified. The supplemental Open Houses were held on March 10, 19, and 23, 2015 in Lovingston, Virginia; Monterey, Virginia; and Elkins, West Virginia, respectively. The Open Houses were similar to the first two rounds of Open Houses, designed to provide the public with information regarding the purpose and need for the ACP, locations of ACP facilities, route alternatives being evaluated by Atlantic, Federal and State/Commonwealth regulatory processes, environmental field surveys, the ACP schedule, and public and agency consultation processes. ACP team experts were available to answer questions, review maps, and

gather feedback from attendees. Additionally, FERC staff participated in the meetings to gather input and respond to inquiries from attendees regarding the environmental review process for the ACP. Additional similar events may be scheduled, as needed.

As with the initial and pre-filing Open Houses, Atlantic used several vehicles to advertise the supplemental Open Houses and invite stakeholders to attend. On February 23 and 24, 2015, Atlantic sent notification letters, including a "save the date" announcement for the supplemental Open House in Lovingston, Virginia, to 479 landowners and 204 other stakeholders potentially affected by route alternatives in Augusta, Nelson and Buckingham Counties, Virginia. [16] A follow-up postcard containing Open House details was mailed to the same recipients on February 26, 2015. Additionally, the event was advertised in six local newspapers between February 26 and March 5, 2015 and promoted via the ACP website and Facebook page. Due to inclement weather, the Lovington supplemental Open House was rescheduled. Advertisements announcing the new date for the Open House were published in the six local newspapers and broadcast on local radio stations the same week.

On March 6, 2015, Atlantic sent postcards announcing the supplemental Open Houses in Monterey, Virginia and Elkins, West Virginia to 115 landowners and 185 other stakeholders potentially affected by route alternatives in Highland County, Virginia and Pocahontas and Randolph Counties, West Virginia. [17] Advertisements for both events were published in local newspapers and broadcast on local radio stations between March 12 and 19, 2015.

A table providing summary information on the number of attendees and key issues identified at each Open House is provided in Appendix 1J.

1.14.2 Brochures and Fact Sheets

Atlantic and DTI have produced several fact sheets to address key issues and questions regarding the ACP and SHP. These materials were distributed at the public Open Houses and posted on the ACP and SHP websites. Additionally, ACP and SHP team staff and land agents have copies of the fact sheets on hand for distribution at meetings with landowners and other stakeholders. Fact sheets produced to date for the Projects include:

- Project Overview;
- Pipeline Safety;
- Pipeline Construction;
- Compressor Stations;
- Timber;
- Agriculture; and
- FERC Pre-Filing Process.

[16] These include the Appalachian Trail South Major Route Alternative, the East of Lovingston Major Route Alternative, and the Wingina Route Variation, each of which are discussed in Resource 10.

[17] This includes the Monongahela National Forest Major Route Alternative 5, which is discussed in Resource Report 10.

1.14.3 Project Websites

The websites for the ACP (www.dom.com/ACpipeline) and SHP (www.dom.com/supplyheader) provide convenient locations for landowners, stakeholders, and the public to find information about the Projects. The websites contain Open House and Scoping Meeting information, Open House displays, fact sheets, overview and County/City maps, frequently asked questions, information on FERC filings, copies of draft resource reports, and information on the ACP and SHP schedules.

1.14.4 Newsletters and Other Mailings

In December 2014, Atlantic and DTI began distributing separate newsletters for the ACP and SHP, respectively. The newsletters have been and will continue to be mailed on a regular basis to affected landowners and others listed on the stakeholder mailing list, which includes elected officials; community leaders; NGOs; agricultural, business, and civic organizations; Tribal organizations; and other interested parties. Each edition of the newsletters serves as a conduit for Atlantic and DTI to provide stakeholders with ACP and SHP updates, address current issues, and identify key activities and upcoming events.

The first edition of the newsletters, which was mailed in December 2014, contained detailed information regarding the January 2015 Open Houses for the Projects. A second edition of the newsletter for the ACP was mailed to stakeholders in April 2015. It provided updates on the status of the ACP and summary information from the pre-filing and supplemental Open Houses and from the Commission's scoping meetings for the ACP. Copies of the newsletters are provided in Appendix 1K.

As noted above, Atlantic and DTI mailed pre-filing notification letters to landowners and stakeholders, DTI mailed an Open House reminder postcard to landowners and stakeholders, and both Atlantic and DTI have completed multiple mailings as new stakeholders have been identified due to route variations, returned mail, and elections. Atlantic and DTI will continue to provide information to stakeholders through mailings, as warranted.

1.14.5 Communications Portals

Atlantic has established multiple communications portals through which landowners, the public, and other stakeholders can ask questions and submit comments to the ACP team. These include the following:

- ACP website at: www.dom.com/ACpipeline;
- ACP on Facebook at: Atlantic Coast Pipeline;
- Landowner toll-free number: 888-895-8716;
- General inquiry toll-free number: 844-215-1819;
- Email: ACpipeline@dom.com; and
- U.S. Mail: 701 E. Cary St., Richmond, VA 23219.

DTI similarly has established multiple communications portals through which landowners, stakeholders, and the public can ask questions and submit comments to the SHP team. These include:

- SHP website at: www.dom.com/SupplyHeader;
- Landowner toll-free number: 888-895-8716;
- General inquiry toll-free number: 844-215-1819;
- Email: SupplyHeader@dom.com; and
- U.S. Mail: 701 E. Cary St., Richmond, VA 23219.

1.15 AFFECTED LANDOWNERS

Atlantic and DTI previously filed lists of the names and addresses of all affected landowners as specified in 18 CFR 157.6(d) as an attached exhibit to the pre-filing request letters for ACP and SHP on October 31, 2014. Atlantic and DTI will file updates to the landowner lists throughout the pre-filing process as warranted.

Atlantic and DTI have contacted each of the affected landowners on the landowner list to introduce the ACP and SHP, respectively. As required by 18 CFR 157.6(d), Atlantic and DTI will make a good faith effort to notify each affected landowner once the Commission issues Notices of Application for the Projects.

Atlantic and DTI will prepare and implement a landowner complaint resolution procedure for the ACP and SHP, respectively. Information on the procedure is provided in Resource Report 8.

1.16 CUMULATIVE IMPACTS

Atlantic and DTI have prepared a preliminary assessment of cumulative impacts for the Projects. This assessment is attached as Appendix 1L.

1.17 REFERENCES

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