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COMMONWEALTH of VIRGINIA
DEPARTMENT OF CONSERVATION AND RECREATION

August 21, 2017

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

Re: Docket CP15-554-000, Atlantic Coast Pipeline Final EIS

Dear Ms. Bose:

The Department of Conservation and Recreation's Division of Natural Heritage's (DCR-DNH) mission is conserving Virginia's biodiversity through inventory, protection, and stewardship. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

DCR-DNH previously provided comments on the Atlantic Coast Pipeline (ACP) Project under FERC Docket PF15-6-000 on June 5, 2015 (Accession number 20150605-5037) and September 4, 2015 (Accession number 20150904-5192); and under FERC Docket CP15-554-000 on October 9, 2015 (Accession number 20151009-5088), December 15, 2015 (Accession number 20151215-5207), June 9, 2016 (Accession number 20160609-5237), July 27, 2016 (Accession number 20160727-5064), January 30, 2017 (Accession number 20170130-5221), and as part of the Commonwealth of Virginia comments on the draft EIS filed on April 6, 2017 (Accession number 20170406-5489).

DCR-DNH offers the following supplemental information and comments on the ACP Final Environmental Impact Statement (FEIS), associated documents and the pipeline footprint (Rev 11c alignment). DCR-DNH considers the pipeline footprint to include the construction right-of-way, access roads, and associated infrastructure. Comments from the Federal Energy Regulatory Commission (FERC) and/or ACP, LLC appear below in italics and are underlined.

I. Supplemental Information- New DCR-DNH Conservation Sites

DCR-DNH continues to recommend the avoidance of all conservation sites intersected by the pipeline footprint.

Since our draft EIS previous comments filed on April 6, 2017 for Rev 10a alignment, three new Stream Conservation Units (SCUs) and one new conservation site have been added to the Biotics database which intersect the ACP Rev 11c footprint (Table 1).

Table 1-New Conservation Sites Intersected by the ACP Footprint

Stream Conservation Unit (SCU) and Conservation Sites	Biodiversity Rank	Natural Heritage Resource	Global/State Ranking
Spruce Creek SCU ¹	B3-High	Aquatic Natural Community (NB-Middle James-Buffalo Second Order Stream)	G2G3/S2S3/NL/NL
Matthews Creek SCU ¹	B4-Moderate	Aquatic Natural Community (SP-Middle James-Buffalo Third Order Stream)	G3/S3/NL/NL
Kingsale Swamp SCU ¹	B3-High	Aquatic Natural Community (SC-Blackwater Second Order Stream)	G2?/S2?/NL/NL
Duncan Knob Access Road Conservation Site ²	B2-Very High	Rusty-patched bumblebee (<i>Bombus affinis</i>)	G1/S1/LE/NL

1- SCUs identify stream reaches that contain aquatic natural heritage resources, including 2 miles upstream and 1 mile downstream of documented occurrences, and all tributaries within this reach.

2- Conservation sites are tools for representing key areas of the landscape that warrant further review for possible conservation action because of the natural heritage resources and habitat they support. Conservation sites are polygons built around one or more rare plant, animal, or natural community designed to include the element and, where possible, its associated habitat, and buffer or other adjacent land thought necessary for the element’s conservation.

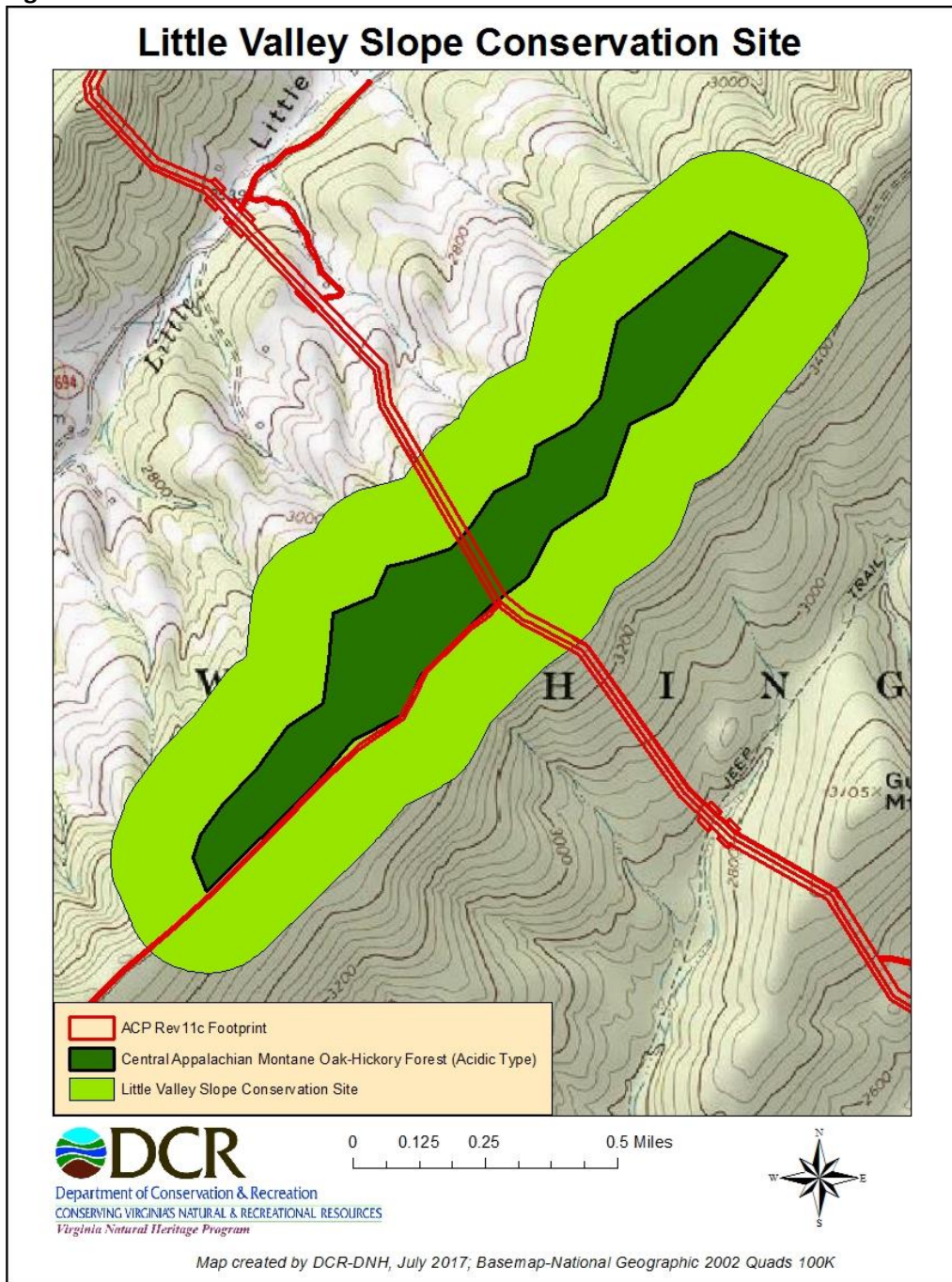
In addition, on June 7, 2017 an inventory was conducted by DCR-DNH staff of two properties in Bath County, and the Little Valley Slope Conservation Site was developed for a significant community (Figure 1). The Little Valley Slope Conservation Site has been given a biodiversity significance ranking of B2, which represents a site of very high significance. The natural heritage resource of concern at this site is:

Significant Natural Community G3G4/S3S4/NL/NL
 Central Appalachian Montane Oak-Hickory Forest (Acidic Type)

This community ranges from the southern part of the Central Appalachians, on the northern Virginia Blue Ridge and higher ridges of the Ridge and Valley in western Virginia and adjacent West Virginia. Throughout its range, this association usually occupies middle to upper slopes and narrow ridge crests underlain by various sedimentary and metamorphic rocks, including sandstone, quartzite, siltstone, metasiltstone, phyllite, acidic shale, and rarely amphibolite. Among 53 Virginia plot samples, elevation ranges from 550-1270 m (2000-4160 feet), but the type is most common between 760 and 1100 m (2500-3600 feet). The moisture potential of plot-sampling sites was assessed as submesic or subxeric. Slopes vary from steep to sublevel, with aspects ranging from northeast to west. This association has an open, mixed canopy dominated by several oaks and hickories. Trees tend to be slightly stunted (often <20 m tall) on the drier and more exposed sites. Northern red oak (*Quercus rubra*), Chestnut oak (*Quercus prinus*), and Red hickory (*Carya ovalis*) are the most abundant canopy species, but White oak (*Quercus alba*) is a constant minor associate that becomes more abundant and replaces *Quercus prinus* at the highest elevations. The subcanopy tends to be strongly dominated by Red hickory (*Carya ovalis*). Lower understory layers tend to be open or sparse with scattered Hop hornbeam (*Ostrya virginiana*), Big-fruited hawthorn (*Crataegus macrosperma*), Downy serviceberry (*Amelanchier arborea*), Striped maple (*Acer pensylvanicum*), and tree saplings. *Vaccinium stamineum*, *Vaccinium pallidum*,

Rosa carolina, and *Spiraea betulifolia* var. *corymbosa* commonly form a patchy low-shrub layer. The herb layer is open but moderately diverse with drought-tolerant graminoids and forbs (NatureServe 2017).

Figure 1.



Karst inventory of the Bath County properties on June 7, 2017 revealed the presence of numerous small karst features, as well as bedrock capable of supporting such features. The karst features observed were small in scale and did not appear to penetrate to significant depth. No caves are documented in the project vicinity in

Little Valley, and the presence of undocumented caves is unlikely based on the geologic structure and bedrock stratigraphy. The sinkholes observed were broad and in many cases ambiguous in origin with none exposing bedrock. Bedrock is exposed intermittently along lateral drainages on the northwest slope of Jack Mountain. The sinking streams observed appear to be associated with either thin limestone layers or coarse colluvial (talus, et cetera) deposits. Location of stream sinks and seasonal springs clearly varies with flow and recent precipitation history, making the system difficult to characterize in detail.

The construction of the Atlantic Coast Pipeline has the potential to locally impact these small karst systems including the numerous springs in the area, many of which are used for agricultural and/or domestic water supply purposes. Therefore, DCR-DNH recommends protection of the lateral drainages on the northwest side of Jack Mountain from contamination and sediment discharge from the pipeline limits of disturbance (LOD) to protect small springs in the area. These springs all discharge to Little Valley Run.

Contaminants associated with land disturbance along the Dominion ACP corridor could impact the major springs at Bolar, because Little Valley Run itself most likely loses water to the major limestone units upon passing the contact with the shales east and downstream of the pipeline crossing. These major limestone units host the aquifer connected to the springs at Bolar. Should the pipeline route through Little Valley be approved, protection of water quality in Little Valley Run should be of primary importance, and the potential connection between Little Valley Run and the springs at Bolar should be tested using dye tracing methods.

Furthermore, according to the information currently in our files the Wilson Mountain North Conservation Site is located within the Rev 11c pipeline footprint (access road). The Wilson Mountain North Conservation Site has been given a biodiversity significance ranking of B2, which represents a site of very high significance. The natural heritage resources of concern at this site are:

<i>Corallorhiza bentleyi</i>	Bentley's coralroot	G1G2/S1/SOC/LE
<i>Spiranthes ochroleuca</i>	Yellow nodding ladies'-tresses	G4/S2/NL/NL

Bentley's coralroot is a globally rare orchid, a member of a genus that generally lacks chlorophyll and obtains nutrients by means of a relationship between the rhizome and a fungus, was only identified as a new species and described in 1999 after being discovered at single site in West Virginia in 1996 (Freudenstein 1999, Bentley 2000). Additional occurrences were later found in western Virginia and as well as in other locations in West Virginia. It has often been documented in disturbed roadside or trail sites or at the transition between disturbed and adjacent deciduous forest, and plants have also been found well back under the forest canopy as well. The recommended survey period for this species is during its mid-July-early August flowering period (Bentley 2000) although plants in fruit in August or later may be spotted initially and confirmed next season.

Threats to this species include road grading and maintenance activities, herbicides, and recreational trail establishment. The degree of threat from gypsy moth defoliation of the canopy species is unknown. This species is classified as endangered by the Virginia Department of Agriculture and Consumer Services (VDACS) and a species of special concern by the U.S. Fish and Wildlife Service (USFWS), however this designation has no official legal status.

Yellow nodding ladies'-tresses (*Spiranthes ochroleuca*, G4/S2/NL/NL) is a perennial, with leaves basal or sometimes on lower stem. Its flowers are ivory to creamy or yellowish to greenish white. It blooms from

September to October, and is found in open forests, clearings, and meadows, often at higher elevations (Weakley et al., 2012). As of 2014, 5 occurrences of this state rare plant were documented by the Virginia Natural Heritage Program, 3 extant and 2 historic.

Please note that two of the three occurrences of Bentley's coralroot and both occurrences of Yellow nodding ladies'-tresses associated with this conservation site are immediately adjacent to the existing access road associated with the Rev 11c alignment. According to Table E-1 Access Roads for the Atlantic Coast Pipeline and Supply Header Project- Volume II Appendix E of the FEIS proposed improvements for the access road are grading and adding gravel to the entire road. These activities have potential to impact the rare plants documented along the road bank including the state listed Bentley's coralroot.

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the DCR, DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. DCR recommends coordination with the United States Forest Service (USFS) to ensure impacts to these resources are avoided and the rare plants are protected during the construction and operation of the pipeline.

If the conservation sites cannot be avoided, DCR-DNH offers the following comments for minimization of impacts.

II. Specific Comments on the FEIS and associated documents

A. Handsom-Gum, Branchville, and Emporia Powerline Bog Conservation Sites

DCR-DNH offers comments on the content provided in the following three locations:

1. FEIS page 4-148

"While the VDCR has recommended avoidance of all conservation sites crossed, the VDCR has emphasized avoidance of the Handsom-Gum, Branchville, and Emporia Powerline Bog Conservation Sites to conserve documented natural heritage resources. The VDCR requested Emporia Powerline Bog be completely avoided, potentially by moving the pipeline north of the current crossing beyond the access road area and exploring different alternatives for the crossing of Interstate 95. While Atlantic acknowledged the VDCR's recommendation for avoidance, and incorporated a minor route modification at the Emporia Powerline Bog site to reduce impacts and avoid direct impact on the rare plant communities, complete avoidance was not considered practicable due to the orientation and size of the Conservation Sites.

Accordingly, Atlantic made efforts to minimize habitat fragmentation by collocating the pipeline adjacent to existing utility rights-of-way at the Handsom-Gum and Branchville Conservation Sites. In a letter to the VDCR dated July 15, 2016, Atlantic proposed avoiding direct impacts to the element occurrences and contends that construction of ACP would expand suitable habitat for and encourage the spread of rare plants beyond the existing occurrences with proper management. Atlantic requested concurrence from the VDCR.

To date, the VDCR has not provided concurrence with Atlantic's proposed avoidance and minimization concept and consultations are ongoing. Additionally, the VDCR recommended surveys on the

conservation sites. In 2015 and 2016, Atlantic field surveys noted the presence of rare plant species within several of the conservation sites (see table 4.4.2-1)."

2. Document Filed by ACP with FERC on July 27, 2017 (Accession Number 20170728-5118) "FERC staff Recommendation 30 of the Draft Environmental Impact Statement (DEIS) for the Projects directed Atlantic to continue its consultations with the Virginia Department of Conservation and Recreation (VDCR) on the "proposed avoidance and minimization measures at the Handsom-Gum, Branchville, and Emporia Powerline Bog Conservation Sites. Atlantic provided an update on the status of its consultations with the VDCR regarding these sites, including a summary of actions taken by Atlantic to address issues identified by the VDCR, on May 26, 2017 (FERC Accession Number 20170526-5257), see below. Atlantic additionally committed to filing updates on the status of its consultations with the VDCR regarding these sites, as warranted.

In a letter to the VDCR dated July 11, 2017, Atlantic identified sets of site-specific avoidance, minimization, and mitigation measures to be implemented at the Handsom-Gum and Emporia Bog sites, including construction and restoration practices, to protect, restore, and potentially benefit the natural heritage communities at these sites. A copy of Atlantic's letter to the VDCR is provided with Appendix G (see Section 3.0). Atlantic will file comments from the VDCR on the avoidance, minimization, and mitigation measures for the sites, if any, when available."

3. Document Filed by ACP with FERC on May 26, 2017 (FERC Accession Number 20170526-5257) "Atlantic committed to completing hydrological studies at the Handsom-Gum and Emporia Bog Conservation Sites to assess the potential for changes in groundwater flow and impacts on wetland resources due to construction and operation of the ACP. In recent months, Atlantic filed a study plan for the hydrological investigations (FERC Accession Number 20161109-5138); a written response to VDCR comments on the study plan (FERC Accession Number 20170224-5149); and minutes from a meeting with VDCR staff to discuss the study plan (FERC Accession Number 20170412-5098). Atlantic anticipates completing the hydrological studies and providing results to the VDCR and FERC in the summer of 2017."

DCR-DNH reiterates its August 2016 recommendations (Accession number 20170130-5221) for protection of these conservation sites in reference to conducting groundwater hydrology studies as discussed in the January 12, 2015 and the January 19, 2017 meetings with Atlantic. Dominion Energy did not include the groundwater hydrology studies as part of their strategies to protect the Emporia Powerline Bog and Handsom-Gum Powerline Conservation Sites in their July 11, 2017 letter titled "Emporia Powerline Bog and Handsom-Gum Powerline Conservation Sites Mitigation Measures." However in the FEIS on page 4-148 "Atlantic stated it would complete the hydrologic studies and file the results with the VDCR and FERC in the second quarter 2018." If a hydrology study is conducted in 2018 and hydrological impacts are identified concurrent with the pipeline construction, it may be too late to re-route the pipeline to avoid impacts to these sensitive areas. When thorough hydrologic studies have been completed and the results provided, DCR-DNH will make additional comments on protecting the integrity of Emporia Powerline Bog and Handsom-Gum Powerline Conservation sites. Detailed hydrologic studies are essential to predicting the impacts of pipeline construction on these fragile seepage habitats and the rare species they contain. References in the July 11, 2017 letter to impermeable clay layers located between 1 and 5 feet below the soil emphasize the potential for the pipeline to interfere with normal water movement in these strata, endangering the seepage habitats. Without long term (at least a year) groundwater hydrology studies, DCR-DNH cannot determine

whether the proposed mitigation measures will be protective of these sensitive areas and the rare plants they support. Therefore due to the potential for adverse impacts to these conservation sites from the construction and operation of the pipeline, DCR-DNH continues to recommend avoidance of the Emporia Powerline Bog and Handsom-Gum Powerline Conservation Sites.

Regarding proposed soil disturbance and plant removal during construction, DCR-DNH supports segregation of topsoil and replacement after construction. The native seed bank should be relied on for revegetation of these areas as much as possible but when other revegetation efforts are deemed necessary, DCR-DNH would like to be included in any decisions regarding temporary cover crops or seed mixes. DCR-DNH has already commented on seed mixes for other sections of the pipeline but not these two seepage sites, which have uniquely adapted species. In the event that rare plants are to be directly impacted (destroyed) during pipeline construction at the Handsom-Gum Conservation Site, DCR-DNH supports removal of these plants to another facility for the duration of construction, followed by replacement and post construction monitoring of these sites to determine success of restoration efforts.

B. Karst

1. Valley Center Route Variation

DCR-DNH offers comments on the following content provided on page 4-15 of the FEIS:

“The Valley Center Route Variation appears to reduce the impacts on the Dever Spring Recharge Area and avoid crossing known dye trace vectors (Virginia Cave Board, 2017) between upgradient sources and Dever Spring; however, as discussed in section 3.4.3, we conclude that the Valley Center Route Variation would not offer a significant advantage over the proposed route and, therefore, do not recommend that it be incorporated as part of the project. Atlantic would complete the field survey for karst features in the area pending land access and prior to construction.”

Both the approved corridor and the Valley Center Route Variation have high potential to impact karst resources, including significant springs and rare cave fauna associated with subterranean ecosystems. While the Valley Center Route Variation may not offer much improvement over the proposed corridor, it should be emphasized that either route chosen is likely to have significant karst associated issues, including subsidence in the pipeline trench and contamination of nearby springs. DCR-DNH recommends avoidance of the Valley Center karst (see Figure 2 above). If the pipeline route is not moved away from the Valley Center karst area, extreme vigilance during and post-construction and strict adherence to the provisions of the Karst Mitigation Plan and other pollution control measures is essential to the minimization of risk during construction and operation of the pipeline in this area. DCR-DNH requests an updated Karst Survey Report from Atlantic including the areas that have not been surveyed within the pipeline footprint and continued coordination with this office.

Because this area is relatively poorly documented in terms of cave biota, this karst areas was not designated as a conservation site by DCR-DNH prior to the routing of the proposed Atlantic Coast Pipeline. However, both the proposed route and the Valley Center Route Variation pass in close proximity to numerous karst features, including caves of potentially high significance and sinkholes that drain directly to large karst springs on the valley floor and on to Back Creek.

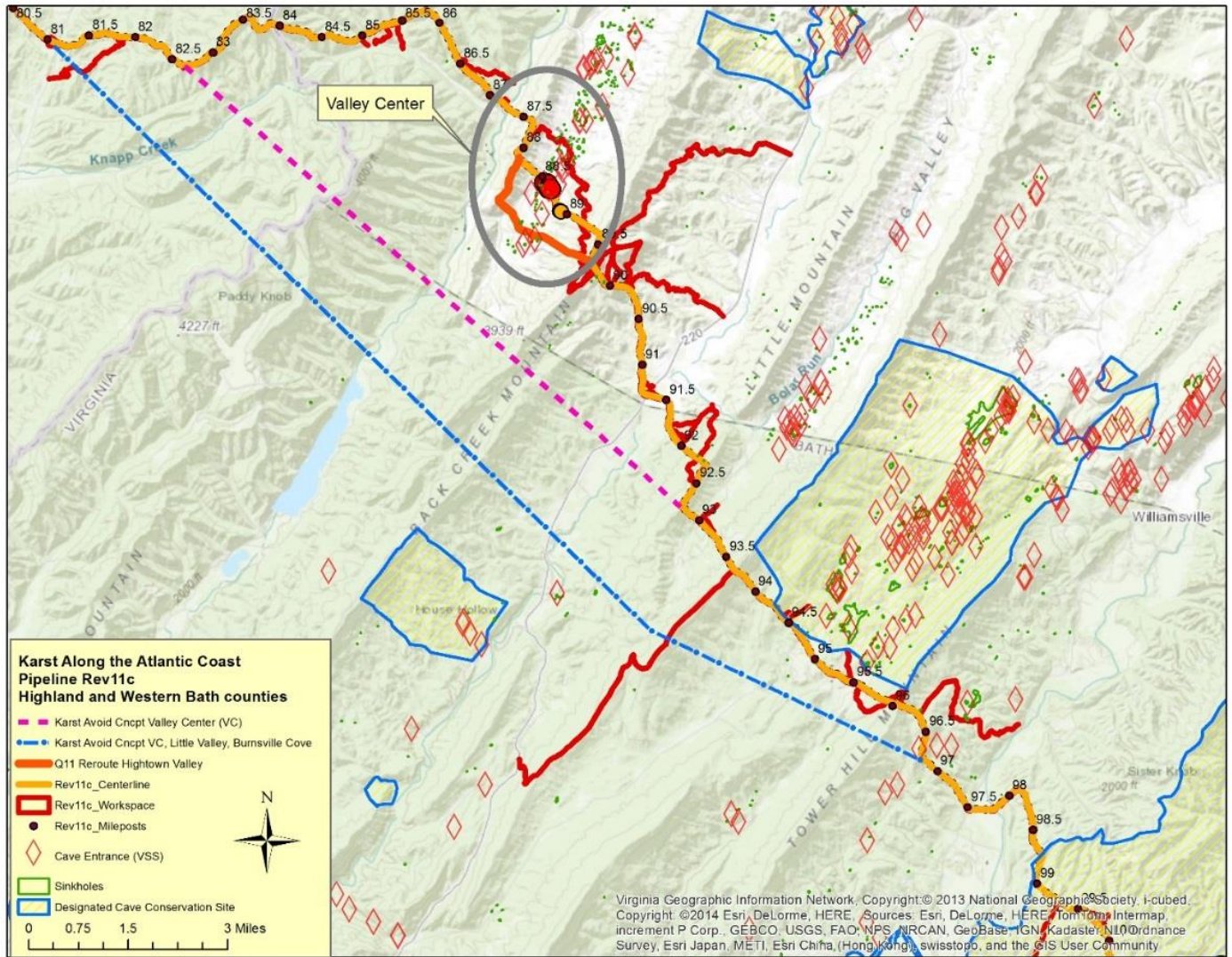
To the maximum extent practicable, DCR recommend that VA DEQ work with ACP to develop a reroute to avoid this sensitive karst area. In the event that such a reroute is not possible, strict adherence to karst specific protective measures would reduce, but not eliminate, the possibility of impacts to these resources.

In addition to the sensitive karst and spring features near Valley Center Road, DCR-DNH also has concerns with the Burnsville Cove Cave Conservation Site. Page 4-16 of the FEIS states the following:

“As part of its Implementation Plan (recommended Environmental Condition No. 6), Atlantic should consult with the VDCR to determine if the route alignment and construction activities would impact the Burnsville Cove Cave Conservation Site. Atlantic should file with the Secretary, for review and written approval by the Director of OEP, the results of these consultations, along with any proposed construction modifications or alignment shifts to avoid impacts on this site.”

Figure 2 illustrates two conceptual scenarios – pink and blue dashed lines between mileposts 81 and 96.5 - that would enable avoidance of two areas of significant cave and karst development (Valley Center and Burnsville) as well as Little Valley. DCR continues to recommend avoidance of sensitive karst areas as the primary strategy for karst protection relative to the Atlantic Coast Pipeline project. Rev 11c (the current preferred corridor) places significant risks to the karst of the Hightown Valley area. If FERC certifies the pipeline route as currently proposed, DCR-DNH strongly recommends strict adherence to karst mitigation procedures.

Figure 2. Conceptual Avoidance Scenarios for Cave and Karst Resources in Valley Center, Burnsville, Little Valley and Hightown Valley areas.



2. Cochran's Cave Conservation Site (underlined text from FEIS pages 4-16 thru 4-18)

The proposed route traverses the Cochran's Cave Conservation Site near Staunton at approximate AP-1 MP 140, and passes within approximately 0.5 mile of the Barter-Blue Cave Conservation Site at AP-1 MP 144 (see figure 4.1.2-2). No impacts to the Barter-Blue Cave Conservation Site are anticipated. Cochran's Cave Conservation Site is designated as a fourth order globally significant conservation site, and the Virginia Cave Board states that Cochran's Cave No. 2 is the only significant cave designated under the Virginia Cave Protection Act of 1979 that would be crossed by the ACP route. While the VDCR would prefer that Atlantic avoid crossing the conservation site, it recognizes that there are factors that may make avoidance impossible. The VDCR concludes that based on the studies completed on Atlantic's behalf, the route adjustments made, and Atlantic's commitments to use onsite karst specialists to

monitor construction, the potential impacts on the cave have been mitigated to the maximum extent practicable (Accession Number: 20170127-5202).

In response to the above statement, DCR-DNH's conclusion that the caves have been mitigated to the maximum extent practicable is based on the premise that avoidance was not an option. Avoidance of the Cochran's Cave conservation site remains DCR-DNH's recommendation, with mitigation a secondary option.

4.7.1 Endangered Species Act-Protected Species-General Conservation Measures (underlined text from FEIS page 4-245)

In addition, Atlantic has performed subsurface investigations, hydrological investigations, and dye tracing at the Cochran's Cave Conservation Area and Moffet Lake. Atlantic would provide a consolidated report of available literature regarding karst features to FERC and the appropriate federal and state agencies in June 2017. Atlantic would perform additional subsurface investigations in 2018 and 2019 to identify and/or verify the locations of voids to supplement mitigation planning once trees have been cleared from the construction right-of-way.

DCR-DNH requests copies of the subsurface investigation reports and continued coordination with this office for avoidance and minimization of impacts to Cochran's Cave Conservation Site.

3. Karst Geology: Construction Impacts and Mitigation

DCR-DNH recommends the following language modification for the language on page 4-20 of the FEIS:

"The VDCR specifically requested that Atlantic contact, consult, and coordinate with the VDCR's Karst Protection Coordinator if ~~geotechnical borings are required in karst terrain, and if karst features are encountered in Virginia~~ to document and minimize adverse impacts from ACP. They further request that Atlantic provide detailed location information and design specifications for any proposed "improvement" of sinkholes or cave openings. Additionally, they recommend that ACP follows the Virginia Cave Board's "Karst Assessment Standard Practice" for land development (Virginia Cave Board, 2015). To ensure geotechnical boring do not result in adverse effects and that mitigation protocols adequately satisfy VDCR's standards, **we recommend that:**

~~• Prior to completing any geotechnical boring in karst terrain, Atlantic should file with the Secretary verification that it consulted with VDCR karst protection personnel regarding each geotechnical boring and should follow the Virginia Cave Board's "Karst Assessment Standard Practice" for land development when completing the borings.~~

DCR-DNH requests to be informed immediately of any karst features uncovered during the construction process, and to be given time for documentation of such features, including exploration and survey of any caves opened by the project.

4. Unsurveyed Karst Areas

FERC's Environmental Condition No.6 (underlined text from FEIS page 4-16)

As part of its Implementation Plan (recommended Environmental Condition No. 6), Atlantic should conduct a data review and field survey of potential karst features in Augusta County, Virginia between AP-1 MPs 106.8 and 110, and file this information with the Secretary, along with any mitigation measures, for review and written approval by the Director of OEP.

4.1.6.2 George Washington National Forest (underlined text from FEIS page 4-47)

As presented in Atlantic's Karst Survey Report, MPs 96.8 to 97.2 have not been surveyed due to lack of landowner permission.

DCR-DNH requests an updated Karst Survey Report from Atlantic including the areas referenced above that have not been surveyed within the pipeline footprint and continued coordination with this office.

5. 5.1.1 Geological Resources (underlined text from FEIS page 5-4)

DCR-DNH recommends the following language modification for the FEIS recommendation:

ACP and its contractors should follow the Virginia Cave Board's "Karst Assessment Standard Practice" for land development when completing the geotechnical borings.

DCR-DNH requests the documentation of any undocumented karst feature uncovered by the pipeline trench or discovered during land disturbance or other activities associated with pipeline construction or maintenance.

6. 5.2 FERC Staff's Recommended Mitigation

18. As part of its Implementation Plan, Atlantic shall file with the Secretary, for review and written approval by the Director of OEP, the results of the fracture trace/lineament analysis utilizing remote sensing platforms (aerial photography and LiDAR), along with the results of existing dye trace studies. Atlantic shall provide the results of this analysis on a composite map(s), illustrating surficial karst features with the potential for intersecting shallow interconnected karst voids and cave systems over a wide area; specifically, between the pipeline and nearby water receptors (i.e., public water supply wells, municipal water supplies, private wells, springs, caves systems, and surface waters receiving discharge). (Section 4.1.2.3)

Bedrock fracture lineaments are not equivalent to dye tracing studies for most of the karst in the study area. While fracture trace lineaments are useful in predicting preferential flow paths in fractured rock, and reflect underlying karst conduits, they are no substitute for other hydrological studies, including dye tracing. Therefore DCR-DNH recommends areas with insufficient karst data along the alignment be dye traced. Dominion ACP and its contractor Geoconcepts Engineering are working to comply with this recommendation at the request of VA-DEQ.

C. Noxious Weeds and Other Invasive Plants 4.4.4.(underlined text from FEIS page 4-157)

DCR-DNH offers comments on the following content provided on page 4-157 of the FEIS:

"We received numerous comments on the draft EIS regarding the list of invasive plant species utilized by Atlantic and DETI. In letters dated February 7, 2017, and February 24, 2017, the VDGIF requested an expanded list of invasive and noxious species to include invasive plants recognized by regional (Mid-

Atlantic Invasive Plant Council) or state (Virginia Invasive Species Workgroup/VDCR-DNH) authorities. In addition, the VDCR-DNH suggested use of the Virginia Invasive Plant Species List, which includes species that are established or may become established in Virginia, cause economic and ecological harm, and present ongoing management issues. While state and regional authorities maintain extensive invasive species lists, not all species on these lists are regulated under state or federal regulations. Atlantic and DETI consulted with state agencies charged with regulating noxious weeds and invasive plant species to identify a total of 55 regulated invasive plant species, including 17 in West Virginia, 9 in Virginia, 16 in North Carolina, and 13 in Pennsylvania. Field surveys along ACP identified eight invasive species in West Virginia and one in North Carolina. Field surveys along SHP identified eight invasive species in West Virginia and one in Pennsylvania. The Invasive Species Management Plan (see table 2.3.1-1) lists the regulated noxious weeds and invasive plant species identified during field surveys. Sections 4.5.7 and 4.6.4 discuss invasive insect and aquatic species, respectively.”

DCR-DNH continues to recommend the use of the Virginia Invasive Plant Species List (<http://www.dcr.virginia.gov/natural-heritage/invspdflist>) for the development of the invasive species plan for this project. A list of nine invasive species for Virginia does not reflect reality or sound environmental stewardship. Control of a broader more robust group of invasive species based on scientific risk assessment and as approved by the Virginia Invasive Species Working Group will increase the likelihood of survival of rare species threatened by increased potential for invasion due to pipeline construction.

D. ACP Species Surveys

DCR-DNH provides the following comments for the Small Whorled Pogonia Conservation Plan and confidential species survey reports filed with FERC by Atlantic in July and August of 2017: Small Whorled Pogonia Monitoring Plan for the ACP in West Virginia and Virginia - Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the DCR-DNH, DCR-DNH represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. DCR-DNH recommends the following language modification in **bold** for the Small Whorled Pogonia Conservation Plan text underlined below.

4.0 ONSITE CONSERVATION MEASURES

*Though direct impacts to SWP populations are not anticipated, indirect impacts due to habitat alterations and erosion are possible. In 2017, a qualified botanist revisited the identified populations to document existing conditions during the appropriate SWP survey window. Surveys will be repeated during construction and in the year following initial restoration activities near these sites for a total of ~~three~~ **five** years of monitoring. Photographs, habitat condition descriptions, and stem counts will be provided to the USFWS ~~and/or~~ relevant **state regulatory** and land managing agencies (WVDNR, **VDACS**, **VDCR**, **MNF**, and/or **GWNF**) in one report to be submitted after construction is complete in the affected areas and in **following reports annually during the years** after initial restoration activities are complete. In addition to population monitoring, the measures detailed in the sections below will be implemented to minimize indirect impacts to plants at each population location.*

- Eastern Tiger Salamander and Mabee’s Salamander Survey Report for the ACP in Virginia, including within the George Washington National Forest (GWNF) - Due to the legal status of species, DCR-DNH recommends continued coordination with VDGIF to ensure compliance with protected species

legislation and request 2018 survey results. DCR-DNH recommends the private sinkhole pond in Augusta Co. (ACP mile 153) where citizen scientists reportedly found Tiger salamanders in 2017 should be surveyed in 2018 if it is within 1000 feet of the pipeline centerline.

- Small Mammal Survey Report for the ACP in Virginia - Due to the legal status of species, DCR-DNH recommends continued coordination with VDGIF to ensure compliance with protected species legislation and requests survey results for Access Road (36-018.AR1) if conducted.
- Insect Survey Report for the ACP within the GWNF in Virginia - DCR-DNH requests a shapefile from Atlantic for documented occurrences of Maureen's shale stream beetle (*Hydraena maureenae*, G2/S2/NL/NL). DCR-DNH supports the mitigation measures planned to minimize impacts for Maureen's shale stream beetle including erosion and sediment control measures, minimizing disturbance to gravel bars along streams, and using dry stream crossing techniques for construction. The Milne's Euchlaena moth (*Euchlaena milnei*, G2G4/S2/NL/NL) and Appalachian grizzled skipper (*Pyrgus Wyandot*, G5T1T2/S1/NL/LT) were assumed present by Atlantic within the pipeline footprint. DCR-DNH recommends prohibiting the use of pesticides along the pipeline ROW to avoid and minimize impacts to these resources. For the Rusty patched bumble bee, DCR-DNH recommends continued coordination with USFWS including the need for additional surveys to ensure compliance with protected species legislation. As DCR-DNH commented before on the draft EIS, the insect report includes many factual errors (e.g., known counties of occurrence in VA) and some typographical errors (e.g., scientific names)
- Myriapod/Gastropod Survey Report for the ACP within the GWNF in Virginia - DCR-DNH requests shapefiles from Atlantic of the new species discovered (genus *Rudiloria*) and 2016-2017 occurrences of Hoffman's Cleidogonia Millipede (*Cleidogona hoffmani*, G3/S2S3/NL/NL), a natural heritage resource tracked by DCR.
- Survey Report for Bats for the ACP within the GWNF in Virginia and Virginia Segment Protected Bat Species Year 3 Presence/Likely Absence Survey Report - Due to the legal status of the Northern Long-eared bat (*Myotis septentrionalis*, G1G2/S3/LT/LT) species documented within the 300-foot study corridor in 2017, DCR-DNH recommends continued coordination with USFWS and VDGIF to ensure compliance with protected species legislation. Due to the legal status of the Eastern big-eared bat (*Corynorhinus rafinesquii macrotis*, G3G4T3/S2/NL/LE), the little brown bat (*Myotis lucifugus*, G3/S1S3/NL/LE) and the tri-colored bat (*Perimyotis subflavus*, G2G3/S1S3/NL/LE) documented in 2017, DCR recommends continued coordination with VDGIF to ensure compliance with protected species legislation. The Southeastern myotis (*Myotis austroriparius*, G4/S2/NL/NL) that was also documented within the 300-foot study corridor which is a natural heritage resource DCR tracks. Due to the proximity of the Eastern big-eared bat to the pipeline corridor, less than 100 feet away, DCR recommends adherence to a time-of-year restriction for construction activities near this roost site. DCR-DNH also requests copies of the Appendices A-I not included in the Virginia Segment Protected Bat Species Year 3 Presence/Likely Absence Survey Report received August 11, 2017 and a shapefile of 2017 acoustic/mist-netting/roost site locations for rare, threatened, and endangered bats species.
- Roanoke Logperch for Virginia - DCR-DNH also supports the TOYR (March 15-June 30) for instream work, strict adherence to E & S control measures and adherence to the relocation protocols provided by VDGIF

and USFWS and recommends continued coordination with these agencies to ensure compliance with protected species legislation.

- Mussel Survey Report for Virginia - DCR-DNH requests a shapefile from Atlantic of the rare mussels (Atlantic Pigtoe and Eastern Lampmussel) documented at the Nottoway 1 Crossing and the RTE mussels documented at the Sturgeon Creek crossing in the 2015 abbreviated survey. In the July 2017 survey, over 5,000 mussels were documented at the Nottoway 1 crossing including rare species. Therefore, DCR-DNH recommends directional drilling of the Nottoway 1 crossing to avoid instream impacts and either flume method or dam and pump (vs. open cut) for the Sturgeon Creek crossing. DCR-DNH recommends continued coordination with VDGIF to ensure compliance with protected species legislation. DCR-DNH requests a copy of the mussel survey report for Butterwood Creek crossing upon completion.
- Macroinvertebrate Monitoring Plan for the ACP within the GWNF in Virginia - DCR-DNH recommends that post construction stream monitoring occur for at least two years.
- GWNF Ginseng Relocation Plan - DCR-DNH recommends coordination with VDACS, Virginia's regulatory authority for this species.
- According to ACP correspondence dated March 28, 2017 and the FEIS, no Dwarf waterdog (*Necturus punctatus*, G5/S2S3/NL/NL) surveys were conducted in Virginia. DCR-DNH continues to recommend surveys for the Dwarf waterdog especially in the Nottoway and Meherrin River drainages.

TABLE 4.7.1-1 ESA-Listed, Proposed, and Under Review Species with the Potential to Occur in the Atlantic Coast Pipeline and Supply Header Project Areas (Table from FEIS pages 4-247 thru 4-250)

DCR-DNH requests copies of on-going surveys from Atlantic as recommended by FERC for the project identified in Table 4.7.1 for review and comment.

III. Appendices

A. Appendix F, Restoration and Rehabilitation Plan, Rev 5, May 1, 2017-FEIS Volume II

Seed Mix VABCHNP02: Recommended Cool and Warm Season Forage Species and Seed Mixtures (Table 2.2.1-2) and Seed Mix VACSDGS01: Recommended Cool and Warm Season Species, Cultivars, Seeding Rates, Seeding Dates, and Temporary Cover (Table 2.2.4-1) contain non-native plant species including Japanese Lespedeza and could be detrimental to pollinators. DCR-DNH recommends using native plants for all revegetation efforts (<http://www.deq.virginia.gov/Portals/0/DEQ/Water/Publications/NativeInvasiveFAQ.pdf>). DCR-DNH requests detailed plans for monitoring of restoration success in areas that are allowed to naturally revegetate and areas where plantings or seed mixes are used for restoration and continued coordination with this office.

B. Appendix Q-Vegetation Communities- FEIS Volume III

DCR-DNH reiterates its Draft EIS comments for Appendix Q. “To determine if impacts will occur to significant communities as identified by DCR-DNH, DCR ecologist attempted to classify the National Land Cover Database (NLCD) classification units listed in Table Q-1 into Virginia ecological community types using “The Natural Communities of Virginia Classification of Ecological Community Groups” (<http://www.dcr.virginia.gov/natural-heritage/natural-communities/ncintro>). The NLCD is a much broader and coarser system than Virginia ecological groups which includes the community types. DCR-DNH classified some of NLCD communities to Virginia community types with high confidence; however there are several units that cannot be classified based on the information provided. In Table 2 DCR-DNH included a column called “Crosswalk Confidence” (High-Medium-Low) and requests Atlantic classify the NLCD communities with medium and low confidence using The Natural Communities of Virginia Classification of Ecological Community Groups document.”

Table 2 Vegetation Communities Crossed by the Atlantic Coast Pipeline (DCR-DNH Vegetation Types and NLCD State Vegetation Community Type)

DCR-DNH VEGETATION TYPE	NLCD VEGETATION COMMUNITY	NLCD STATE VEGETATION COMMUNITY TYPE	CROSSWALK CONFIDENCE
Acidic Oak – Hickory Woodland/Savanna	Deciduous Forest	Northeastern Interior Dry-Mesic Oak Forest	Low
Bald Cypress – Water Tupelo Brownwater Swamp	Woody Wetland	Atlantic Coastal Plain Blackwater / Brownwater Stream Floodplain Forest	High
Bald Cypress-Tupelo Swamp (old-age stands)	Woody Wetland	Atlantic Coastal Plain Blackwater / Brownwater Stream Floodplain Forest	High
Basic Oak – Hickory Woodland/Savanna	Deciduous Forest	Northeastern Interior Dry-Mesic Oak Forest	Low
Central Appalachian Basic Ash – Hickory Woodland	Grassland / Herbaceous	Central Appalachian Alkaline Glade and Woodland	High
Central Appalachian Low-Elevation Acidic Seepage Swamp	Woody Wetland	North-Central Appalachian Acidic Swamp	High
Central Appalachian Mountain Pond (Threeway Sedge – Buttonbush Type)	Herbaceous Emergent Wetlands	Laurentian - Acadian Freshwater Marsh	Medium
Central Appalachian Shale Barren (Southern Type)	Mixed Forest	Central Appalachian Pine-Oak Rocky Woodland	Low
Central Appalachian Shale Barrens	Mixed Forest	Central Appalachian Pine-Oak Rocky Woodland	Low
Coastal Plain / Outer Piedmont Acidic Seepage Swamp	[no crosswalk]	[no crosswalk]	
Coastal Plain Bottomland Forest (Brownwater Low Terrace Type)	Woody Wetland	Atlantic Coastal Plain Blackwater / Brownwater Stream Floodplain Forest	High
Coastal Plain Depression Wetlands	Woody Wetland	Central Atlantic Coastal Plain Non-riverine Swamp and Wet Hardwood Forest	Medium
Coastal Plain/Outer Piedmont Seepage Bog	Herbaceous Emergent Wetlands	Piedmont - Coastal Plain Shrub Swamp	Medium
Coastal Plain/Piedmont Bottomland Forest	Woody Wetland	Piedmont - Coastal Plain Large River Floodplain	High
Granitic Flatrock	[no crosswalk]	[no crosswalk]	
Little Bluestem – Indian-Grass Piedmont Prairie	[no crosswalk]	[no crosswalk]	
Loblolly Pine/Little Bluestem Woodland/Savanna	[no crosswalk]	[no crosswalk]	
Non-Riverine Wet Hardwood Forest (Embayed Region Type)	Woody Wetland	Central Atlantic Coastal Plain Non-riverine Swamp and Wet Hardwood Forest	High
Piedmont Upland Depression Swamp (Pin Oak-Swamp White Oak Type)	Woody Wetland	Piedmont Upland Depression Swamp	High
Piedmont/Coastal Plain Hemlock – Hardwood Forest	Mixed Forest	Appalachian (Hemlock) - Northern Hardwood Forest	Medium
Ridge and Valley Calcareous Spring Marsh (Arrow-arum – Water Smartweed Type)	Herbaceous Emergent Wetlands	Laurentian - Acadian Freshwater Marsh	High
Shenandoah Valley Sinkhole Pond (Typic Type)	Herbaceous Emergent Wetlands	Laurentian - Acadian Freshwater Marsh	Medium

According to the May 12, 2017 FERC filing (Accession Number 20170512-5163) page 16, Atlantic will review and classify the National Land Cover Database communities using The Natural Communities of Virginia Classification of Ecological Community Groups document and submit this table to the VDCCR and FERC in May 2017.

To date DCR-DNH has not received the modified table from Atlantic classifying the communities using “The Natural Communities of Virginia Classification of Ecological Community Groups” document.

Thank you for the opportunity to comment on the FEIS for the Atlantic Coast Pipeline.

Sincerely,



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CC: Julia Wellman, DEQ-OEIR
Amy Ewing, VDGIF
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