Dominion Pipeline Monitoring Coalition: Rick Webb, 6/3/17

LITTLE VALLEY: High-Hazard Pipeline Construction

Figure 1 – Little Valley, Bath County, Virginia *(aerial view looking southward)*.

Little Valley is in the path of the proposed Atlantic Coast Pipeline.[1] Examination of regulatory documents and available project plans for construction of the pipeline corridor and access roads in the Little Valley area reveals a general failure of the review process conducted by the Federal Energy Regulatory Commission and raises concerns about the pending review by the Virginia Department of Environmental Quality.

The Little Valley situation provides a case study for the threat of water resource harm posed by pipeline construction across the steep mountains and karst valleys of the central Appalachian region. It highlights the significant risk posed by Dominion's persistent failure to conduct critical studies to assess environmental hazards and to provide the detailed project plans needed for informed agency and public review of the project.

- Little Valley is in the Jackson River watershed. The proposed ACP would cross Back Creek Mountain and the Jackson River Valley from the west (in the background of **Figures 1 and 2)**, ascend Little Mountain (3,100 feet), follow the ridgeline southward for three-quarters of a mile, descend to Little Valley Run, a native trout stream, and ascend Jack Mountain (3,600 feet). Extensive access road construction will also be required in this area.

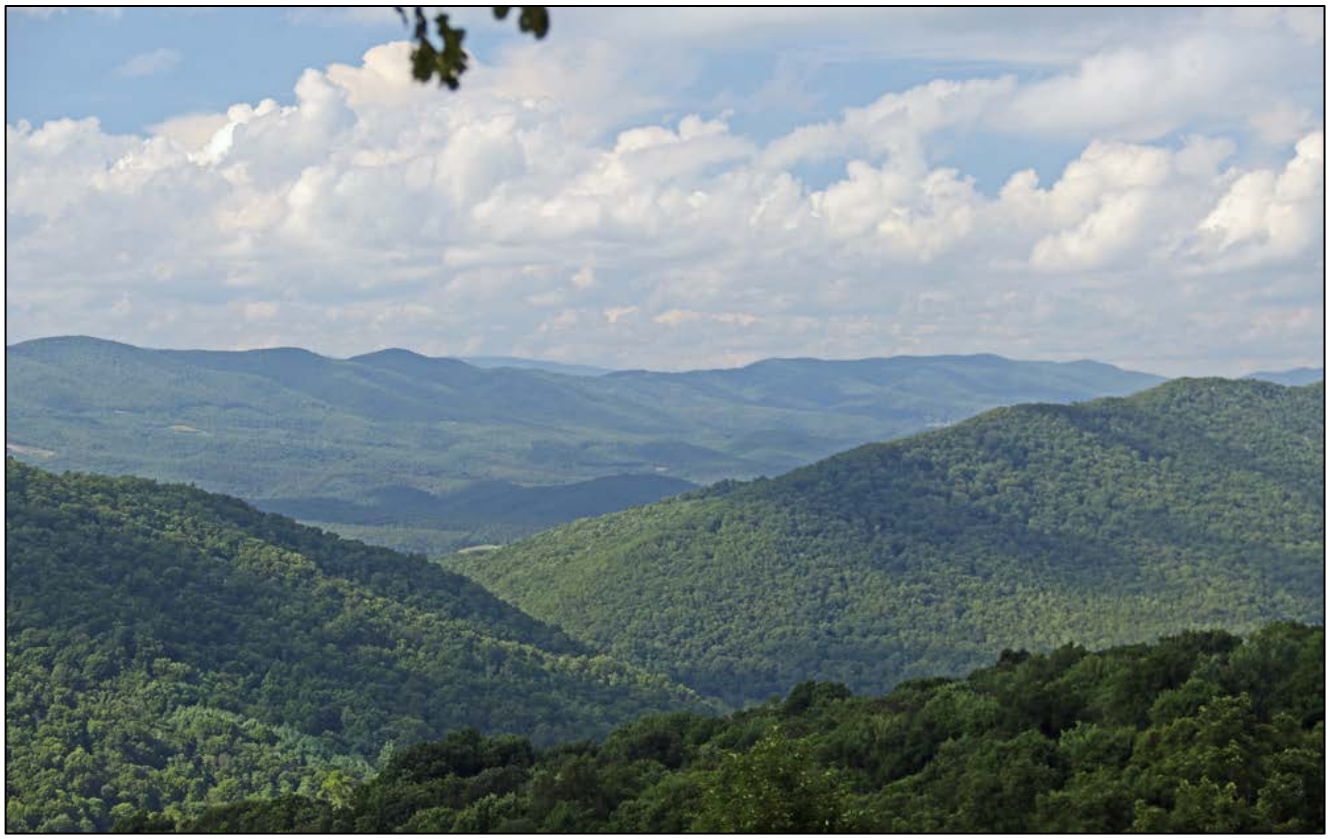

Figure 2 – Little Valley, Bath County, Virginia *(looking northward from Jack Mountain)*.

- The Little Valley area, like much of the proposed ACP route through the mountains, presents extreme challenges for pipeline construction due to steep slopes, high-excavation requirements, erodible and slip-prone soil cover, and interconnected karst ground water systems.
- FERC issued a Draft Environmental Impact Statement for the ACP in December 2016.[2] The DEIS did not include site-specific plans for erosion and sediment control, stormwater management, steep-slope stabilization, stream-crossings, or ground water recharge-area protection. FERC did not meet its obligations under the National Environmental Policy Act to substantively address environmental issues associated with the proposed project and to provide an opportunity for informed public and agency review and comment.
- VADEQ announced in April 2017 that it would conduct a stream-by-stream review prior to issuing a Water Quality Certification for the ACP.[3] We now know that the VADEQ instead plans to narrowly limit its review to aspects of the project that are not covered by U.S. Army Corps of Engineers permitting for stream and wetlands crossings.[4] The USACE will probably authorize the project under a general blanket permit without actual analysis of individual stream crossings or the cumulative effects of multiple stream crossings. To date, it seems that neither the VADEQ nor the USACE have received complete applications from Dominion, and it has not been confirmed that Dominion will be required to submit site-specific construction and environmental mitigation plans with the level of detail needed for meaningful review by the regulatory agencies and the public.

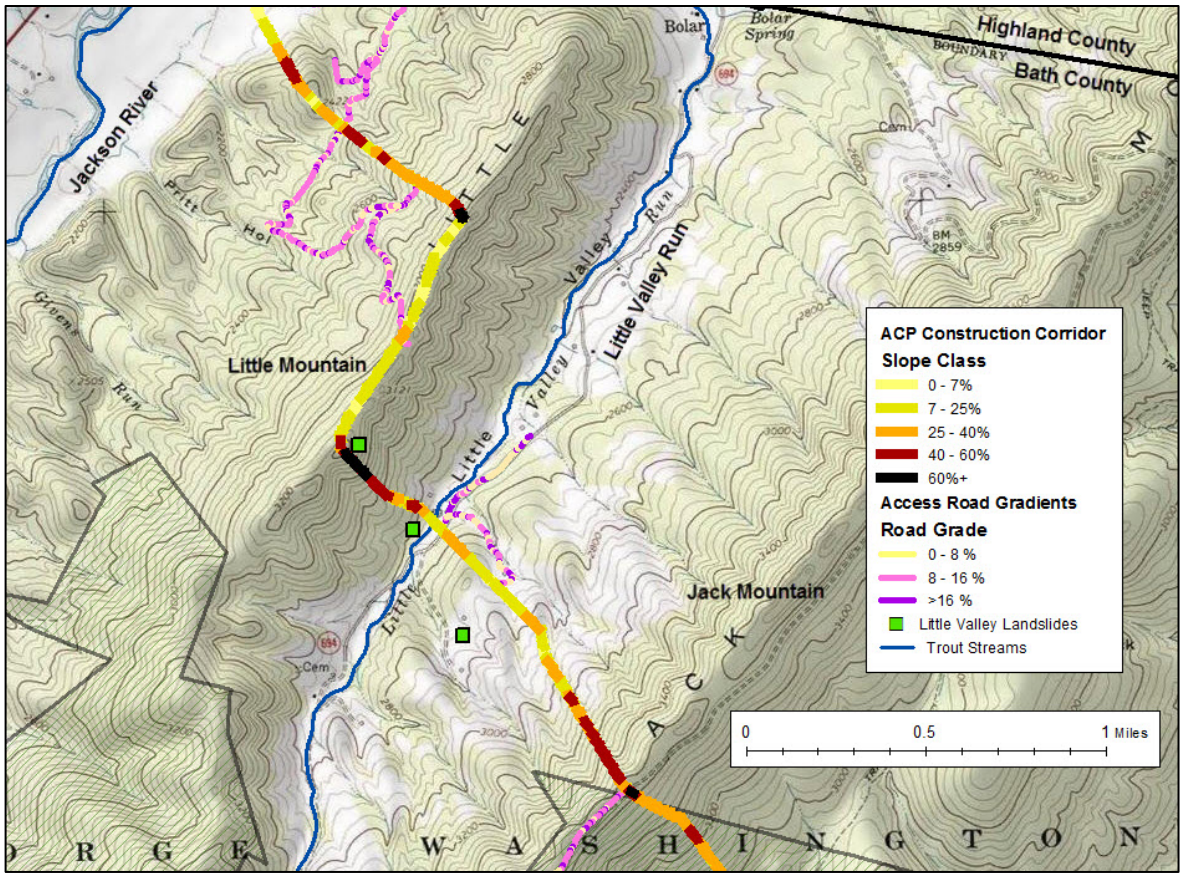

Figure 3 – Proposed pipeline-related construction in the Little Valley area (steepness).[5]

- Steep slopes in pipeline corridor and access road construction areas will contribute to water resource harm associated with erosion and sedimentation, alteration of runoff characteristics, and slope instability. By any standard, pipeline and access road construction in the Little Valley area will occur on steep slopes.

  Figure 3 shows the location and steepness of the proposed ACP corridor and access roads in the Little Valley area. The slope classes for the construction corridor are based on spacing criteria for construction area runoff diversions in Virginia, with the greater than 60% class added as an extreme class.[6] The slope classes for access roads are based on federal land management guidance, which specifies that the gradient of roads associated with gas development in mountainous terrain should generally not exceed 8 percent, although grades up to 16 percent may be permissible with approval of the surface management agency.[7]

  Dominion has prepared geologic hazard maps for the proposed construction corridor that identify slopes of 30-40% as moderately steep, slopes greater than 40% as very steep, and slopes greater than 58% as extremely steep.[8]

- **Figure 3** also indicates the locations of recent landslide areas adjacent to the proposed pipeline right-of-way. **Figures 4 and 5** show two of these landslide areas. These areas were identified by local citizens and documented in reports submitted to FERC.[9] They are not depicted in Dominion's geologic hazard maps.

Figure 4

400-foot landslide on a 62% slope near the top of Little Mountain below the proposed ACP corridor.

Figure 5

Slide along the west bank of Little Valley Run adjacent to the proposed ACP corridor.

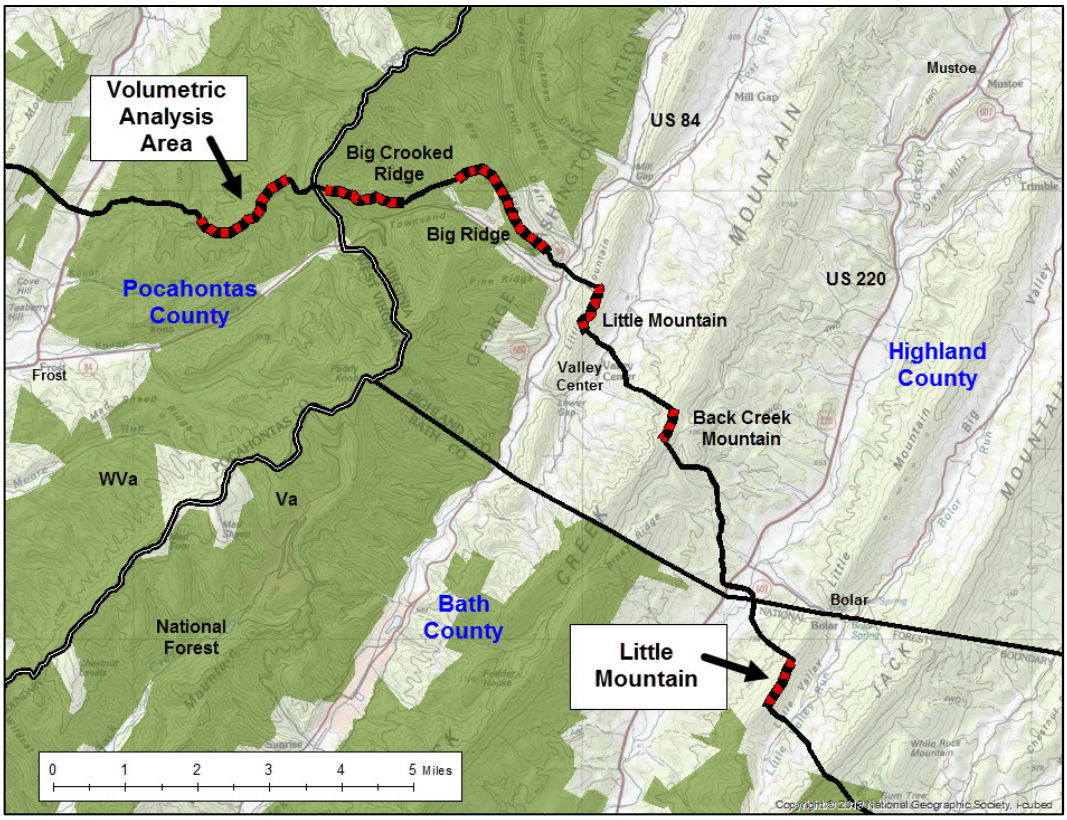

Figure 6 – Ridgeline excavation areas (*red and black segments*) along the ACP route.

Figure 6 indicates the segments of the proposed ACP in the western Virginia and eastern West Virginia area, including Little Mountain, where ridgeline removal will be required for the 125-foot-wide construction corridor and 75-foot-wide permanent right-of-way.

Dominion officials have asserted that ridgeline removal will not be required, that "*the contours of the ridgelines will remain exactly as they always have been,*" and that any excess material will be limited to what is displaced by the volume of the pipe itself.[10]

This is contradicted by multiple descriptions of the project, including in documents provided with Dominion's recent application to the West Virginia Department of Environmental Protection for a Water Quality Certification, in which schematics depict a 125-foot or wider construction corridor. As described in the application, "*The surface of ridgelines may need to be temporarily lowered to create a level construction ROW. Excavation of the trench will begin from the leveled work area.*" The application further indicates that the pipeline trench itself will be 30-feet wide, and that a permanent 75-foot-wide right-of-way is required.[11]

A volumetric analysis of potential excavation in a two-mile ridgeline section of the corridor in eastern West Virginia (see **Figure 6**) indicates that 135,000 cubic yards of excess or spoil material will be created —taking into account both restoration to approximate original contour and expansion of excavated material.[12] Dominion has not acknowledged that ridgeline excavation will create excess spoil, and it has not provided plans for its disposal.

- **Figures 7 and 8** show the narrow and rocky ridgeline along the proposed pipeline corridor on Little Mountain. Pipeline construction and maintenance of a permanent right-of-way is not possible on this mountain without substantial excavation and permanent ridgeline reduction.

Figure 7

Location of the proposed pipeline corridor along the narrow crest of Little Mountain.

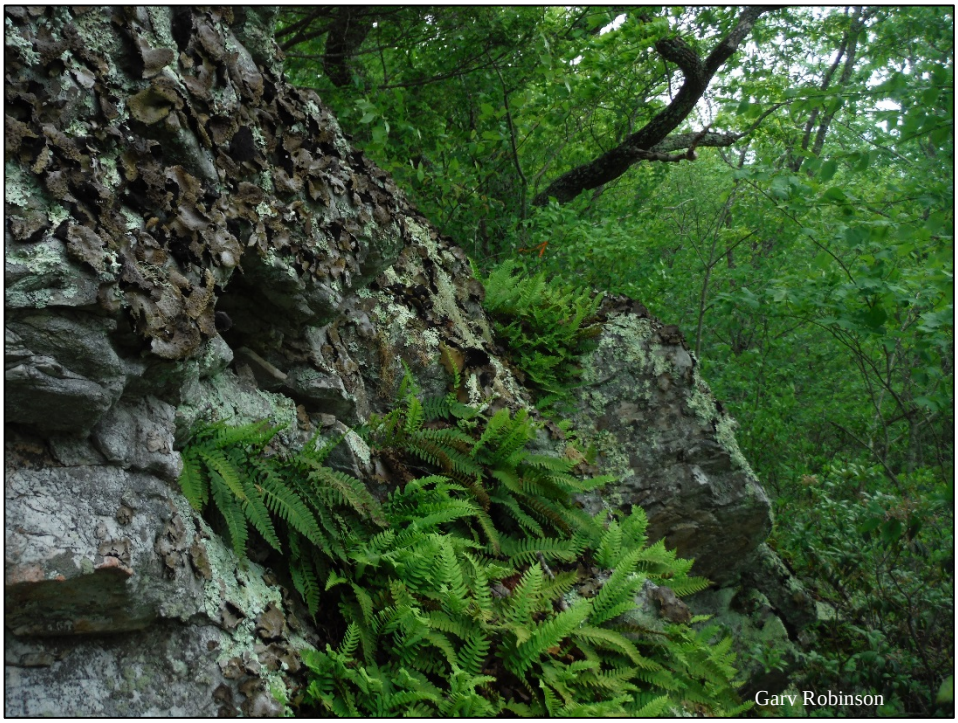

Figure 8

Little Mountain, like most ridgelines in the pipeline path, is capped by hard rock with little soil cover.

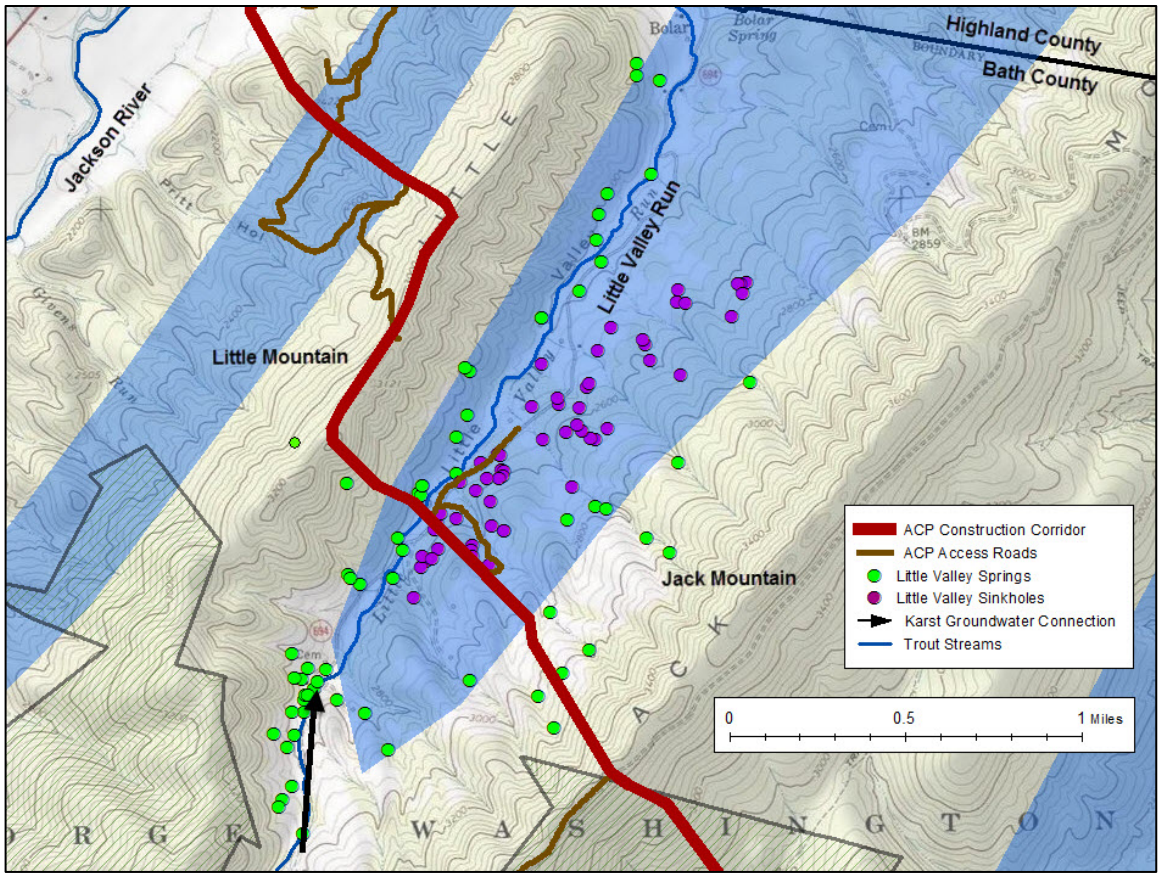

Figure 9 – Distribution of identified karst features in Little Valley.

- The presence of karst greatly increases the risk of long-term water resource harm resulting from construction of the ACP across the mountains and valleys of western Virginia and eastern West Virginia. In much of this area, surface water drainage from the ridges sinks into the karst groundwater system via sinking streams and sinkholes on the lower slopes and in the valleys. Contaminated and sediment-laden water can travel for miles through the interconnected karst systems, damaging wells, springs, and aquatic ecosystems.

- **Figure 9** shows the location of springs and sinkholes in Little Valley. These karst features were identified by local citizens and documented in a report submitted to FERC.[13] Sinking streams have also been identified adjacent to the pipeline route. Most of this information is not included in Dominion reports.

- **Figure 9** also shows the location of the only dye tracing that has been conducted to study the connectivity of karst groundwater in Little Valley.[14] The Virginia Natural Heritage Program and others have recommended that Dominion conduct dye-tracing studies in karst areas along the proposed ACP route in order to delineate contributing areas for karst waters potentially impacted by pipeline construction and to identify at-risk springs and other potentially impacted karst features.[15] Information obtained through these studies must be provided for use in review of Dominion's Water Quality Certification application.[16]

ADDITIONAL WATER RESOURCE PROBLEMS

In addition to the overriding concern that Dominion has failed to provide detailed and site-specific plans for erosion and runoff control, steep-slope stabilization, and avoidance of karst-system hydrologic impacts, a number of specific issues raise significant concerns:

- Dominion contends that it is not required to develop Stormwater Management Plans because the ACP project will simply create "open space" and not alter the long-term runoff properties of construction areas.[17] It remains to be seen if the VADEQ will accept this argument or if it will require Stormwater Management Plans, as is required for all significant construction projects in Virginia.

- Dominion has proposed the application of standard control measures or Best Management Practices for erosion and runoff control and slope stabilization without documenting the effectiveness of these measures for large-scale construction across the central Appalachian Mountain region.

- Dominion has not provided site-specific erosion and sediment control, stormwater management, and steep-slope stabilization plans for the extensive network of access roads and additional temporary workspaces required for the ACP.

- Dominion has not collected nor provided public access to the biological, habitat, and hydrologic data that are necessary to establish the current status of streams that would be affected by ACP construction and to support a determination of risk to the ecological functioning of these streams.

- Dominion intends to request a variance to the Virginia Erosion and Control standard that limits the length of open-trench during pipeline construction to 500 feet.[18] The VADEQ has previously approved such variance requests without performing analysis to ensure that approval would not result in water quality degradation. The open-trench limit is a critical requirement for large pipelines on steep mountainsides where an open-trench would channel stormwater downslope and preclude proper placement of required control structures that intercept and divert runoff.[19]

- Dominion has previously indicated that it would seek a waiver to the time-of-year restriction on construction activities that may affect brook trout habitat. These restrictions apply to the cold-season months and are designed to protect trout populations from siltation during the early-life-stage period. Dominion now indicates that it will comply with the restriction where practicable but may request waivers as warranted.[20] Given plans for wintertime construction, it seems inevitable that waivers will be sought and brook trout populations in streams such as Little Valley Run will be at risk. In many cases, stream crossings will involve in-stream blasting.

END NOTES

[1] Atlantic Coast Pipeline, LLC, formed by four companies, Dominion Energy, Duke Energy, Piedmont Natural Gas, and Southern Company Gas, is herein referenced as "Dominion."

[2] Atlantic Coast Pipeline and Supply Header Project, Draft Environmental Impact Statement, 12/30/16.

[3] DEQ will require additional individual 401 certifications for natural gas pipeline projects, VADEQ News Release, April 6, 2017; DEQ to require pipeline projects to secure state water quality certification, Roanoke Times, April 6, 2017.

[4] DEQ Intentions for Regulatory Reviews of Atlantic Coast Pipeline and Mountain Valley Pipeline, DPMC letter to Virginia Governor Terry McAuliffe, May 24, 2017.

[5] ACP construction corridor and access road locations based on Dominion supplemental submission to FERC, May 26, 2017.

[6] Virginia Erosion and Sediment Control Handbook, 1992. The required spacing of water interceptor diversions is based on percent slope of the construction area, as follows:

SLOPE	REQUIRED SPACING
7 – 25%	75 feet
25 – 40%	50 feet
>40%	25 feet

[7] Surface Operating Standards and Guideline for Oil and Gas Exploration and Development, Bureau of Land Management and U.S. Forest Service, 2007.

[8] Atlantic Coast Pipeline and Supply Header Project Geohazard Analysis Program - Phase 2 Addendum, April 24, 2017.

[9] The Proposed Atlantic Pipeline Route through Little Valley in Bath County, Virginia: An Assessment of Landslide Risk and Slope Stability Factors, Malcolm Cameron, December 18, 2016.

[10] Dominion Vice President, Leslie Hartz, quoted in Dominion touts Atlantic Coast Pipeline, Mountain Construction Concerns Opponents, News Advance, April 27, 2017; Dominion spokesperson, Aaron Ruby, quoted in Dominion, Environmentalist Spar over Mountaintop Removal Claims, WAJR, April 29, 2017.

[11] Dominion Transmission, Inc., Stormwater Pollution Prevention Plan: Atlantic Coast Pipeline, Harrison, Lewis, Upshur, Randolph, and Pocahontas Counties, West Virginia, March 2017.

[12] Atlantic Coast Pipeline and Supply Header Project Volumetric Analysis, prepared by RESPEC, a geoscience consulting firm, for Appalachian Mountain Advocates. Submitted to FERC on April 6, 2017.

[13] Submittal to FERC by Jeannette B. Robinson, September 12, 2016.

[14] Hydrogeological Setting of Little Valley at Bolar, Bath County, Virginia. Prepared by Bill Jones, Environmental Data, April 11, 2016. Submitted to FERC by Jeannette B. Robinson, September 12, 2016.

[15] Virginia Department of Conservation and Recreation, Natural Heritage Program, Atlantic Coast Pipeline Draft EIS review comments, March 31, 2017. Submitted to FERC by VADEQ, April 6, 2017.

[16] The necessity for inclusion of completed karst-system hydrologic studies in Dominion's application for Water Quality Certification is described in a May 15, 2017 letter submitted by DPMC to VADEQ. Deferred submission of these studies would preclude informed VADEQ and public review of the proposed ACP project.

[17] 2017 Annual Standards and Specifications for Erosion and Sediment Control and Stormwater Management for Construction and Maintenance of Pipeline Projects in Virginia, Dominion Transmission, Inc., February 2017.

[18] Resource Report 1, General Project Description, Permit Table for Atlantic Coast Pipeline, Table 1.12-1, submitted to FERC by Dominion, September 2015.

[19] The required spacing of right-of-way or runoff diversions is based on slope, with closer spacing required on steeper slopes. These diversions, which must be constructed completely across the disturbed part of the right-of-way, are intended to prevent downslope runoff, erosion, and offsite transport of sediment. They cannot be constructed across an open trench. See End Note 4 above and Virginia Erosion and Sediment Control Handbook, 1992.

[20] Atlantic Coast Pipeline and Supply Header Project, Draft Environmental Impact Statement, 12/30/16.