

**ATLANTIC COAST PIPELINE, LLC
ATLANTIC COAST PIPELINE**

and

**DOMINION ENERGY TRANSMISSION, INC.
SUPPLY HEADER PROJECT**

**Supplemental Filing
May 26, 2017**

APPENDIX D

**Response to “A High Risk Proposal Drilling through the Blue
Ridge Mountains for the Atlantic Coast Pipeline”**

May 26, 2017

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

**Re: Atlantic Coast Pipeline, LLC & Dominion Transmission, Inc.
Atlantic Coast Pipeline & Supply Header Projects
Docket Nos. CP15-554-000, CP15-554-001, & CP15-555-000
Supplemental Information**

Dear Secretary Bose:

On September 18, 2015, Atlantic Coast Pipeline, LLC (Atlantic) and Dominion Energy Transmission, Inc.¹ (DETI or “Dominion Energy”) filed abbreviated applications (Applications), under the above referenced dockets CP15-554-000 and CP15-555-000, for the Atlantic Coast Pipeline (ACP) and Supply Header Project (SHP) pursuant to Section 7(c) of the Natural Gas Act, as amended, and Part 157 of the Rules and Regulations of the Federal Energy Regulatory Commission (Commission or FERC). Additionally, on March 14, 2016, Atlantic filed an Amendment to its pending Application, under the above referenced docket CP15-554-001.

Dominion Energy, on behalf of Atlantic and itself, hereby submits supplemental information. This submission consists of the following documents:

- Attachment 1 – Clarifications Regarding the Proposed Horizontal Directional Drill (HDD) under the Appalachian National Scenic Trail (ANST) and the Blue Ridge Parkway (BRP)
- Attachment 2 – Update on Ongoing Coordination Efforts with Virginia Department of Environmental Quality (VDEQ) re: the Atlantic Coast Pipeline (ACP) Construction Land Disturbance Application

If you have any questions, please contact me at 866-319-3382.

Respectfully submitted,

Angela M. Woolard

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Regulatory and Certificates Analyst III

cc: Mr. Kevin Bowman, FERC
Service List

encl(s)/

¹ On May 12, 2017, Dominion Transmission, Inc. changed its name to Dominion Energy Transmission, Inc.

Attachment 1

Clarifications Regarding the Proposed Horizontal Directional Drill (HDD) under the Appalachian National Scenic Trail (ANST) and the Blue Ridge Parkway (BRP)

General

On February 7, 2017, a document of comments titled “A High-Risk Proposal Drilling Through the Blue Ridge Mountains for the Atlantic Coast Pipeline” was filed on the docket (Accession No. 20170207-5072). The information provided in this attachment clarifies several misconceptions in the “High-Risk Proposal” comments about the HDD under the ANST and the BRP.

Atlantic and Dominion Energy would like to note that the U.S. Forest Service (USFS) filed a letter dated April 4, 2017, in which they stated that the both the proposed horizontal directional drill (HDD) and direct pipe installation (DPI) contingency are feasible at the proposed Appalachian National Scenic Trail (ANST) and Blue Ridge Parkway (BRP) crossing location and that they have no further questions or requests for information regarding the crossing methods (Accession No. 20170406-5065). This conclusion was reached based on the review completed by the USFS, and their third party technical consultant, of the design report and other information submitted by Atlantic and Dominion Energy to support the proposed crossing methods.

Atlantic and Dominion Energy have conducted extensive analyses of the slopes and geotechnical hazards along the alignment. The results of these analyses are presented in the Geohazard Analysis Program report submitted August 2, 2016 (Accession No. 20160802-5107). A revision of this report has been provided in the May 12, 2017 supplemental filing (Accession No. 20170512-5163).

Atlantic and Dominion Energy have been promptly responsive to FERC Data Requests and have consistently provided geohazard analysis information as it is generated and/or updated, as referenced above. Atlantic and Dominion Energy have also been working closely with the Department of Interior and the National Park Service to ensure their requirements and considerations are included in the development and ultimate completion of this effort.

Comment 1 from “High-Risk Proposal”: The accepted safe bending radius for 42-inch steel pipe is 4,200 feet.

Response: The bending radius being referred to is not an engineering requirement but is simply a rule of thumb to estimate the bend of the pipe within the drill path of the HDD, which can be estimated by generally allowing for 100 feet of bend radius for every inch of pipe diameter. For example, using this rule of thumb, 16-inch pipe would have an installed bend radius of 1,600 feet and 42-inch pipe would have an installed bend radius of 4,200 feet. This can be used as guidance to determine a design radius for an installed crossing, but is not an engineering requirement. Even when subjected to specific loading scenarios during the HDD installation process and subsequent operation of the pipeline, the allowable radius for 42-inch steel pipe installed can be significantly less than 4,200 feet without exceeding allowable engineering limits during either installation or operation. Fully consistent with engineering requirements, a minimum allowable radius of 2,800 feet is specified on the HDD design drawing for the ANST/BRP crossing.

Comment 2 from "High-Risk Proposal": The industry standard pipe bending radius will require the prefabricated pipe (drill string) to be suspended up to 200 feet high during installation, which will complicate construction.

Response: With regard to handling of the prefabricated pull section of pipe as it is aligned with, and fed into, the reamed hole, the primary concern is that the pipe could buckle if there is excessive bending. To guard against excessive bending, a practical engineering method is to limit bending stress during pipe handling operations to no more than 75 percent of the pipe's specified minimum yield strength (SMYS). Based on ACP's pipe specification, the 75 percent of SMYS threshold corresponds to a radius of 967 feet; radii of 1,500 and 2,000 feet would correspond to 48 and 36 percent of the ACP pipe's SMYS, respectively. These radii are reasonable, and result in lifting heights and suspension distances that are substantially lower than 200 feet.

Comment 3 from "High-Risk Proposal": Proposed HDD crossing of the Blue Ridge Parkway involves an unacceptable risk of failure due to the need for a tie-in weld during pullback.

Response: Tie-in welds during HDD pullback operations are common and rarely result in stuck pipe. The risk of the pipe becoming stuck during an extended stoppage is greatest in unconsolidated soft soils that cannot support an open hole indefinitely. However, at the ANST/BRP crossing, it is proposed that large diameter surface casings will be set to competent rock on both ends of the crossing, preventing the unconsolidated overburden soils from tightening around the pipe during stoppages. In between the two casings, the crossing will be placed through bedrock which is expected to remain open well beyond the completion of pullback operations. Therefore, the risk of the pipe becoming stuck during a tie-in weld on the HDD crossing of the ANST/BRP is minimal.

Comment 4 from "High-Risk Proposal": The number of borings and geophysics coverage of the crossing were insufficient.

Response: A total of one to four borings are typically drilled to delineate a crossing, with the number dictated by access and landowner permission constraints. These geotechnical borings may be followed up with a geophysical investigation. Due to the depth of the crossing, less than 25 percent of the drill path was within the feasible limits of a geophysical investigation.

While the borings were offset from the HDD endpoints and lower in elevation, these borings are still deemed representative of the geologic formations that the HDD will be constructed through. Due to the widely known properties of the Catoctin and Pedlar formations, additional boring would generally be expected to substantiate the information already gathered.

The purpose of the geophysical study was to investigate the conditions of the entry/exit points. This study provided information to adequately address improvements that may need to be made at the endpoints. Due to the crossing depths under the mountain, further geophysical studies are not practical or warranted.

Comment 5 from "High-Risk Proposal": The bedrock is not solid.

Response: The two borings most representative of the conditions of the crossing indicate a layer of unconsolidated alluvium underlain by solid bedrock.

Comment 6 from "High-Risk Proposal": There are limitations of the geophysical study.

Response: It is standard practice for geophysical survey companies to state in their reports that this kind of work inherently contains certain limitations, unless they can be directly correlated with actual subsurface exploration data. The stated limitations do not invalidate the information provided. The intent of the geophysical survey was fully accomplished, because the purpose of the study was to investigate the conditions at the endpoints.

Comment 7 from "High-Risk Proposal": In stream blasting will be required to cross the South Fork of the Rockfish River.

Response: The "A High Risk Proposal" comments say that in-stream blasting will be required for crossing seven streams, including the South Fork of Rockfish River. However, it has not yet been determined whether blasting will be necessary in this waterbody.

Comment 8 from "High-Risk Proposal": The Forest Service has repeatedly requested information about the ACP that Dominion has persistently failed to provide.

Response: Atlantic has been in continued consultation with the USFS and has provided information requested by the USFS, including demonstrations of the effectiveness of construction and operation methods on steep slopes, in a timely manner, and as such information has become available. For example, in a filing on March 24, 2017 Atlantic provided revised site specific designs at the two locations identified by the USFS to illustrate the slope stabilization methods as well as erosion and sediment control methods to be implemented (Accession No. 20170324-5283). Most recently, Atlantic provided additional information requested by the USFS regarding steep slopes in a letter dated May 19, 2017 (Accession No. 20170522-5016).

Comment 9 from "High-Risk Proposal": Dominion has not completed the related field surveys, geotechnical studies, and geohazard analyses.

Response: Atlantic has conducted extensive analyses of the slopes and geotechnical hazards along the alignment. The results of these analyses are presented in the Geohazard Analysis Program report filed August 2, 2016 (Accession No. 20160802-5107). A revision of this report was filed on May 12, 2017 (Accession No. 20170512-5163).

Field surveys have been completed where Atlantic has been granted access by landowners. Remaining field surveys will take place when access is granted. The geohazard analysis program evaluated the ANST/BRP HDD entry and exit locations as well as the alignment segments leading up to and away from these locations. The alignment segments leading up to and away from these locations did not require site-specific design because their slopes are less than 30%. Industry-standard construction techniques and erosion and sediment control measures will be implemented.

Dominion Energy has constructed over 3,000 miles of gas pipeline in the central Appalachian region and is experienced with the geohazard and hydrologic conditions associated with pipeline construction in the region. The Geohazard Analysis Program has evaluated these in detail and addressed the hazards appropriately.

Figure 13 in the "High-Risk Proposal" comments illustrates slope inclination of the alignment as well as access roads. The access roads that have been identified in this area are existing roads. The slope gradients and road alignments are pre-existing and will not be modified by Atlantic. The statement from

the *Bureau of Land Management Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development* referenced in the comments refers to new roads.

Comment 10 from "High-Risk Proposal": Dominion proposed a "Best in Class Program" that defers critical data gathering, analysis, and planning until after environmental review and permitting.

Response: Atlantic has not deferred any critical data gathering, analysis, or planning. Atlantic has conducted detailed analyses of the geotechnical and hydrological hazards. Field surveys have been performed for those areas where landowners have permitted access. The remaining small percentage of field studies will be conducted when access to the individual parcels has been granted. Both the geohazard analysis program and the best-in-class program have been developed and refined using extensive data and analyses gathered over two years.

Comment 11 from "High-Risk Proposal": One of the high-hazard areas selected for site-specific analysis is in the GWNF on the western slope of the Blue Ridge near ACP mile post 155, about two miles north of the pullback workspace for the proposed HDD (see Figure 16). Similar high-hazard conditions are present in the proposed HDD area. Based on geologic and topographic factors associated with slope failures in the region, the geohazard risks may be even more extreme in the HDD operations area.

Response: The USFS identified ten locations from which two were selected for development of representative site specific designs. GWNF Site 6 was evaluated because it had slopes greater than 40%. As noted in the USFS letter dated October 24, 2016 (Accession No. 20161024-5105) this site was evaluated in order to include a site near the Blue Ridge Mountains. This location is over two miles from the ANST/BRP HDD exit location. Similar hazard conditions for this location are not present at the ANST/BRP HDD site. It is not accurate to equate the geohazards at the GWNF Site 6 location to those at the ANST/BRP HDD entry or exit locations.

Attachment 2

Update on Ongoing Coordination Efforts with Virginia Department of Environmental Quality (VDEQ) re: the Atlantic Coast Pipeline (ACP) Construction Land Disturbance Application

On February 7, 2017, a document of comments titled “A High-Risk Proposal Drilling Through the Blue Ridge Mountains for the Atlantic Coast Pipeline” was filed on the docket (Accession No. 20170207-5072). The comments include concerns about Virginia Department of Environmental Quality (VDEQ) oversight of pipeline projects. The information provided in this attachment provides an update on the ongoing coordination efforts with VDEQ to ensure the ACP construction land disturbance application is prepared in accordance with applicable existing laws and regulations.

Atlantic and Dominion Energy are proactively working with VDEQ as the Erosion & Sediment Control (E&SC) plans and the Stormwater Pollution Prevention Plan (SWPPP) are being prepared. These plans are being submitted to VDEQ in June 2017 as part of the land disturbance application for stormwater discharges associated with land clearing activities, which are proposed to begin in late 2017. These plans capture all land disturbance activities associated with ACP, including the pipeline right-of-way, access roads, contractor yards, and the HDDs.

VDEQ is expected to review this application for conformance and compliance with existing state laws and regulations.

Typically, pipeline construction E&SC plans and SWPPPs are not provided for public review. However, VDEQ will make the ACP construction stormwater application available electronically for local county and public review. In addition, VDEQ will accept county and local comments for consideration. VDEQ is coordinating with affected localities regarding this upcoming review, which is anticipated to occur this summer.

In addition, it is anticipated that VDEQ will contract for third party inspections and monitoring to be conducted during and after ACP construction, with the objective of monitoring VDEQ permit compliance. These inspections and monitoring would be in addition to the third party inspections and monitoring that will be conducted by FERC.

Atlantic expects to request a variance from the open-trench requirement of 500 contiguous feet as part of the June 2017 land disturbance application. The control, treatment, and discharge of collected stormwater will be conducted in a manner consistent with the regulations to achieve water quality standards.