COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

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April 6, 2017

Mr. Nathaniel J. Davis, Sr., Deputy Secretary
Federal Energy Regulatory Commission
888 First Street NE, Room 1A
Washington, DC 20426

RE: Federal Energy Regulatory Commission Draft Environmental Impact Statement for the Atlantic Coast Pipeline and Supply Header Project (Docket Nos. CP15-554-000, CP15-554-001, CP15-555-000 and CP15-556-000; FERC/EIS-0274D; OEP/DG2E/Gas Branch 4; DEQ 16-248F).

Dear Deputy Secretary Davis:

The Commonwealth of Virginia has completed its review of the draft environmental impact statement (DEIS) for the portions of the Atlantic Coast Pipeline (ACP) Project in Virginia. The Virginia Department of Environmental Quality (DEQ) is responsible for coordinating Virginia's review of federal environmental documents prepared pursuant to the National Environmental Policy Act (NEPA) and responding to appropriate federal officials on behalf of the Commonwealth. This letter, including attachments, is the Commonwealth of Virginia's response to the December 30, 2016 public notice, issued by the Federal Energy Regulatory Commission (FERC or Commission) for the ACP DEIS.

The comments from Virginia's agency reviewers primarily focus on recommending measures to mitigate potential environmental impacts. In general, participants in the Commonwealth's review support the recommendations in the DEIS to coordinate with government agencies, adhere to protective construction measures, and mitigate for unavoidable impacts. These statements are discussed in the detailed comments from reviewers in Attachment B.

Coordinated Review

As part of the Commonwealth's review, DEQ requested comments from state agencies, localities and planning district commissions. DEQ notified reviewers of the availability of the DEIS and additional information submitted to the FERC docket by Atlantic Coast Pipeline, LLC (Atlantic or ACP, LLC) on January 10, January 19, January 20, January 27 and February 9, 2017. Reviewers also had an opportunity to review files of the route suitable for use in Geographic Information System software that were provided by Atlantic. The comments that were submitted as part of this review are attached and organized as follows:

- Attachment A: Recommendations for the FEIS, Plans and Procedures
- Attachment B: Detailed comments from reviewers

Attachment A includes more than 100 recommendations that are based on a summation of comments from participating agencies and a locality. This summary highlights priorities derived from submitted comments and is not meant to substitute the totality of the individual comments in Attachment B. The Commonwealth recommends that FERC consider every comment, correction or recommendation detailed in Attachment B that FERC did not already address during the consideration of Attachment A.

Thank you for the opportunity to comment. If you have questions, please do not hesitate to contact me at bettina.sullivan@deq.virginia.gov or (804) 698-4204.

Sincerely,

Bettina Sullivan, Manager
Environmental Impact Review and Long Range Priorities Program

Enclosures

ec: Kevin Bowman, FERC
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Brian Thrower, City of Emporia
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ATTACHMENT A: RECOMMENDATIONS FOR THE FINAL ENVIRONMENTAL IMPACT STATEMENT, PLANS AND PROCEDURES

The recommendations within this attachment are organized as follows:

- Transportation System

- Mitigation Measures for Construction and Maintenance Activities
  - Wetlands and Surface Waters
  - Hydrostatic Testing
  - Stream Crossings
  - Forest Resources
  - Wildlife Resources
  - Government-Funded Best Management Practices
  - Open Burning and Fugitive Dust
  - Aviation
  - Water Supplies
  - Polychlorinated Biphenyl (PCB) Contamination
  - Flood Hazard Area
  - Conservation Sites
  - Transportation System
- Recommendations for Specific Plans
  - Spill Prevention Controls and Countermeasures
  - Migratory Bird Conservation Plan
  - Invasive Plant Species Management Plan
  - Plans for the Management of Waste and Contaminated Soil, Sediment and Groundwater
  - Plan for Discovery of Unanticipated Paleontological Resources
  - Blasting Plan
  - Karst Terrain Assessment Construction, Monitoring and Mitigation Plan
  - Karst Survey Report
  - Traffic and Transportation Management Plan
  - Wetland and Waterbody Construction and Mitigation Procedures
  - Restoration and Rehabilitation Plan
  - Site-Specific Horizontal Directional Drill Plans
  - Timber Removal Plan
  - Contaminated Media Plan
  - Protected Snake Conservation Plan
  - Non-Native Invasive Plant Species Management Plan within the Draft Construction, Operation and Maintenance Plans
- Errors and Clarification Needs in the DEIS

Part I: Section 5.2 of the Final Environmental Impact Statement

The Commonwealth of Virginia recommends that the Federal Energy Regulatory Commission (FERC or Commission) include the following recommendations in Section 5.2 of the Final Environmental Impact Statement (FEIS) and that if the Commission approves the construction and operation of the Atlantic Coast Pipeline (ACP) Project, it condition the order on adherence to these recommendations. If FERC does not include these recommendations in Section 5.2, then the Commonwealth recommends that they be incorporated in appropriate sections of the FEIS, plans and procedures as mitigation measures. To the extent practicable, the Commonwealth recommends that the U.S. Forest Service also consider these recommendations to the degree that they relate to decisions under its jurisdiction.

1) New Recommendations for Section 5.2

a) Recommendation: Given the adverse impact to forested cores that has been documented and recognized by FERC as significant in its analysis, the Commonwealth of Virginia recommends that FERC include in Section 5.2 a recommendation that directs the Atlantic Coast Pipeline, LLC (Atlantic or ACP, LLC) to coordinate with Virginia's natural resource agencies and applicable federal agencies on an acceptable mitigation plan to offset and compensate for the significant forestland impacts in Virginia, including direct and indirect loses and fragmentation effects. Failing to account for indirect impacts of the ACP to forests would gravely underestimate the extent to which the project will impact Virginia's forests. For additional evidence to support the recommendation, see comments from the Commonwealth's natural resource agencies in Attachment B.

b) Recommendation: Include a requirement directing ACP, LLC to develop an Acid Soil Mitigation Plan and implement horizontal directional drilling (HDD) to the maximum extent practicable in areas containing acid soils. The Department of Environmental Quality (DEQ) cautions that exposing these soils to the atmosphere through open trenching operations could result in acidic runoff, potentially resulting in environmental impacts. The plan should address how these areas will be managed, the disposition of acid soils, and details regarding proper storage and disposal practices. See the DEQ comments in Attachment B for a list of the milepost locations where acid sulfate soils are present along the ACP route.

In addition to acid sulfate soils, the project includes other areas of special interest such as karst, steep slopes, and slide prone areas. DEQ considers stormwater management and erosion and sediment control (ESC) measures to be critically important to minimizing potential water quality impacts from the ACP Project. Proper stormwater management and ESC design, implementation, and

monitoring will be paramount in protecting these resources. The ESC procedures contained in the DEIS are not representative of the full scope of Virginia's requirements for stormwater and ESC. DEQ has required Atlantic to submit site-specific ESC plans to be reviewed and approved prior to land-disturbing activity. These ESC plans will be expected to meet and exceed Virginia's requirements, particularly in areas of special interest. See the DEQ comments in Attachment B.

c) **Recommendation:** Add a recommendation to direct Atlantic to conduct pre-impact characterizations of proposed stream and wetland crossings to include sufficient evidence that the system will be able to maintain its original functions indefinitely after restoration. DEQ is concerned that the proposed temporary impacts could result in a permanent alteration of the impacted systems post construction. Pre-impact characterizations should include stream surveys and subsurface investigations at temporary stream and wetland impact areas to establish the feasibility of restoring the systems post-construction and hydrologic assessments, including piezometers, to establish pre-impact hydrologic conditions at temporary wetland impact areas. See the DEQ comments in Attachment B.

d) **Recommendation:** Include a requirement that directs ACP, LLC to develop a comprehensive Water Quality Monitoring Plan that describes how water quality monitoring will be conducted before, during, and up to five years after project construction. The plan should focus on identifying an appropriate number of monitoring locations above and below where open trench crossing or HDD are used in critical areas such as wild/stocked trout streams, endangered/threatened species waters, public water supplies, total maximum daily load (TMDL) watersheds, Tier 3 streams, areas near acidic soils, and streams with high Virginia Stream Condition Index (VSCI) scores. The plan should consider real-time temperature, dissolved oxygen, and turbidity monitoring (such as that done in Virginia by the U.S. Geological Survey), which could allow the public and all agencies involved to access the data real-time. Additionally, the plan should include a collection of macroinvertebrates, fish, and habitat data, using DEQ-approved methods above and below identified crossings during the project, and the collection should be done yearly for 5 years after completion of the project. ACP, LLC should also update other plans detailing post-construction monitoring, restoration, and rehabilitation to include this requirement, as applicable. See the DEQ comments in Attachment B.

e) **Recommendation:** Add a requirement directing Atlantic to manage water withdrawals for hydrostatic testing so that no more than 10 percent of the instantaneous flow rate from the channel is removed, the intake screen openings do not exceed 1 millimeter, and the screen face intake velocities are not greater than 0.25 feet per second to avoid an adverse effect or impairment. Water

withdrawals for hydrostatic testing of water-tight containers, pipeline, and vessels from non-tidal waters are excluded from a permit under Virginia Water Protection Permit Program regulations (9 VAC 25-210-310.A.6) regardless of the volume withdrawn. However, 9 VAC 25-210-310.B allows the State Water Control Board to require a permit if the withdrawal is found to cause an impairment, adversely affect beneficial uses, or violate water quality standards.

f) Recommendation: Add a requirement that prior to construction, Atlantic will conduct dye tracing studies wherever the ACP crosses karst terrain, if prior dye tracing information does not exist or is insufficient for that area. Dye traces within the general project area have shown connections of karst features to springs and wells as far away as 7 miles for areas northwest of the Staunton/Pulaski/North Mountain Fault system (e.g., the Ridge and Valley). Dye trace studies should occur after final route approval but prior to construction. Atlantic should coordinate with the Department of Conservation and Recreation (DCR), DEQ, Department of Mines, Minerals and Energy (DMME) and the U.S. Geological Survey to determine which areas in the Great Valley are appropriate for dye trace studies (e.g. Cochran's Cave area in Augusta County). Dye trace studies will be beneficial to determining the subterranean flow of water entering karst features and notifying potentially impacted stakeholders in the case of a release. Atlantic should add DCR to the list of agencies reviewing and commenting on karst-related issues. See the DCR comments in Attachment B for additional information.

2) Modifications to Existing Recommendations in Section 5.2

a) Recommendation 5: Require Atlantic to provide information on new route realignments or facility relocations, including staging areas, contractor yards, new access roads, and other areas that have not been previously identified in filings to DEQ and other entities responsible for permitting.

b) Recommendation 6(a): Incorporate the recommended mitigation measures in Attachments A and B into the referenced Implementation Plans.

c) Recommendations 8 and 24: Require Atlantic to provide DEQ with updated status reports, plans, and site-specific crossing plans for major waterbody crossings. See the DEQ comments in Attachment B.

d) Recommendation 28: Direct Atlantic to consult with the Virginia Department of Forestry (DOF) regarding recommended mitigation measures and seed mixtures for any forested area that may be adjacent to or near DOF state forest and/or easement properties. See the DOF comments in Attachment B.

Part II: Recommendations for Other Sections of the FEIS, Plans and Procedures

The Commonwealth of Virginia encourages FERC to incorporate the following recommendations into appropriate sections of the FEIS, plans, and procedures. To the extent practicable, the Commonwealth recommends that the U.S. Forest Service also consider these recommendations to the degree that they relate to decisions under its jurisdiction.

1) Route Changes and Variations

a) Conservation Sites

i) Recommendation: Avoid the Cochran's Cave Conservation Site entirely or follow DCR's recommendations in Attachment B for the protection of this very sensitive area.

ii) Recommendation: Avoid the Spruce Creek Tributary Conservation Site and the Emporia Powerline Bog Conservation Site. See the DCR comments in Attachment B.

iii) Recommendation: Avoid all other DCR-designated conservation sites. See DCR comments in Attachment B.

iv) Recommendation: Reroute the pipeline so that it is at least 300 meters from a tiger salamander breeding pond within the Lyndhurst Ponds Conservation Site and follow DCR's recommendations to protect this species. See DCR comments in Attachment B.

b) Gardner Spring

i) Recommendation: Consider the concerns raised by the City of Staunton when evaluating route adjustments in the Gardner Spring recharge area. See the City of Staunton comments in Attachment B.

c) Surface Waters

i) Recommendation: Evaluate recommendations from DEQ on the proposed reroutes and alignment adjustments, including co-location of utilities, that DEQ provided by milepost. See the DEQ comments in Attachment B.

d) Water Supply

i) Recommendation: Consider moving the staging area/construction site away from the sinking portion of Hamilton Branch which may have a direct connection to the municipal water supply for the Town of Deerfield. See the DEQ comments in Attachment B.

e) Wildlife Resources

i) Recommendation: Consider the long-term impacts of forest fragmentation and minimize them to the greatest extent possible by co-locating the pipeline within already-disturbed utility corridors and early successional habitats. See the Department of Game and Inland Fisheries (DGIF) comments in Attachment B.

ii) Recommendation: Modify the pipeline route to avoid impacts upon suitable habitat for timber rattlesnakes, state-listed endangered canebrake rattlesnakes, especially canebrake rattlesnakes in eastern Virginia, and scarlet kingsnakes. See the DGIF comments in Attachment B.

f) Karst Features

i) Recommendation: Avoid impacts to karst features to the maximum extent practicable and monitor resurgent springs in Highland County. See the DCR comments in Attachment B.

2) Recommendations for Preconstruction Planning, Surveys and Studies

a) Wetlands and Surface Waters

i) Recommendation: Include an inventory of the location of private ponds relative to the pipeline and road network. Locate road and pipeline crossings down gradient of private ponds to the maximum extent possible and develop enhanced ESC measures to protect ponds from secondary impacts of construction where route adjustments are not possible. See the DEQ comments in Attachment B.

ii) Recommendation: Provide details regarding the material to be used and installation methods for all temporary culverts and temporary fill in waterbodies and wetlands for permanent and temporary access roads, including methods proposed to stabilize fill material. Include a detailed analysis of all alternatives relative to the use of culverts and temporary fill,

such as relocations and bridges, to reduce both permanent and temporary waterbody impacts. Discuss and identify the location of fill sources, as obtaining fill may cause additional impacts. See the DEQ comments in Attachment B.

iii) **Recommendation:** Consider HDD, if practicable, at crossings of sensitive waters since the method would not result in impacts to streams and is considered an avoidance measure. See the DEQ comments in Attachment B.

iv) **Recommendation:** Consider DEQ recommendations to protect surface water resources, including increasing the number of temporary access roads where possible and using a more robust method of determining stream type. See the DEQ comments in Attachment B.

v) **Recommendation:** Conduct pre- and post-construction monitoring of benthic assemblages, relative bed stability, and riparian forest cover for segments of the pipeline that cross applicable total maximum daily load (TMDL) watersheds, Class V and VI waters, threatened and endangered species waters, and benthic impairments. See the DEQ comments in Attachment B for location-specific details and additional recommendations for TMDL watersheds, benthic impairments, Class V Stocked Trout Streams, Class VI Wild Trout Streams, Threatened and Endangered Species Waters, and other impairments.

vi) **Recommendation:** Clarify that all stream crossings, including those associated with cathodic protection systems, will adhere to established Wetland and Waterbody Construction and Mitigation Procedures. See the DEQ comments in Attachment B.

vii) **Recommendation:** Provide additional information on how the 10-foot-wide corridor centered over the pipeline within wetlands would be maintained in a herbaceous state due to the potential for impacts to DCR powerline bog conservation sites. Follow DCR's recommendations for maintaining the corridor and manage pipeline and transmission right-of-ways as one unit within the Handsom-Gum Powerline, Emporia Powerline Bog and Branchville Powerline Conservation Sites. See the DCR comments in Attachment B.

b) Soil and Slope Stabilization

i) **Recommendation:** Consider DGIF's comments and follow its recommendations to protect sensitive biological and hydrogeological features as provided to Atlantic in a February 7, 2017 letter, which is attached to the

DGIF comments in Attachment B.

c) Karst Resources

i) Recommendation: Follow DCR's recommendations to address the impacts if a failure occurs and there is a discharge to karst waters, potentially resulting in impacts to subsurface habitat, drinking water, and surface streams fed by karst springs. See the DCR comments in Attachment B.

ii) Recommendation: Consider that effects to wells and springs could potentially extend outside of the current 500-foot karst investigation buffer since blasting has the potential to include permanent alteration of groundwater flow patterns and yields of wells and springs. See the DEQ comments in Attachment B.

iii) Recommendation: Ensure the protection of karst structures, the wildlife species they support, and the waters they contain. See the DGIF comments in Attachment B.

d) Wildlife Resources

i) Recommendation: Update preconstruction requirements to include a recommendation for a mussel survey regarding the proposed location for crossing the Cowpasture River, which has been designated a Threatened and Endangered Species Water due to the presence of federally listed endangered James spinymussels. See the DGIF comments in Attachment B. The DGIF comments include the following recommendations:

- Perform a mussel survey and relocation from 100 meters upstream through 400 meters downstream of impact areas in the Cowpasture River. This survey should be performed by a qualified, permitted biologist, preferably no more than six months prior to the start of construction.
- Ensure that all survey and relocation activities adhere to draft guidance for freshwater mussels in Virginia (attached to DGIF's detailed comments in Attachment B).
- Coordinate any relocations with DGIF.
- Coordinate with the U.S. Fish and Wildlife Service (FWS) prior to relocating federally listed species.
- Submit survey results to DGIF. Upon review of the results, DGIF will make final recommendations regarding the protection of listed species known from the area.

- Adhere to a time-of-year restriction of May 15 through July 31 on all instream work.
- See DGIF comments in Attachment B for an alternative photographic habitat assessment.

ii) Recommendation: Assess all newly proposed areas of disturbance for their suitability to support any of the listed species known from the area per DGIF's previous comments to FERC and Atlantic, and report the results to DGIF. See the DGIF comments in Attachment B.

iii) Recommendation: Adhere to DGIF's recommendations regarding instream work best management practices (BMPs) and ways to minimize the impacts of linear utility development on wildlife and their habitats as described in the agency's February 7, 2017 letter to Atlantic. See the DGIF comments in Attachment B for a copy of the letter.

iv) Recommendation: Adhere to all of DGIF's time-of-year restrictions that are detailed in the DGIF comments and attachments in Attachment B.

v) Recommendation: Incorporate the following recommendations to protect wildlife resources (see the DGIF comments in Attachment B for additional information):

- Coordinate with the National Oceanic and Atmospheric Administration Fisheries Service regarding the protection of Atlantic sturgeon and consider additional time-of-year restrictions.
- Follow DGIF's guidance on the Roanoke logperch and provide clarifications as requested by DGIF:
  - Follow an instream work time-of-year restriction from March 15 through June 30 of any year in the Nottoway River drainage and at the site of any instream work within 1-mile upstream of these waters.
  - Provide results of the on-site assessment performed in 2016 at UNT Nottoway River 1 Access Road and UNT Nottoway 2.
  - Adhere to the remainder of DGIF's recommendations regarding the Roanoke logperch in its attached comments.
  - Adhere to the Fish Relocation Plan developed cooperatively between FWS, DGIF, and Atlantic.
- Adhere to typical instream work BMPs, including adherence to erosion and sediment controls and the Fish Relocation Plan, to protect the Orangefin madtom.
- Coordinate with DGIF, FWS, and DCR regarding survey and protective recommendations for the Madison Cave isopod.

- Follow DGIF's recommendations to protect freshwater mussels:
  - Follow DGIF's recommendations made in the February 7, 2017 letter to Atlantic regarding Threatened and Endangered Species Waters as well as associated freshwater mussels.
  - Adhere to recommendations for assessments and surveys related to the presence of mussels at the crossing of the Cowpasture River, James River, Appomattox River, Nottoway River, Sturgeon Creek, Meherrin River and their perennial tributaries.
  - Continue to coordinate with DGIF and FWS regarding the survey of the Jackson River for freshwater mussels.
  - Adhere to previously recommended time-of-year restrictions for instream work to protect mussels known from designated Threatened and Endangered Species Waters and instream work at sites within 1 mile upstream, whether or not listed mussels were found during surveys. Update Appendix K1 to reflect the commitment from Atlantic to adhere to this time-of-year restriction.
  - Coordinate with DGIF and FWS to determine if additional surveys need to occur prior to construction since negative surveys are only valid for two years.
- Follow DGIF's recommendations to protect listed salamanders:
  - Evaluate wetlands proposed to be impacted by pipeline construction, operation, maintenance, and within the documented range of listed salamanders for habitat suitability. Protect wetlands with suitable habitat and an upland buffer of 300 meters around the wetland or pond from project impacts.
  - Assess any wetlands located in Augusta or Nelson counties for suitable eastern tiger salamander habitat that are newly proposed for impacts or were not accessible during 2016, and survey any suitable wetlands following previously provided protocols. Survey wetlands in 2017 that were determined to provide suitable habitat in 2016 but that were not occupied.
  - Conduct additional habitat surveys to confirm lack of presence of ambystomid salamander in wetlands and ponds.
  - Assess any wetlands located in the City of Suffolk for suitable Mabee's salamander habitat that are newly proposed for impacts or were not accessible during 2016, and survey any suitable wetlands following previously provided protocols.
- Follow DGIF's recommendations to protect listed bats:
  - Consider DGIF's comments and follow its recommendations related to acoustic and mist-net surveys of federally- and state-listed bats as conveyed in DGIF's February 7, 2017 letter to Atlantic.

  - Avoid impacts upon all previously-known and newly documented hibernacula, roost sites, and roost trees, and adhere to federal guidelines for their protection.
  - Coordinate with DGIF regarding any unavoidable impacts located within half a mile of such resources for state-listed bats only.
  - Asses any new lands and habitats now within the project scope following previously used protocols.
  - Adhere to DGIF's Best Management Practices for Conservation of Little Brown Bats and Tri-colored Bats, and coordinate with DGIF and FWS on potential impacts.
- Follow DGIF's recommendations to protect listed small mammals:
  - Consider comments and follow recommendations on completed habitat assessments and small mammal surveys provided in DGIF's February 7, 2017 letter to Atlantic.
  - Avoid impacts upon areas that have been identified from previous assessments and surveys as suitable habitat for listed small mammals.
  - Continue to coordinate with DGIF regarding small mammals as surveys and assessments continue in 2017, on lands not accessible during 2016, and on lands that are newly within the project scope.
- Follow DGIF's recommendations to protect listed birds:
  - Protect state-listed threatened loggerhead shrikes and adhere to time-of-year restrictions from April 1 through July 31 of any year for ground clearing and tree removal in Highland, Bath, or Augusta counties and within the Rockfish Valley Region of Nelson County.
  - Consider and follow recommendations on surveys for loggerhead shrikes provided in DGIF's February 7, 2017 letter to Atlantic.
  - Update the DEIS to include information about loggerhead shrikes, DGIF's recommendations regarding their protection, survey results, and Atlantic's commitment to adhere to time-of-year restrictions.
  - Assess habitat for state-listed threatened peregrine falcons along the pipeline route for nests or nesting habitat during already planned aerial surveys.
  - Coordinate with DGIF if significant bridge or near-bridge disturbance in eastern Virginia becomes part of the project to protect nesting peregrine falcons on such structures.
  - Continue to coordinate with FWS regarding red-cockaded woodpeckers.
- Follow DGIF's recommendations to protect Bald and Golden eagles:
  - Continue coordination with FWS regarding potential impacts upon bald and golden eagles under the Bald and Golden Eagle Protection Act and adhere to Virginia's Bald eagle management guidelines.

- Follow DGIF's recommendations to protect listed snakes and other snakes:
  - Implement long-term vegetation management along the pipeline corridor in areas known to support canebrake rattlesnakes that is consistent with conservation measures for the species.
  - Adhere to the Protected Snake Conservation Plan.
- Follow DGIF's recommendations to protect trout streams:
  - Adhere to a time-of-year restriction from October 1 through March 31 of any year in waters known to support brook trout and/or brown trout for waters identified in DGIF's February 7, 2017 letter.
  - Adhere to a time-of-year restriction from March 15 through May 15 of any year in waters known to support rainbow trout for waters identified in DGIF's February 7, 2017 letter.
  - Confirm that Atlantic will adhere to the DGIF time-of-year restrictions and update Appendix K1 to reflect this commitment.
  - Adhere to DGIF recommendations to ensure avoidance or minimization of conflicts with the stocking and angling activities in the stocked streams identified in DGIF's February 7, 2017 letter.
- Follow DGIF's recommendations to protect anadromous fish use areas:
  - Adhere to a time-of-year restriction from February 15 through June 30 of any year for instream work to protect fish migration and spawning in designated Confirmed and Potential Anadromous Fish Use Areas and their tributaries or instream work within 1 mile upstream of these areas as listed in DGIF's February 7, 2017 letter.
  - Clarify Atlantic's commitment to adhere to time-of-year restrictions to protect anadromous fish use areas due to conflicting information in the DEIS and Appendix K1.

e) Contaminated Soil, Sediment and Groundwater

i) Recommendation: Ensure that the Environmental Inspectors (EIs) complete more specific training, use proper field equipment for contamination analyses, and contact the appropriate regulating agency. Update the Contaminated Media Plan with this recommendation. See the DEQ comments in Attachment B.

f) Recreational and Scenic Resources

i) Recommendation: Include coordination with the DCR Division of Planning and Recreational Resources on mitigation of impacts to the Great Eastern Trail, Appalachian National Scenic Trail, James River Heritage Trail, East Coast Greenway and the Beaches to Bluegrass trails. See the DCR

comments in Attachment B for additional information.

ii) **Recommendation:** Coordinate with local governments to explore the possibility of creating water access sites at water crossings that correspond with established water trails, and use native plants species to restore areas along the proposed route. See DCR comments in Attachment B.

g) Water Withdrawals

i) **Recommendation:** Identify steps that Atlantic and its contractors will take during the hydrostatic testing to meet the requirements to avoid an adverse effect or impairment as stated in Item 1(e) in Part 1 of these comments under recommendations for Section 5.2. See also DEQ comments in Attachment B.

ii) **Recommendation:** Add a requirement that Atlantic or its contractors notify the DEQ Office of Water Supply (OWS) of the locations and dates of withdrawals for hydrostatic testing at least 60 days prior to the proposed withdrawals for guidance on any restrictions due to low flow or drought conditions. See DEQ comments in Attachment B.

iii) **Recommendation:** Withdraw water for hydrostatic testing during periods of higher streamflow (as compared to the proposed August through October timeframe, which is typically the lowest flow period for all stream channels), and provide an assessment of the river flows where withdrawals are proposed that includes a discussion of how the withdrawals will affect flows, particularly during low flow or drought conditions. See DEQ comments in Attachment B.

iv) **Recommendation:** Assess whether water withdrawals may affect downstream water users, particularly during low flow periods, including but not limited to the water users identified in DEQ's comments in Attachment B.

v) **Recommendation:** Include an acknowledgement that if direct withdrawals from groundwater or surface water sources are needed for hydrostatic testing that exceed 10,000 gallons during any single day, Atlantic must comply with the requirements of 9 VAC 25-200 Virginia Water Withdrawal Registration and Reporting and provide a discussion of what steps Atlantic and its contractors will take during the withdrawals to ensure that these requirements are met. See the DEQ comments in Attachment B.

vi) **Recommendation:** Ensure that all intakes are fitted with a 1 millimeter mesh screen, intake velocities do not exceed 0.25 fps, and no more than 25 percent of stream input is withdrawn to protect resident aquatic species from impingement and entrainment. Continue to coordinate with DGIF and FWS

regarding proposed water use during pipeline construction to ensure avoidance or minimization of impacts upon native systems. See the DGIF comments in Attachment B.

vii) Recommendation: Avoid introductions of non-native aquatic invasive species during water withdrawals and develop and use an aquatic invasive species management plan. See the DGIF comments in Attachment B.

viii) Recommendation: Coordinate with facilities that have existing groundwater withdrawals regarding construction, pipeline-related water withdrawals, and other activities that may affect them. See a map in the DEQ comments in Attachment B.

h) Geologic and Mineral Resources and Mines

i) Recommendation: Consider comments and follow recommendations from the DMME regarding analysis on bedrock and surficial geology. See the DMME comments in Attachment B.

ii) Recommendation: Update mineral resources to include sand and gravel sites, abandoned non-fuel mineral resource sites, abandoned mine sites, and abandoned fuel mineral resources. See the DMME comments in Attachment B.

iii) Recommendation: Evaluate the potential of subsidence of all mineral resource sites, including but not limited to mining pits and shafts. See the DMME comments in Attachment B.

i) Acid-Producing Rock and Soils

i) Recommendation: Evaluate the significant potential for encountering acid-producing minerals such as pyrite in the Andersonville Mining District in Buckingham County. See the DMME comments in Attachment B.

j) Pollution Prevention

i) Recommendation: Include additional information on reuse, recycling, and pollution prevention as identified below by the DEQ Office of Pollution Prevention (see comments in Attachment B).

- Consider the development of an effective Environmental Management System (EMS). An effective EMS will ensure that Atlantic is committed to complying with environmental regulations, reducing risk, minimizing

environmental impacts, setting environmental goals, and achieving improvements in its environmental performance. DEQ offers EMS development assistance and recognizes facilities with effective Environmental Management Systems through its Virginia Environmental Excellence Program (VEEP). VEEP provides recognition, annual permit fee discounts, and the possibility for alternative compliance methods.

- Consider reuse and recycling opportunities when evaluating waste handling, including asphalt recycling, mulching of brush and timber, and water reuse opportunities.
- Consider the contractors' commitment to the environment when choosing contractors. Specifications regarding raw materials and construction practices should be included in contract documents and requests for proposals.
- Choose sustainable materials and practices for construction and design, including the use of native species and pollinators when re-establishing vegetation.
- Integrate pollution prevention techniques into maintenance and operation.
- Encourage supply chain partners to implement pollution prevention, sustainability, and environmental management systems.
- Coordinate with the DEQ Office of Pollution Prevention for additional information and technical assistance relating to pollution prevention techniques and EMS.

k) Aviation

i) Recommendation: Coordinate with any private airfield land owner that may be impacted by the proposed project route. See the Virginia Department of Aviation (DOAV) comments in Attachment B for additional information.

l) Water Supplies and Drinking Water Sources

i) Recommendation: Follow recommendations from the Virginia Department of Health (VDH) to protect drinking water sources (groundwater wells, springs, and surface water intakes), conduct a survey of onsite sewage systems and private wells in relation to the pipeline route to determine potential impacts, and coordinate with the VDH Office of Environmental Health Services. See the VDH comments in Attachment B.

ii) Recommendation: Follow DEQ's recommendations for the water well and spring testing program that include but are not limited to notification of DEQ when a groundwater impact has been reported or suspected and submittal to DEQ of a final georeferenced compilation of well and spring sampling results.

See the DEQ comments in Attachment B for additional recommendations.

iii) **Recommendation:** Conduct a detailed analysis of potential impacts to Gardner Spring and its recharge area, develop a mitigation plan, and report on the findings. Consider comments from the City of Staunton in Attachment B when developing the mitigation plan.

iv) **Recommendation:** Consider DEQ's recommendations in Attachment B as they relate to the use of water supply wells as a depth to water reference in the coastal plain.

m) Shapefiles

i) **Recommendation:** Provide shapefiles to the DCR Division of Natural Heritage and DGIF as changes occur to the project footprint, including but not limited to, the right-of-way, access roads, and associated infrastructure (including proposed cellular towers). See DCR and DGIF comments in Attachment B.

ii) **Recommendation:** Submit a shapefile of the Wavyleaf grass location and additional details regarding the population. See DCR comments in Attachment B.

n) Waste Database Search

i) **Recommendation:** Evaluate the identified waste sites in the DEQ comments in Attachment B that may impact project activity.

o) Plant and Wildlife Surveys and Special Status and State-Sensitive Resources

i) **Recommendation:** Coordinate with DCR regarding state-sensitive species and submit survey results to DCR for review. See the DCR comments in Attachment B.

ii) **Recommendation:** Avoid and reduce impacts to rare, threatened and endangered species from water withdrawals and discharge locations through identification of alternatives and implementation of conservation measures. See the DCR comments in Attachment B.

iii) **Recommendation:** Complete all required and recommended plant and wildlife surveys and biological assessments prior to construction and provide

DCR with copies of all surveys that DCR requested in Attachment B.

iv) **Recommendation:** Reduce the temporary construction right-of-way to 75 feet and the permanent right-of-way to 50 feet in known maternity or roost sites as indicated in the Virginia Bat Survey. See DCR comments in Attachment B.

v) **Recommendation:** Follow DCR's recommendations regarding Table S-2 of the Virginia List and Species of Greatest Conservation Need with Potential to Occur in the Atlantic Coast Pipeline Project area and respond to requests for additional clarification. See the DCR comments in Attachment B.

vi) **Recommendation:** Consider DCR's suggestions regarding the classification of vegetation communities in Appendix Q. See the DCR comments in Attachment B.

vii) **Recommendation:** Incorporate edits to wildlife survey reports and conduct new surveys as suggested by DCR in its comments in Attachment B.

p) Transportation System

i) **Recommendation:** Document the existing conditions of affected roadways, pavement conditions, and drainage structures in Virginia and provide the documentation to the Virginia Department of Transportation (VDOT). See VDOT comments in Attachment B.

3) Mitigation Measures for Construction and Maintenance Activities

a) Wetlands and Surface Waters

i) **Recommendation:** Include temporary wetland impact soil handling requirements as detailed in the DEQ comments in Attachment B. During trench excavation in all wetlands, both saturated or unsaturated, segregate the upper 12 inches of the soil profile as "wetland topsoil" from the underlying subsoil, store the wetland topsoil in a soil stockpile separate from other soil materials, and upon closing the trench, use the wetland topsoil to fill the upper 12-inches of the trench to reconstruct the wetland soil profile. Restore temporarily disturbed wetland areas to pre-existing conditions within 30 days of completing work at each respective temporary impact area, including reestablishing preconstruction elevations and contours with topsoil from the impact area and planting or seeding with appropriate wetland vegetation according to pre-disturbance cover type until the disturbed sites are permanently stabilized.

ii) **Recommendation:** Apply precautions identified in Chapter 9 of the Draft Construction, Operations and Maintenance Plan to protect sediment TMDL watersheds, public water supply waters, Class V and VI waters, sensitive fisheries, Threatened and Endangered Species Waters, critical habitat, and waters with benthic impairments both on and off U.S. Forest Service lands. See specific proposed precautions listed in the DEQ comments in Attachment B.

iii) **Recommendation:** Include final wetland mitigation plans for all proposed temporary and permanent tidal wetland impacts in the final EIS for consideration by the Virginia Marine Resources Commission (VMRC). See the VMRC comments in Attachment B.

iv) **Recommendation:** Implement measures identified in the Invasive Plant Species Management Plan to minimize the potential introduction of the invasive comment reed, *Phragmites australis*, for all wetland crossing sites except for site wChr002. See the VMRC comments in Attachment B.

b) Hydrostatic Testing

i) **Recommendation:** Implement BMPs to ensure that hydrostatic tests do not impact natural heritage resources. See DCR comments in Attachment B.

c) Stream Crossings

i) **Recommendation:** Incorporate the following VMRC recommendations, which are standard instream permit conditions, for jurisdictional stream crossings as set forth in the VMRC comments in Attachment B:

- A "frac-out" contingency plan must be provided for any crossings utilizing the directional drill method to address potential frac-outs or related spills associated with any directional drilling activities. In an effort to minimize adverse impacts to threatened and endangered fish and mussel species, instream surveys and species relocations may be required.
- No instream construction shall be conducted during any recommended time-of-year restrictions of any year unless waived by DGIF in writing.
- The instream construction activities shall be accomplished during low flow periods utilizing dam and pump, flume around, or within cofferdams constructed of nonerodible materials in such a manner that no more than half the width of the waterway is obstructed at any point in time. All areas of state-owned bottom and adjacent lands disturbed by this activity shall

be restored to their original contours and natural conditions within thirty (30) days from the date of completion of the authorized work. All excess materials shall be removed to an upland site and contained in such a manner to prevent its reentry into state waters.

- Erosion and sediment control measures shall be in conformance with the 1992 Third Edition of the *Virginia Erosion and Sediment Control Handbook* and shall be employed throughout construction.
- If it is determined that blasting is necessary at any of the crossings, DGIF shall be notified a minimum of 48 hours in advance of the blasting.
- DCR shall be contacted for any stream crossings where karst landscape features are encountered during installation.
- DGIF shall be contacted for any work in trout waters to avoid conflicts with trout stocking activities.

ii) Recommendation: Include a table citing DGIF's recommendations at each VMRC non-tidal jurisdictional stream crossing and a statement from Atlantic that the applicant intends to follow the recommendations. See the VMRC comments in Attachment B.

iii) Recommendation: Follow recommendations from DEQ provided in Attachment B for specific milepost crossings of the Jackson River, Calfpasture River, South River, James River, Appomattox River, Flat Creek, Nottoway River and tributaries, Meherrin River, Blackwater River, Western Branch Nansemond River, Nansemond River and Southern Branch Elizabeth River.

iv) Recommendation: Take all efforts to minimally contact the benthos (railcar flatbeds, bottomless culverts, etc.), place spoil a minimum of 10 feet away from the water's edge or in areas with sediment barriers, and locate additional temporary workspace at least 100 feet away from the water's edge in sediment TMDL watersheds, public water supply waters, Class V and VI waters, sensitive fisheries, threatened and endangered species waters, critical habitat, and waters with benthic impairments. See the DEQ comments in Attachment B for additional details.

v) Recommendation: Nighttime work on stream crossings should be minimized so that proper inspection, spills, and water quality issues can be resolved promptly. See the DEQ comments in Attachment B.

d) Forest Resources

i) Recommendation: Incorporate the following recommendations to mitigate the impacts of forest fragmentation on biodiversity provided in the DOF comments in Attachment B:

- Keep right-of-way clearing to the minimum width necessary to prevent interference from trees and other vegetation.
- Establish herbaceous species and shrubs or some low-growing trees that are considered desirable ground cover and valuable wildlife habitat along the right-of-way in the project's vegetation management and revegetation plan.
- Maintain a scrub habitat, dominated by low growing, bushy vegetation and young trees, which is preferable to mowing in forest habitats. It can provide quality habitat for wildlife species that are dependent on early successional habitat (birds, reptiles, and amphibians).

ii) Recommendation: Incorporate the following best management activities to protect forest resources provided in the DOF comments in Attachment B:

- Restore contours to pre-construction conditions and control erosion until re-vegetation stabilizes the disturbed areas.
- Restore vegetation to native species and protect the natural functions of the pre-construction ecosystem.
- Use machinery where feasible that when combined (example: earth mover and cart) weigh less than 10 tons per axle. Research has shown that this will help alleviate compaction to the top 6-8 inches of soil where it can be more easily addressed. Combination vehicles weighing more than 10 tons can create compaction as deep as 3 feet which is very difficult to mitigate.
- Minimize traffic lanes for transporting cleared timber from the site.
- Follow Forestry BMPs for water quality as outlined by DOF's Voluntary BMP Guidelines publication for all harvesting operations.
- Stock pile soil away from trees that are to remain standing. Piling soil at a tree stem can kill the root system of the tree. Soil stockpiles should be covered, as well, to prevent soil erosion and fugitive dust.
- Retain existing groupings and/or clusters of trees and natural vegetation on the sites of the support facilities, where feasible, to provide aesthetic and environmental benefits, as well as reducing future open space maintenance costs.

e) Wildlife Resources

i) Recommendation: Adhere to all of DGIF's time-of-year restrictions that are detailed in the DGIF comments and attachments in Attachment B.

f) Government-Funded Best Management Practices

i) Recommendation: Ensure that any impacted BMPs along the route (see map and the DCR comments in Attachment B) are reinstalled or relocated, and reestablish ground cover vegetation. Examples include livestock fences and stream crossings re-erected, watering systems relocated, cover crops reimbursed to the farmers, and disturbed areas re-vegetated.

ii) Recommendation: For segments of the ACP that cross TMDL Implementation Planning (IP) watersheds, where implementation has already occurred, incorporate a requirement that ACP, LLC replace BMPs such as livestock exclusion and riparian buffers if they need to be destroyed or allocate funds to replace the BMPs nearby (see the DEQ comments in Attachment B for details). This recommendation includes, but may not be limited to, the following IP watersheds:

- One watershed of the Chowan River Watershed (Beaver Pond Creek watershed) IP
- Three watersheds of the Flat, Nibbs, Deep, and West Creeks (Flat Creek, West Creek, and Deep Creek) IP
- Three watersheds of the Middle River Watershed (Upper Middle River, Lower Middle River, and Moffett Creek) IP
- Two watersheds of the Rockfish River Watershed (South Fork Rockfish River and Lower Rockfish River) IP
- Three watersheds of the Slate River and Rock Island Creek TMDL (North River, Lower Slate River, Upper Slate River watershed) IP
- Two watersheds of the South River Watershed and Christians Creek (Christians Creek and Lower South River) IP
- One watershed of the Spring Creek, Briery Creek, Bush River, Little Sandy River and Saylers Creek (Saylers Creek) IP
- One watershed of the Tye River, Hat Creek, Rucker Run and Piney River (Rucker Run) IP
- One watershed of the Willis River Watershed (Willis River) IP

iii) Recommendation: Coordinate with the DCR Division of Planning and Recreational Resources and Nottoway County regarding potential impacts to

Nottoway Lake, which was acquired pursuant to the Land and Water Conservation Fund Act. See DCR comments in Attachment B.

iv) **Recommendation:** Continue to coordinate with DGIF to resolve issues related to the crossing of the James River Wildlife Management Area, a public resource that was purchased with federal grant funds from FWS. If the project interferes even temporarily with the use of the land for the purposes established pursuant to the federal grant, DGIF's current and future funding from these grants may be in jeopardy.

g) Open Burning and Fugitive Dust

i) **Recommendation:** Include requirements that open burning will be allowed only in accordance with 9 VAC 20-81-95 of the Virginia Solid Waste Management Regulations (VSWMR), and localities should be consulted since they may have additional open burning restrictions. See the DEQ comments in Attachment B.

ii) **Recommendation:** Include requirements that construction activities are subject to the Air Pollution Control Regulations regarding open burning (9 VAC 5-130 et seq.) and fugitive dust (9 VAC 5-50-60 et seq.) and that the project would be subject to any applicable existing source regulations related to the cities of Suffolk and Chesapeake, which are part of a volatile organic compound (VOC) and nitrogen oxide (NOx) emissions control area. See the DEQ comments in Attachment B.

h) Aviation

i) **Recommendation:** Submit Form 7460-1 to the Federal Aviation Administration for any portion of the project that is proposed to be constructed within 20,000 linear feet of a public-use or military airport to determine if the project constitutes a hazard to air navigation. See the DOAV comments in Attachment B.

i) Water Supplies

i) **Recommendation:** Implement heightened erosion and sediment control practices for segments of the pipeline that cross public water supplies. See the DEQ comments in Attachment B for specific location information.

ii) **Recommendation:** Closely monitor construction activities in Augusta County where the pipeline's route passes karst areas in proximity to several significant springs and municipal water supply wells, including Gardner Spring

– City of Staunton, Town of Churchville Wells – Augusta County Service Authority, Lyndhurst Augusta County Service Authority. See the DEQ comments in Attachment B. Consider concerns raised by the City of Staunton in its comments within Attachment B when monitoring construction activities in the Gardner Spring recharge area.

j) Polychlorinated Biphenyl (PCB) Contamination

i) Recommendation: Ensure that either hydroseeding and mulch tackifiers are not used within 100 feet of a waterbody classified as having a PCB TMDL, or ensure that the tackifier is tested for PCB content prior to application for segments of the pipeline that cross PCB TMDL regions, including Lewis Creek headwaters in the Shenandoah River PCB TMDL area, middle James River near Buckingham, Meherrin River near Emporia, Nansemond River near Suffolk, and the Elizabeth River in Chesapeake. See the DEQ comments in Attachment B.

k) Flood Hazard Area

i) Recommendation: Follow DCR's recommendations regarding potential impacts to special flood hazard areas, and coordinate with the locality if the floodplain will be modified. See the DCR comments in Attachment B.

l) Conservation Sites

i) Recommendation: Continue coordination with DCR regarding the Handsom-Gum Powerline, Branchville Powerline, and Emporia Powerline Bog Conservation Sites. See the DCR comments in Attachment B.

m) *Transportation System*

i) Recommendation: Monitor and report conditions throughout construction and for a period of two years following construction completion and restore roadway features to preconstruction conditions or better. See the VDOT comments in Attachment B.

4) Recommendations for Specific Plans

a) Spill Prevention Controls and Countermeasures (SPCC)

i) Recommendation: Update appropriate plans to include the results of dye tracing investigations performed in karst areas in the event that contaminants enter a karst feature, and incorporate DCR's recommendations for monitoring

high risk springs and other karst features. See the DCR comments in Attachment B.

ii) **Recommendation:** Update the SPCC with correct information, including replacing existing contact information with the Virginia Department of Emergency Management 24-hour notification number. As stated in DEQ's comments in Attachment B, provide clarifications that include, but are not limited to, the statutory requirement that notifications of an oil spill are to occur immediately upon learning of the discharge.

b) Migratory Bird Conservation Plan

i) **Recommendation:** Update the Migratory Bird Conservation Plan to include the recommendations from DGIF (as stated in the comments in Attachment B) that include, but are not limited to, the following:

- Adhere to time-of-year restrictions from March 15 through August 31 of any year for tree removal and ground clearing activities to protect nesting migratory birds.
- Provide DGIF a map for review of the great blue heron colony documented from Suffolk (ROOK-ACT-02) and any other colonies located within a quarter mile of the project areas.
- Follow DGIF's recommendations included in its February 7, 2017 letter to Atlantic, which is included in Attachment B.

c) Invasive Plant Species Management Plan

i) **Recommendation:** Update the Invasive Plant Species Management Plan with the following mitigation recommendations from state agencies (see the DOF comments in Attachment B for additional information):

- Consider the likely response of invasive species or target species when prescribing activities that result in soil disturbance or increased sunlight.
- During construction and follow-on maintenance activities, take steps to guard against construction vehicles inadvertently bringing into forest interiors invasive and/or non-native plant species from other locations. Weed seed and fungal spores can be transported in the mud or dirt on vehicles. Prior to moving equipment onto and off of an activity area, scrape or brush soil and debris from exterior surfaces, to the extent practical, to minimize the movement of invasive plants, pests, and diseases to non-infested areas. Another option is to wash vehicles before they enter a weed-free area or when they leave an infested area. The

emphasis of the cleaning should be in the wheels, wheel wells, bumpers, and undercarriage of the vehicle where most mud and dirt collects.
- If seeding or planting is necessary to minimize the threat of highly damaging invasive species from spreading, use native seed or non-invasive cover plants for revegetation.

ii) Recommendation: Update the Invasive Plant Species Management Plan with the information and recommendations provided to Atlantic in DGIF's February 7, 2017, which is included in Attachment B.

d) Plans for the Management of Waste and Contaminated Soil, Sediment and Groundwater

i) Recommendation: Include a Waste and Debris Management Plan. The plan should address how all excess material and debris will be managed in accordance with all applicable federal, state, and local laws and regulations. See the DEQ comments in Attachment B.

e) Plan for Discovery of Unanticipated Paleontological Resources

i) Recommendation: Update the Plan for Discovery of Unanticipated Paleontological Resources to consider the potential for encountering Tertiary or Quaternary vertebrate and plant fossils in unconsolidated (non-bedrock) deposits west of the Blue Ridge in Virginia. See the DMME comments in Attachment B.

f) Blasting Plan

i) ***Recommendation:*** Update the blasting plan to reflect notification of DGIF prior to blasting. See the DGIF and VMRC comments in Attachment B.

g) Karst Terrain Assessment Construction, Monitoring and Mitigation Plan

i) Recommendation: Update the plan with DCR's recommendations to address the impacts of mitigation if there were to be an accidental discharge to karst waters and continue to coordinate with interested state agencies. See the DCR comments in Attachment B.

h) Karst Survey Report

i) Recommendation: Conduct karst hydrological delineations of the area in the report in order to identify karst waters at risk if a release or discharge were to occur from activities associated with pipeline construction. See the DCR

comments in Attachment B.

ii) **Recommendation:** Provide technical clarification to the report as requested by DCR. See the DCR comments in Attachment B.

i) Traffic and Transportation Management Plan

i) **Recommendation:** Incorporate recommendations from VDOT on appropriate requirements, entrances and crossings, pipeline installation, plans, permits and coordination. Consider district-specific comments when updating the plan. See the VDOT comments in Attachment B.

j) Wetland and Waterbody Construction and Mitigation Procedures

i) **Recommendation:** Ensure that the wetland mitigation plan meets DEQ's regulatory requirement of compensation for permanent conversion impacts to wetlands. See the DEQ comments in Attachment B.

ii) **Recommendation:** Ensure that project-specific procedures specify how the upstream and downstream dams should be removed in both the open cut and dry ditch methods, and address how dam removal will limit sediment introduction to waterways and limit scour when flow is restored. See the DEQ comments in Attachment B.

k) Restoration and Rehabilitation Plan

i) **Recommendation:** Update the plan to include monitoring of water quality and riparian habitat. See the DEQ comments in Attachment B.

ii) **Recommendation:** Consider DCR's recommendations regarding seed mixes (general and specific milepost comments), soil compaction, topsoil stockpiles, maintenance methods, and requests for detailed plans for monitoring of restoration success. See the DCR comments in Attachment B.

iii) **Recommendation:** Incorporate the West Virginia Department of Forestry's recommended mitigation measures into the plan and apply the measures to Virginia. Follow Virginia DOF measures where appropriate. See the DOF comments in Attachment B.

l) Site-Specific Horizontal Directional Drill Plans

i) **Recommendation:** Follow DEQ's recommendations for the HDD plan and profile at Reeds Gap that include but are not limited to the development of a

contingency plan to protect groundwater resources. See the DEQ comments in Attachment B for specific recommendations.

m) Timber Removal Plan

i) ***Recommendation:*** Add a requirement that all slash, chips, and debris be managed in accordance with all applicable federal, state, and local laws and regulations, and consider the DEQ recommendation regarding training. See the DEQ comments in Attachment B.

n) Contaminated Media Plan

i) ***Recommendation:*** Follow DEQ's recommendations for testing of contaminated media and contamination that is found to be a health or safety hazard. See the DEQ comments in Attachment B.

o) Protected Snake Conservation Plan

i) **Recommendation:** Consider DCR's recommendations regarding the Protected Snake Conservation Plan. See the DCR comments in Attachment B.

p) Non-Native Invasive Plant Species Management Plan within the Draft Construction, Operations and Maintenance Plans

i) **Recommendation:** Follow DCR's suggestions on the Non-Native Invasive Plant Species Management Plan. See the DCR comments in Attachment B.

5) Errors and Clarification Needs in the DEIS

a) **Recommendation:** Include in the FEIS corrected information and requested clarifications as identified by DGIF, DCR, DEQ, and DMME in Attachment B.

COMMONWEALTH of VIRGINIA

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ATTACHMENT B: DETAILED COMMENTS FROM REVIEWERS

Detailed comments submitted by reviewers are included in this attachment. When applicable, the comments were included in previous sections of this response. As stated previously, the Commonwealth recommends that FERC consider every comment, correction, or recommendation detailed in Attachment B that FERC did not already address during the consideration of Attachment A. To the extent practicable, the Commonwealth recommends that the U.S. Forest Service also consider these recommendations to the degree that they relate to decisions under its jurisdiction.

Impacts of the proposed Atlantic Coast Pipeline

on Virginia's Forests and Mitigation Recommendations

February 16, 2017

Loss of interior forests is specifically addressed in Section 4.5.6 Habitat Fragmentation and Edge Effects, where significant adverse impacts are acknowledged to forested cores in excess of 35 acres in size. The Draft Environmental Impact Statement (DEIS) focuses on the specific potential impacts of fragmentation due to edge effects and references actions that may be carried out to minimize or reduce those edge effects; collocating with existing forest-fragmenting corridors, restrictive timing of disturbances to decrease impact to habitats and planting shrubs along the new forest edge in an attempt to soften/decrease the degree of edge disturbance. While these activities may reduce some local edge effects, they are not presented as mitigation for landscape level fragmentation effects due to loss of interior forest conditions in existing forest cores. Repeated fragmentation of the landscape results in progressively small cores with concomitant diminished values and functions. The FERC recommends the development of a fragmentation analysis for the entirety of the Atlantic Coast Pipeline (ACP) project, pointing to the use of the Virginia Department of Conservation and Recreation's (DCR) Virginia Natural Landscape (VaNLA) for the Virginia portion of the ACP project. See DEIS at page 4-165, a. ii. The Commonwealth's natural resource agencies, including DCR, the Department of Forestry (DOF), and the Department of Game and Inland Fisheries (DGIF), concur with this recommendation, and produced the following analysis of direct and indirect impacts to upland forests as well as *initial* long-term and landscape-level mitigation recommendations to address those impacts to interior forests in the ACP project area.

Background and Need

To the extent that direct and indirect impacts to upland forests from the ACP cannot be avoided, they should be mitigated. Forests are ecologically and economically beneficial to the Commonwealth, and approximately 16,000 acres per year have been lost in the period between 2000 and 2010. This represents an area about equal in size to the city of Charlottesville, Virginia. The current alternative for the Virginia segment of the ACP (Rev 11a, as of December

2016) intersects some of the largest blocks of unfragmented forest in Virginia. This analysis of fragmentation impacts was conducted just prior to the release of Rev 11a, and thus uses Rev10a.

Conserving forest cover and improving forest productivity is critical for maintaining functioning forest ecosystems and the Commonwealth's robust forest industry. Virginia's forests provide a range of important benefits including forest products, recreational opportunities, wildlife habitat, aesthetic values, and protections for air and water quality. Forests contribute the lowest nutrient and sediment loadings to Virginia's waterways of any type of land cover. In addition, forests are the best land cover for intercepting precipitation required for the recharge of groundwater aquifers. Forests also sequester carbon dioxide and produce oxygen. Large scale forest conversion activities, such as those imposed by a pipeline and associated infrastructure, reduce the area and ability of forests to provide these services, via loss of forests in the project footprint and fragmentation of intact forest expanses. For the purposes of this document and the analysis described herein, the project footprint is defined as the limit of direct disturbance during pipeline construction.

Fragmentation

Unfragmented, large patches of forest contribute greater ecological benefits than the same total area of forest distributed among smaller patches. Larger forested patches exhibit increased resource availability to support a greater richness (i.e. number) of plant and animal species populations and of greater genetic diversity than those in smaller patches. In general, biodiversity approximately doubles with every tenfold increase in habitat area. Species populations and natural communities in larger forested cores are more resilient to various landscape-level disturbances (Didham 2010). When forest cover is fragmented, biodiversity and habitat value for forest interior species diminishes. Large patches also insulate species from "edge effects" that adversely affect their ability to survive and reproduce. For example, forest-dwelling migratory songbird populations in large forest blocks experience less brood parasitism, nest-cavity competition, and nest predation than those in fragmented forests with more edge habitat. Fragmentation also impacts the forest's ability to prevent erosion, retain soil, harbor pollinators that are important for agricultural lands, remove carbon from the air and store it

within trees, slow and absorb runoff so groundwater is recharged, absorb solar energy keeping local areas cooler, and provide protection from storm and flood damage. For these reasons, the Commonwealth's natural resource agencies have looked beyond the currently forested areas of the ACP project footprint (i.e. direct forest losses) to measure the indirect impacts of forest fragmentation so that mitigation can also address significant indirect losses and thus the full ACP forest impact.

Identifying Direct and Indirect Impacts

Direct impacts are defined as "those impacts caused by the proposed action that occur at the same time and place" and indirect impacts are "caused or induced by the action but occur later in time or are removed in distance" (DEQ, 2013). Therefore, this analysis assesses not only the footprint of the pipeline route that would be converted from forest to non-forest (direct impact), but also the extent to which the functions and values of the remaining forest are diminished due to fragmentation (indirect impact). Within the forest context:

- *Direct impacts* consist of loss of forest cover within the project footprint, and the associated losses of forest-dwelling species habitat; ecosystem services pertaining to filtration and recharge of groundwater and clean air; economic losses of forest products; and loss of forest area for recreational uses. In our approach, direct impact forest loss was quantified and addressed anywhere that the proposed route intersected a forest patch with more than 10 acres of interior (defined below).
- *Indirect impacts* include significant alteration of the conditions in the forest surrounding the directly impacted area and the separation of previously unified patches of habitat. In our approach, indirect impacts were only assessed where the project footprint would traverse patches of forest habitat containing at least 100 acres of intact, interior forest. Interior is defined as the area of a forest patch minus the 100-meter transition zone around its perimeter within which edge effects diminish forest values. This 100-acre interior forest area criterion is also the basis for the designation of a forest core in the VaNLA, which we used to

quantify impacts to forests (discussed later). Indirect impacts were not assessed in the smaller non-core forest blocks because these areas were assumed to be already fragmented. Accounting for indirect impacts is also the practice of the USFWS when accounting for impacts of pipeline projects on migratory bird habitat to account for fragmentation impacts on the surrounding forest (Gosse 2016).

Failing to account for indirect impacts of the ACP to forests would gravely underestimate the extent to which the project would affect Virginia's forest habitat. Long linear disturbances (e.g. pipelines) have the potential to ribbon through the forested landscape creating extensive and degrading edge effects in what was previously interior forest habitat. The U.S. Environmental Protection Agency's Office of Sustainable Communities released a report, "Our Built and Natural Environments: A Technical Review of the Interactions Among Land Use, Transportation and Environmental Quality"[1] (USEPA 2013), noting that impacts caused by fragmentation extend far into the interior of the remaining forest. The report cites a study of the fragmenting impact of a Massachusetts suburban highway that found that while the road-effect zone tends to be asymmetric and variable, in general it extended more than 328 feet (100 meters) and some effects occurred more than 0.62 miles (1 kilometer) from the road.

Indirect impacts significantly degrade forest ecosystems, as is evidenced in a very large body of peer reviewed research. Haddad et al (2015), synthesized fragmentation experiments spanning multiple habitats and scales, five continents, and 35 years, concluding that habitat fragmentation reduces biodiversity by as much as 75% and impairs key ecosystem functions by decreasing biomass and altering nutrient cycles. Across the experiments surveyed, effects were greatest in the smallest and most isolated fragments, and increased over time.

The Virginia Natural Landscape Assessment (VaNLA)

We calculated impacts of direct and indirect forest loss using the VaNLA (Bulluck et al. 2007), which identifies, classifies, and ranks all existing "ecological cores" (≥100-interior-acre forest patches) and smaller non-core (10-99-interior-acre) habitat fragments in Virginia based on

[1] The impact of the long, linear footprint of roads is analogous to that of pipelines and is therefore relevant to this case.

several key indicators of ecological functions of forests. The VaNLA was designed to facilitate conservation of significant forests that protect biodiversity and provide essential ecosystem services, and has been used by various Virginia state agencies, local governments, federal agencies, Planning District Commissions, universities and conservation non-profit organizations for land and species conservation as well as local and regional planning. Moreover, the VaNLA has received repeated recognition outside the Virginia border as an exemplary landscape level assessment of ecological integrity of forests.

The VaNLA methodology builds on pioneering work done by the Chesapeake Bay Program's Resource Lands Assessment, Maryland's Green Infrastructure Assessment, and the Delmarva Conservation Corridor Initiative, and is accepted by the scientific community. This approach is based upon thousands of scientific studies on the effects of fragmentation on species populations, natural communities and ecosystem function and services (Didham 2010).

In short, the VaNLA consists of a statewide spatial dataset of all remaining intact forest habitat or "ecological cores" with at least 100 acres of interior (Bulluck et al. 2007). These cores are attributed with over 50 variables pertaining to a variety of environmental and natural resource values, and statistically analyzed to assess their ecological value relative to the surrounding landscape based on key variables including core size and isolation; topographic variability; depth of interior; length of interior streams; wetland habitats; rare species habitats; presence of exemplary natural communities; and availability of habitat for Species of Greatest Conservation Need (SGCN), identified in the Virginia State Wildlife Action Plan. This results in an ecological integrity score for each core, ranging from 1-Outstanding to 5-General Significance.

In general, larger, more biologically diverse cores are assigned higher ecological integrity scores. Scores are also higher if the core or habitat fragment is part of a larger complex of natural lands, when it is known to provide significant species habitat, and/or when cores, via extensive inclusion of forested streams and wetlands, contribute to water quality enhancement. *The VaNLA, as a statewide assessment of all remaining forested cores based upon these key indicators of ecological values, is most appropriate and the best available statewide dataset for addressing the impacts of landscape level impacts to forest values in Virginia.*

Methodology to Assess Direct and Indirect Impacts

The following summarizes how we analyzed the VaNLA forested cores intersected by the ACP Rev 10a alignment, access roads, pipeyards/laydown yards, and staging areas were analyzed to calculate acres of direct and indirect impacts to forests.

Direct impact acres were calculated simply as the forested areas of the construction footprint of the pipeline alignment and associated disturbances to forests, using the VaNLA.

Indirect impact acres (i.e. diminished integrity caused by fragmentation) were calculated through an in-depth spatial analysis as discussed in more detail below.

Addressing indirect impacts with the VaNLA

The VaNLA enables the quantification of indirect impacts pertaining to three fragmentation effects: increased edge effects, creation of smaller fragments from once larger forest cores, and reduced size of original forest cores (Didham 2010).

Increased edge effects: Edge effects result from the creation of non-forest within what was previously forest habitat and may decrease the amount of interior. Forest edges have greater exposure to wind and longer and more intense exposure to sunlight, which means that plant and animal species within newly created edges experience hotter and drier conditions to which they may not be adapted. Edges resulting from long linear disturbances facilitate the spread of non-native and invasive species, because the disturbed areas alongside roads or within a transmission right-of-way (ROW) provide long corridors of uninterrupted habitat in which weeds can thrive with little competition from woody plants (EPA 2013). The modified habitat within the forest edge is vulnerable to changes in species composition and structure, as plants and animals that can out-compete interior forest-dependent species gain access through the newly created ROW. New pests and pathogens, invasive plant species and predators are thus introduced to the forest communities, disrupting the ecological function of the forest, at least 100 meters into the adjacent forested area (Graham 2002).

Creation of forest fragments from cores: Transecting intact forest with pipelines, roads, or transmission ROW can result in patches that no longer contain the minimum area of interior

forest habitat to qualify as cores. The VaNLA methodology sets the minimum size for a viable forest core to 100 acres of interior (Bulluck et al. 2007). Similar assessments have used 250 acres as the minimum size criterion (SWCA 2010). New smaller patches behave more like edge habitat and may become population sinks to which species are drawn but within which they cannot reproduce successfully due to predation or lack of critical resources (Robinson and Wilcove 1994).

Reduced size of forest cores: Ensuring that the forest patches remaining on the landscape meet the established minimum size criterion does not avoid fragmentation impacts. Even smaller interior forest patches exhibit decreased resource availability, lower species richness, lower genetic diversity, and thus, less capacity for species populations to adapt to various natural and human-induced changes on the landscape. Thus, when edge effects permeate a landscape, creating relatively smaller forest patches, the compounding negative indirect impacts to forests are exacerbated (Didham 2010, Haddad et al 2015).

Quantifying Indirect Impacts with the VaNLA

We quantified the indirect impacts to forests (i.e., fragmentation effects) via use of the VaNLA to calculate a Core Integrity Impact. The Core Integrity Impact calculation allowed us to translate the three effects of fragmentation - edge effects, creation of non-core forest patches, and resulting cores of reduced size and ecological integrity – to area in acres. The Core Integrity Impact was calculated using both a Fragmentation Factor and Depth Factor, each of which is discussed in more detail below.

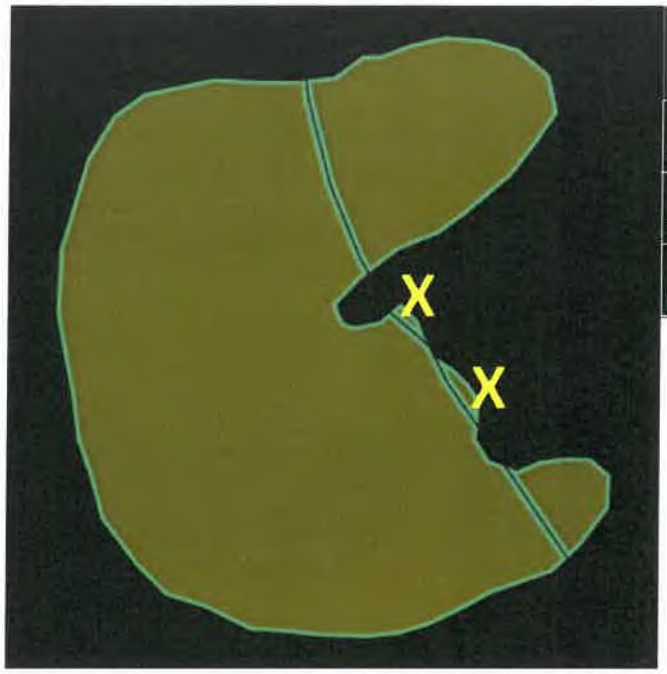
For purposes of illustration and description we use the term "parent core" to refer to a forest core in its current, pre-impact condition. The parent core represents the baseline condition that is permanently degraded by the habitat loss and fragmentation imposed by the ACP. In order to estimate the degree of degradation of the parent core, we used the size and shape statistics of the (pre-impact) parent core to quantify the increase in edge effects and creation of smaller cores and non-core forest fragments. Edge effect is commonly quantified and expressed by the ratio of interior forest area to the perimeter of each core (i.e. IA/P ratio).

These statistics enable calculation of a Fragmentation Factor for every intersected core, which helps to calculate the Core Integrity Impact for each core.

Figure 1 provides a representative example that illustrates the Fragmentation Factor calculation of the overall Core Integrity Impact for a single core. All area calculations were conducted in square meters to retain precision, and later converted to acres. Interior area is the area of the parent core minus the 100 meter transition zone to existing non-forest vegetation cover. In this example, when the parent core is intersected by the pipeline, two smaller cores (upper right and lower right lobes) are created, as well as two-non-core fragments, which are considered lost and no longer meet the criterion for 100 acres of intact interior. The fragmented core interior area is the sum of all the remaining areas meeting the 100-acres of intact interior criterion. The before-impact perimeter is the overall perimeter of the parent core and the after-impact perimeter is the cumulative perimeter all the resulting fragments. The IA/P ratio is calculated by dividing the interior area by the perimeter for each core.

The Fragmentation Factor quantifies the degree to which the proposed pipeline route changes the size and shape of a core, thereby diminishing the ecological integrity of the core. It is calculated by taking the inverse of the relative proportion of change in the IA/P ratio, brought about by the fragmenting pipeline feature. By relying on the change in these size and shape statistics, the Fragmentation Factor measures a relative loss, in area, of the indirect loss of forest values due to edge effects and the creation of smaller cores and non-core fragments. Note that these calculations do not address the footprint of the pipeline itself (i.e. the direct impacts), which is accounted for in the calculation of direct impacts and represents 92 acres in the example.

Figure 1. Calculation of the Fragmentation Factor Variable in the Core Integrity Impact



Fragmentation Factor Statistics	Before (Parent Core)	After (Fragmented Core)
Interior Area ≥ 100 acres (m2)	97,969,748	95,795,989
Perimeter (m)	48,134	64,696
IA/P Ratio	2,035	1,481

Fragmentation Factor

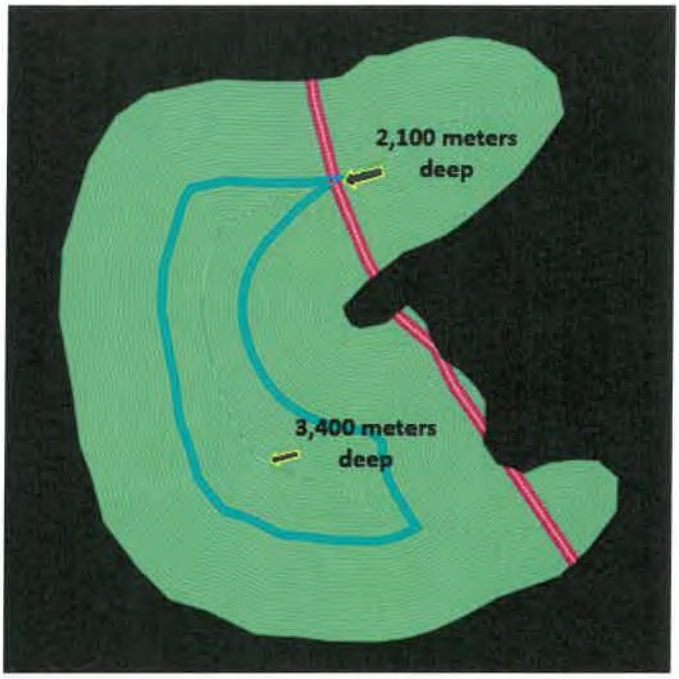
1 – (1,481 / 2,035) = 0.27

The Fragmentation Factor does not address the degree to which a pre-impact core is divided into smaller cores. For example, indirect impacts to a forested core, due to the nature of edge effects, are considered less where a disturbance is located closer to the periphery of the original parent core. In other words, impacts to the outer portions of a core have relatively less detrimental impacts on the original core due to the fact that deeper interior conditions are retained in the resulting parent core. Conversely, impacts to deeper areas of a core have relatively greater indirect impacts to a pre-impact core by leaving a smaller remaining cores. Therefore, a Depth Factor was calculated to address the location of the pipeline within a core and the resulting depth of penetration.

Using 100-meter inward buffers of the outmost pre-impact parent core perimeter, the maximum depth of every core was calculated via measurement to the most central ring. In the representative example provided in Figure 2, the maximum core depth is 3,400 meters. Likewise, the depth of penetration of the pipeline was also measured at the deepest point of penetration; 2,100 meters in the Figure 2 example. The Depth Factor was then calculated as the proportion of overall depth that is penetrated by the pipeline, and thus represents the

depth of interior conditions where edge effects would occur and interior forest conditions would be lost.

Figure 2. Calculation of the Depth Factor Variable in the Core Integrity Impact



Depth Factor

Depth of Penetration / Maximum Depth = 2,100 / 3,400 = 0.62

Note the influence of the location of the pipeline within a core. Impacts to outer depth bands result in a smaller Depth Factor, thereby also decreasing the Core Integrity Impact

After calculating both the Fragmentation Factor and the Depth Factor, we applied these calculations to determine the indirect impact to each forest core, also known as the Core Integrity Impact, using the following equation:

Core Integrity Impact = Parent Core Size (acres) x Fragmentation Factor x Depth Factor =

Applying this formula to the example provided in Figures 1 and 2, the Core Integrity Impact would be calculated in acres as:

25,389 acres x 0.27 x 0.61 = 4,182 acres

The total impacts include both the direct impacts from the construction footprint of the pipeline and the indirect impacts calculated through the Core Integrity Impact formula. As such, the total impacts to the core are provided through the following summation:

Total Impact = Direct Impacts + Core Integrity Impact

Therefore, per the example provided in Figures 1 and 2, the total impact would be calculated in acres as:

92 acres + 4,182 acres = 4,274 acres

Results

Overall, the ACP Rev 10a alignment, access roads, pipeyards/laydown yards, and staging areas intersect 203 features in the VaNLA representing 145 forested cores and 58 non-core habitat fragments (Table 1).

Table 1. Summary of Cores and Non-core fragments impacted by the ACP

VaNLA features intersected	Number intersected
C1 core	6
C2 core	21
C3 core	13
C4 core	39
C5 core	66
Total cores	**145**
Non-core forest	58
Total VaNLA features	**203**

The total impact (i.e. Direct + Indirect) was calculated for each of the 145 cores intersected by the Rev 10a alignment and associated infrastructure footprint of the ACP. Additional direct

impacts were calculated for the 58 non-core forest patches intersected by the pipeline alignment, but these non-core forests were excluded from calculations of indirect impacts because these non-core patches do not meet the ecological core criteria of 100 interior acres. Direct and indirect impacts were also separated based on the ecological integrity scores of the intersected cores; C1-Outstanding and C2-Very High ranked cores were treated separately than cores ranked C3, C4 and C5. Based on the higher ecological value of C1 and C2 cores, we felt this separation to be necessary in order to allow mitigation ratios and mitigation activities to account for the fact that some forest cores would receive disproportionately greater impacts. In other words, mitigation measures for a core of highest ecological integrity should be greater to attempt to sufficiently address the loss in ecological values to that exceptional forest core. Table 2 summarizes the acres of impact anticipated with the ACP Rev 10a alignment and associated supporting infrastructure areas.

Table 2. Summary of Forest Impacts

Summary of Forest Impact (acres)		
	Direct	Indirect
C1 and C2 Cores	1,072	19,945
C3 – C5 Cores	2,099	24,282
Non-Core Forest Blocks	252	n/a
TOTAL	3,423	44,227

Though the pipeline ROW and associated access roads and construction areas have a very narrow footprint (i.e. the direct impact area), the indirect effects extend 100 meters beyond both sides of the project footprint into the surrounding forest (Graham 2002) to impact additional areas of the parent core. The ratio of direct to indirect impacts is a function of: 1)

the length of edge created and the area of core forest converted to non-core forest (fragmentation factor), and 2) the amount of fragmentation of large intact cores (depth factor). The ratio of direct to indirect impacts is large in this specific case because the proposed construction right of way deeply penetrates many large forest cores with high ecological integrity. If the project avoided deeply penetrating large intact forest cores, a commensurately smaller ratio of direct to indirect impacts would result, as indirect impacts would also be less.

Proposed Mitigation Practices

As discussed previously, to the extent that direct and indirect impacts to the Commonwealth's forests may not be avoided, they must be mitigated. The Commonwealth's natural resource agencies, representing a breadth of expertise in the ecological, environmental and economic values of upland forests, suggest three activities to address direct and indirect impacts to forests: afforestation, avoided deforestation, and forest enhancement. We agree with the FERC's recommendation to develop a fragmentation analysis for the entirety of the ACP project area, and we believe that these three activities should be utilized in analyzing and quantifying the scale of mitigation.

In addition, and as discussed in more detail in the sections below, the mitigation plan should include mitigation ratios that are developed for each of the three mitigation activities. A different ratio of mitigation acres to impact acres should be identified for each mitigation activity to ensure that an ACP forest mitigation program results in effective conservation benefits. Also, separate mitigation ratios should be developed to specifically account for the impacts to C1 and C2 cores; C3, C4 and C5 cores; and non-core forest blocks intersected by the pipeline and associated infrastructure. In general, factors to consider in the assignment of ratios should include the time lag between the impact and the restoration of ecosystem services through the mitigation activity, the risk of failure, the difference between what is lost and what is replaced, the ability to offset the full suite of negative impacts occurring at the project site, and the extent to which the respective mitigation activity results in no net loss of forest habitat.

The following summarizes each of the three recommended mitigation activities and provides additional detail regarding considerations in the development of mitigation ratios.

Afforestation [Restoration]

This mitigation activity consists of converting open land to forest by planting native trees appropriate for the ecoregion in which the impact being mitigated for occurred. This activity offsets the forest conversion that occurs in the project footprint by creating additional forestland. The planted acres would have to be protected from conversion to any other land use in perpetuity. The USFWS recommends this as the primary mitigation activity for pipeline impacts (Gosse 2016), and habitat restoration is an analogous activity that is accepted for mitigation of wetland impacts. The Virginia Department of Forestry expects that it will be difficult to meet all the mitigation acres needed to compensate for impacts from the ACP through this activity alone, and has therefore recommended that a portion of the mitigation need be achieved through other activities pursuant to the federal Council on Environmental Quality (CEQ) National Environmental Policy Act (NEPA) guidelines (40 Code of Federal Regulations (CFR) 1508.20). Due to the difficulty in finding suitable acres for this mitigation activity, we recommend that this activity only be applied to direct impacts.

In developing mitigation ratios for this activity, we recommend following the rationale of Virginia's wetland mitigation program whose guiding principal is to achieve "no net loss" of wetlands in Virginia. As such, the total acreage of mitigation activities from afforestation (forest restoration/replacement) should exceed the direct impact acreage. In addition, the ratios must account for the risk of failure inherent within any restoration/afforestation project. The ratios also must account for the time lag, which is significant, between mitigation put on the ground (acreage of planted trees) and a mature forest with its intact ecological functions that is similar to what is lost. Finally, we recommend that the ratios should be larger for those impacted habitats that have the highest pre-impact ecological integrity (i.e., those ranked C1 and C2).

Avoided Deforestation [Preservation]

This mitigation activity consists of permanently protecting forestland from conversion to other land uses. This activity offsets ROW clearing and fragmentation impacts by ensuring that other nearby forestland that could otherwise be at risk of conversion will be maintained in forestland in perpetuity. As with afforestation acres, this mitigation activity requires that a perpetually protective instrument overlay the mitigation acreage. These protected forest acres remain as forest, although harvesting timber may be allowed as long as the harvested area is allowed to regrow as forest or is replanted. We recommend that this mitigation activity be applied to both direct and indirect impacts associated with pipeline construction and long-term corridor maintenance.

In developing mitigation ratios for this activity, we again recommend following Virginia's wetland mitigation principle of achieving "no net loss." While this activity is analogous to preservation in the wetland mitigation realm, it does not result in no net loss of forest. As such, the ratios for this activity should be greater than those for afforestation to account for the fact that avoided deforestation results in permanent protection from conversion of *already forested* habitats and does not add "new forest" on the landscape. As with the afforestation mitigation activity ratios, the ratios for this activity should be larger for those impacted habitats that have the highest pre-impact ecological integrity.

Finally, because we recommend that avoided deforestation be applied to both direct and indirect impacts, the ratios should reflect the differences between these impacts. The ratios for indirect impacts should be smaller than for direct impacts in recognition of the fact that while indirect impacts result in conversion of habitat from core habitat to edge habitat, the woody structure and some of its ecological function may remain, although in a diminished state.

Forest Habitat Improvement [Enhancement]

This mitigation activity consists of implementing appropriate silvicultural practices that result in the improvement of ecological functions of forests on public and private lands. This mitigation activity offsets fragmentation impacts by increasing the ecological integrity of nearby forests. As such, we recommend that this mitigation activity only be applied to the indirect effects upon core forests. The forest improvement achieved should persist for a "significant period of time"

or until the lift in ecological value is sustainable with little or no management. This is analogous to wetland enhancement in the wetland mitigation realm. As with afforestation and avoided deforestation mitigation activities, this mitigation activity requires that a perpetually protective instrument overlay the mitigation acreage.

In developing mitigation ratios for this activity, we recommend that the ratios for forest habitat improvement activities should be smaller than those developed for avoided deforestation. The rationale behind this is that the risk of failure with these types of projects is relatively small, they appropriately compensate for forested habitat degradation associated with fragmentation (indirect effects), and there are likely many opportunities to generate habitat lift in this way across the Commonwealth. As with the prior mitigation activities, we recommend that the ratios for this activity should be larger for those impacted habitats that have the highest pre-impact ecological integrity.

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DEQ CONSOLIDATED PROGRAM COMMENTS – March 3, 2017

Atlantic Coast Pipeline – DEIS

Virginia Water Protection (VWP) – Wetlands

DEQ recognizes that there will be state and federal permitting requirements related to wetland and stream crossing activities associated with the ACP project which are in addition to the Environmental Impact Statement process. Our comments are based on reviewing current GIS mapping overlain with the proposed ACP alignment submitted as of January, 2017, as well as the map sheets and other material in the DEIS.

Recommendations:

DEQ is concerned that the proposed temporary impacts could result in a permanent alteration of the impacted systems post construction. The final EIS should include a requirement for **Pre-impact characterizations** of proposed stream and wetland crossings which go beyond the normal jurisdictional determination requirements to include sufficient evidence that the system will be able to maintain its original functions indefinitely after restoration. Pre-impact characterizations should include stream surveys, subsurface investigations at temporary stream and wetland impact areas to establish the feasibility of restoring the systems post construction and hydrologic assessments, including piezometers, to establish pre-impact hydrologic conditions at temporary wetland impact areas.

Section 2.3.3, Wetland Crossings - During trench excavation in all wetlands, saturated or unsaturated, segregate the upper 12-inches of the soil profile within wetlands as "wetland topsoil" from the underlying subsoil, store the wetland topsoil in a soil stockpile separate from other soil materials, and upon closing the trench, use the wetland topsoil to fill the upper 12-inches of the trench to reconstruct the wetland soil profile. Restore temporarily disturbed wetland areas to pre-existing conditions within 30 days of completing work at each respective temporary impact area, which shall include reestablishing preconstruction elevations and contours with topsoil from the impact area and planting or seeding with appropriate wetland vegetation according to pre-disturbance cover type until disturbed sites are permanently stabilized.

Section 4.3.2, Surface Water Resources, Page 4-87 – The final EIS should inventory locations of private ponds relative to pipe and road network similar to other surface water resources. Recommend locating the road and pipe crossings down gradient of private ponds to the maximum extent possible and developing enhanced erosion and sediment control (ESC) measures to protect ponds from secondary impacts of construction where route alignments are not possible.

4.3.2.6 General Impacts and Mitigation, Page 4-100 - DEIS states "Waterbodies would be crossed using the open cut, flume, dam and pump, HDD, and cofferdam methods, which are described in detail in section 2.3.3.1. The specific construction method proposed for each waterbody crossing is listed in appendix K. Crossing methods for each waterbody were selected based on the topography, soil conditions, subsurface geology, and the width and depth of the waterbody." Since HDD would result in no impacts to streams and is considered an avoidance measure, recommend considering HDD, if practicable, at crossings of sensitive waters, e.g., trout waters, high quality streams, T&E waters, etc.

Additional Information or Clarification Needed:

4.3.2 Existing Surface Water Resources, Page 4-92 – Access roads cross surface waters 490 times, with 455 of these crossings being permanent. Many of the impacts to streams are associated with access roads. Use of temporary access roads where possible is preferable to permanent access roads.

Section 4.3.2, Surface Water Resources – The final EIS should provide details regarding materials to be used and installation methods for all temporary culverts and temporary fill in waterbodies and wetlands for permanent and temporary access roads, including methods proposed to stabilize fill material. ACP should include a detailed analysis of all alternatives to the use of culverts and temporary fill, such as relocations and bridges, to reduce both permanent and temporary waterbody impacts.

Section 4.3.2, Surface Water Resources – Discuss and identify the location of fill sources needed for permanent and temporary stream crossings, ATWS, yards, etc., as obtaining fill may cause additional project environmental impacts including additional land disturbance, tree removal, stream impact, and wetland impact.

4.3.2 Surface Water Resources, Page 4-91 - The DEIS states, "Major waterbodies are those that are greater than 100 feet wide, intermediate waterbodies are greater than 10 feet wide but less than or equal to 100 feet wide, and minor waterbodies are those that are less than or equal to 10 feet wide." DEQ notes that many spring-fed perennial stream systems within the mountainous region are often significantly less than 10' at the ordinary high water mark (OHWM). DEQ recommends the final EIS identify stream type using a more robust method than width at OHWM.

4.3.3.8 Wetland Mitigation, Page 4-125 – The DEIS states that mitigation plans have not been finalized. Please note that DEQ's regulation requires compensation at a 1:1 compensation to impact ratio for permanent conversion impacts to wetlands. DEQ notes that approximately 98% of 219 acres of the reported PFO impacts are conversion impacts, though it is unclear what portion will be permanent.

Comments for Specific Crossings

API-1

91.5 This Jackson River crossing will use a dam/pump around and cofferdam. Recommend conducting work during low flow conditions to the maximum extent practicable. Due to a complete blockage of the river during work, ensure strict adherence to all recommended Time of Year Restrictions (TOYR's).

111.4 This Calfpasture River crossing will use a dam/pump around and cofferdam. Recommend conducting work during low flow conditions to the maximum extent practicable.

112.2 This Calfpasture River crossing will use a dam/pump around and flumes. Recommend conducting work during low flow conditions to the maximum extent practicable.

148.6 This South River crossing runs for 385' through an area indicated as PFO wetlands, resulting in 0.5 acre temporary impacts and 0.3 acre permanent conversion impacts. The crossing is also located immediately downstream from the confluence of an unnamed perennial tributary of the

South River. Recommend evaluating the practicability and potential environmental benefit of crossing the South River further to the east and downstream of the confluence.

184.8 This James River crossing will use HDD. The associated HDD Rig-side Workspace on the east bank of the James River extends east for approximately 200' into a PFO wetland, resulting in approximately 0.8 acre of temporary impacts. Recommend evaluating the practicability of shifting or reconfiguring the geometry of the workspace to reduce temporary impacts to the PFO wetland. Due to clearing and staging activities adjacent to the river, and the potential for an inadvertent release of drilling mud, ensure strict adherence to all recommended Time of Year Restrictions (TOYR's).

220.8 This Appomattox River crossing will use only cofferdams. Recommend conducting work during low flow conditions to the maximum extent practicable. Ensure that the materials and design of the cofferdam are sufficient to withstand unanticipated high flows. Recommend staging the construction of the cofferdams so that no more than 50% of the river is blocked at any time. Ensure strict adherence to all recommended Time of Year Restrictions (TOYR's).

229.2 This Flat Creek crossing occurs at a reach of stream that runs parallel with the pipeline's alignment, resulting in 0.3 acre of temporary impacts to PEM wetlands associated with Flat Creek. Recommend evaluating the practicability of shifting the alignment slightly north to cross Flat Creek on a perpendicular to reduce wetland impacts.

260.7 This Nottoway River crossing will use only cofferdams. Recommend conducting work during low flow conditions to the maximum extent practicable. Ensure that the materials and design of the cofferdam are sufficient to withstand unanticipated high flows. Recommend staging the construction of the cofferdams so that no more than 50% of the river is blocked at any time. Ensure strict adherence to all recommended Time of Year Restrictions (TOYR's).

API-3

12.4 This Meherrin River crossing will use cofferdams and open cuts. Recommend conducting work during low flow conditions to the maximum extent practicable. Ensure that the materials and design of the cofferdam are sufficient to withstand unanticipated high flows. Recommend staging the construction of the cofferdams so that no more than 50% of the river is blocked at any time. Ensure strict adherence to all recommended Time of Year Restrictions (TOYR's).

27-36 The streams crossed within this range all drain into the Nottoway River. Ensure strict adherence to all recommended Time of Year Restrictions (TOYR's) at all jurisdictional crossings within this range.

32.6 This Nottoway River crossing will use HDD. Due to clearing and staging activities adjacent to the river, and the potential for an inadvertent release of drilling mud, ensure strict adherence to all recommended Time of Year Restrictions (TOYR's).

36-43 The streams crossed within this range all drain into the Blackwater River. Ensure strict adherence to all recommended Time of Year Restrictions (TOYR's) at all jurisdictional crossings within this range.

38.6 This Blackwater River crossing will use HDD. Due to clearing and staging activities adjacent to the river, and the potential for an inadvertent release of drilling mud, ensure strict adherence to all recommended Time of Year Restrictions (TOYR's).

63.6 This Western Branch Nansemond River crossing will use HDD. Due to clearing and staging activities adjacent to the river, and the potential for an inadvertent release of drilling mud, ensure strict adherence to all recommended Time of Year Restrictions (TOYR's).

64.4 This Nansemond River crossing will use HDD. Due to clearing and staging activities adjacent to the river, and the potential for an inadvertent release of drilling mud, ensure strict adherence to all recommended Time of Year Restrictions (TOYR's).

81.8 This Southern Branch Elizabeth River crossing will use HDD. Due to the potential for an inadvertent release of drilling mud, ensure strict adherence to all recommended Time of Year Restrictions (TOYR's).

Water Quality Monitoring and Assessment

TMDL Recommendations:

For segments of the ACP that cross TMDL Implementation Planning (IP) watersheds, where implementation has already occurred, destruction of BMPs such as livestock exclusion and riparian buffers need to be replaced or have funds allocated to replace the BMPs nearby. This would include, but may not be limited to the following IP watersheds:

- One watershed of the "Chowan River Watershed (Beaver Pond Creek watershed) IP", AP-1: MP 255 to 259.7
- Three watersheds of the "Flat, Nibbs, Deep, and West Creeks (Flat Creek, West Creek, and Deep Creek) IP", AP-1: MP 226.9 to 247.4
- Three watersheds of the "Middle River Watershed (Upper Middle River, Lower Middle River, and Moffett Creek) IP", AP-1: MP 118.1 to 136.6
- Two watersheds of the "Rockfish River Watershed (South Fork Rockfish River and Lower Rockfish River) IP", AP-1: MP 158.2 to 167.9
- Three watersheds of the "Slate River and Rock Island Creek TMDL (North River, Lower Slate River, Upper Slate River watershed) IP", AP-1: MP 188.6 to 213.5
- Two watersheds of the "South River Watershed and Christians Creek (Christians Creek and Lower South River) IP", AP-1: MP 137.8 to 158.3
- One watershed of the "Spring Creek, Briery Creek, Bush River, Little Sandy River and Saylers Creek (Saylers Creek) IP", AP-1: MP 222.6 to 227
- One watershed of the "Tye River, Hat Creek, Rucker Run and Piney River (Rucker Run) IP", AP-1: MP 177.4 to 178
- One watershed of the "Willis River Watershed (Willis River) IP", AP-1: MP 202.4 to 213.5

For segments of the ACP that cross applicable TMDL watersheds, Class V and VI waters, threatened and endangered species waters, and benthic impairments the following recommendations apply:

- Pre and post construction monitoring of benthic assemblages, Relative Bed Stability, and riparian forest cover should be monitored. In-stream monitoring may not be necessary if

streams are not flowing during crossing. This is similar to what is recommended in recommendation number 44 on page 5-36 of section 5.2 of the DEIS for Laurel Run in the GWNF.

- Monitoring as suggested above could be used to support the language on page 4-97 section 4.3.2.5 where it states that impairments are not anticipated to be exacerbated in the long-term by the construction or operation of the projects and that there may be a short term, minor increase in temperature in the immediate vicinity and downstream of the crossing due to clearing of riparian vegetation, including through permanent right-of-way maintenance, but that it is expected to be minimal.
- On page 4-106 section 4.3.2.6 it states that "The majority of the impairments are related to parameters that are not typically influenced by construction activities or pipeline operations...construction activities would be temporary and short-term in nature and are not anticipated to further any of the listed impairments." This may not be the case for benthic impairments where it could further impact them. Therefore monitoring should be considered.

Applicable TMDL watersheds include:

- The Jackson River Watershed – Total Phosphorus and Total Nitrogen TMDLs, AP-1: MP 84 to 93.7 For segments of the ACP crossing the Jackson River TMDL watershed, please note that high nutrient concentrations have been observed in the Jackson River, and appear to be resulting in significant periphyton growth which may impact the benthic macroinvertebrates present in the river.
- The Lewis Creek Watershed – Sediment, Lead and PAH TMDLs, AP-1: MP 136.6 to 137.8. The TMDL study prescribes a 57.04% reduction in sediment loadings, which will necessitate heightened erosion and sediment control during land disturbing activities in this watershed
- Middle River and Upper South River Watersheds - Sediment, Phosphorus, Mercury TMDLs; Christians Creek watershed, Moffett Creek watershed, Middle River watershed, AP-1: MP 118.1 to 145. The TMDL study prescribes a 25.9% reduction in sediment loadings, which will necessitate during land disturbing activities in this watershed.
- The James River Watershed portion of the Chesapeake Bay TMDL – Sediment, Nitrogen and Phosphorus, AP-1: MP 53 to MP 82.6. For segments of the ACP crossing the Chesapeake Bay TMDL tributaries, heightened erosion and sediment control practices should be implemented.

Benthic impairments crossed by the ACP include:

- Horsepen Creek (VAC-H21R_HOX01A08), AP-1: MP 201.1 to 201.2
- Christians Creek (VAV-B14R_CST02A00), AP-1: MP 142.5 to 145.6
- Back Creek (VAV-B31R_BCK01A00), AP-1: MP 153.6 to 153.7
- Mills Creek (VAV-B31R_MLS01A02, AP-1: MP 152.8 to 152.9

Class V, Stocked Trout Streams crossed by ACP include:

- Mill Creek (VAV-I30R_MIT02A10),AP-1: MP 103 to 103.1
- Folly Mills Creek (VAV-B14R_FMC02A10), AP-1: MP 139.1 to 13.92
- Jackson River (VAV-I01R_JKS02A00), AP-1: MP 91.4 to 91.5

Class VI Wild Trout Streams crossed by ACP include:

- White Oak Run (VAV-B11R_WTK01A02), AP-1: MP 120.1 to 120.2
- Orebank Creek (VAV-B31R_ORE01A02), AP-1: MP 153.4 to 153.5
- Townsend Draft Tributary (VAV-I02R_XRE01A02), AP-1: MP 85 to 85.1
- Lick Draft (VAV-I02R_XSA01A02), AP-1: MP 85.3 to 85.4
- Back Creek X-Trib (VAV-I02R_XXB02A04), AP-1: MP 88.4 to 88.5
- Laurel Run (VAV-I14R_LAA01A02), AP-1: MP 94 to 94.1
- Ramseys Draft (VAV-I29R_RAM01A00), AP-1: MP 113.4 to 113.5 & 114.4 to 114.5
- Stony Run (VAV-I01R_ZZZ02A10), AP-1: MP 90.8 to 90.9
- Rockfish River South Fork (VAV-H15R_RFS02A10), AP-1: MP 158.9 to 159
- Spruce Creek (VAV-H15R_SPC01A10), AP-1: MP 162.4 to 162.5
- X-tribs to South Fork Back Creek (VAV-B31R_XSB01A10), AP-1: MP 157.2 to 157.3 & 157.5 to 157.6

Threatened and Endangered Species waters, those fostering threatened and endangered species and critical habitat, crossed by the ACP include:

- AP-1: MP 97.8 to 97.9: Cowpasture River (VAV-I14R_CWP02A04)
- AP-1: MP 260.7 to 260.8: Nottoway River (VAC-K16R_NTW01A02)
- AP-1: MP 253.6 to 253.7: Butterwood Creek (VAP-K20R_BTR02A06)
- AP-3: MP 267.4: Waqua Creek (VAP-K17R_WAQ03A16). The crossing is immediately downstream from a Critical Habitat (T & E Species) see table 4.4.2-1 of Volume 1-EIS

For segments of the ACP that cross other impairments, measures should be employed instream and offstream to minimize suspension and mobilization sediment and nutrients. These impairments include:

- Woody Creek which is impaired for E.coli and Dissolved Oxygen, but is fully supporting for Benthic Macroinvertebrates and wildlife use (VAP-J11R_WDY01A00), AP1: MP 240.6.
- Fontaine Creek which is fully supporting for Aquatic life but is impaired for recreation use due to E.coli impairment and is also impaired for fish consumption due to Mercury in Fish Tissue (VAP-K11R_FON04A00), AP1: MP299.6.
- An expanse of streams with numerous crossings between AP3: MP 36.3 to 46.3, a portion of the Nottoway River at AP1: MP 32.6, a portion of the Meherrin at MP 12.4, and a portion of the Blackwater River at MP 38.6. Waters impaired for low dissolved oxygen include a portion of Tarrara Creek crossed at MP 17.8, and the same portion of the Blackwater River impaired for mercury that is crossed at MP 38.6. Lastly, a portion of Eley Swamp, which is impaired for pH that is crossed at MP 57.6.

For segments of the ACP that cross Public Water Supplies (PWS) or associated tributaries warrant heightened erosion and sediment control practices. Applicable PWS include:

- Middle River at AP-1 -MP 130.4, the ACP crossing is 3.39 miles downstream of the City of Staunton's intake
- Lake Prince between, AP-3 MP 61 to 61.1
- One tributary to Speights Run, AP-3 MP 53.3 to 53

- Two tributaries to Cahoon Creek, AP3- MP 55.3 to 55.4 and MP 56.1 to 56.2
- The Meherrin River (VAP-K08R_MHN01C00), MP 286.3 and 286.8 and 287. Upstream from the crossing, the Meherrin is impaired for E.coli and pH, and downstream from the crossing is Emporia Lake (Meherrin Reservoir) which is impaired for Mercury in Fish Tissue.
- Two crossings of Western Branch Reservoir. However, a GIS analysis indicated it will likely cross or come in close proximity to a third branch of the Western Branch Reservoir between AP3:MP 62.9 – 63, which is ~ 170 ft wide.

For segments of the ACP that cross PCB TMDL regions, hydroseeding and mulch tackifiers should not be used within 100 feet of the applicable water body or the tackifier should tested/researched for PCB content prior to application. The regions include Lewis Creek headwaters in the Shenandoah River PCB TMDL, the middle James River near Buckingham, the Meherrin River near Emporia, the Nansemond River near Suffolk, and the Elizabeth River in Chesapeake.

Route Alternatives Analysis for the proposed pipeline route *(Revision 11b Centerline)*

This section pertains to the **January 19, 2017 docket** filings of new route adjustments.

- The ACP alignment crosses two channels that are unnamed tributaries of Butterwood Creek (VAP-K20R_ZZZ01A14), AP1: MP 249.5 to 249.7. Suggest re-evaluating the alignment here to reduce the number of crossings from two crossings to one. If the pipeline was moved slightly south then it would reduce from two crossings to one crossing of UNT to Butterwood Creek.

Main ACP (AP-1)

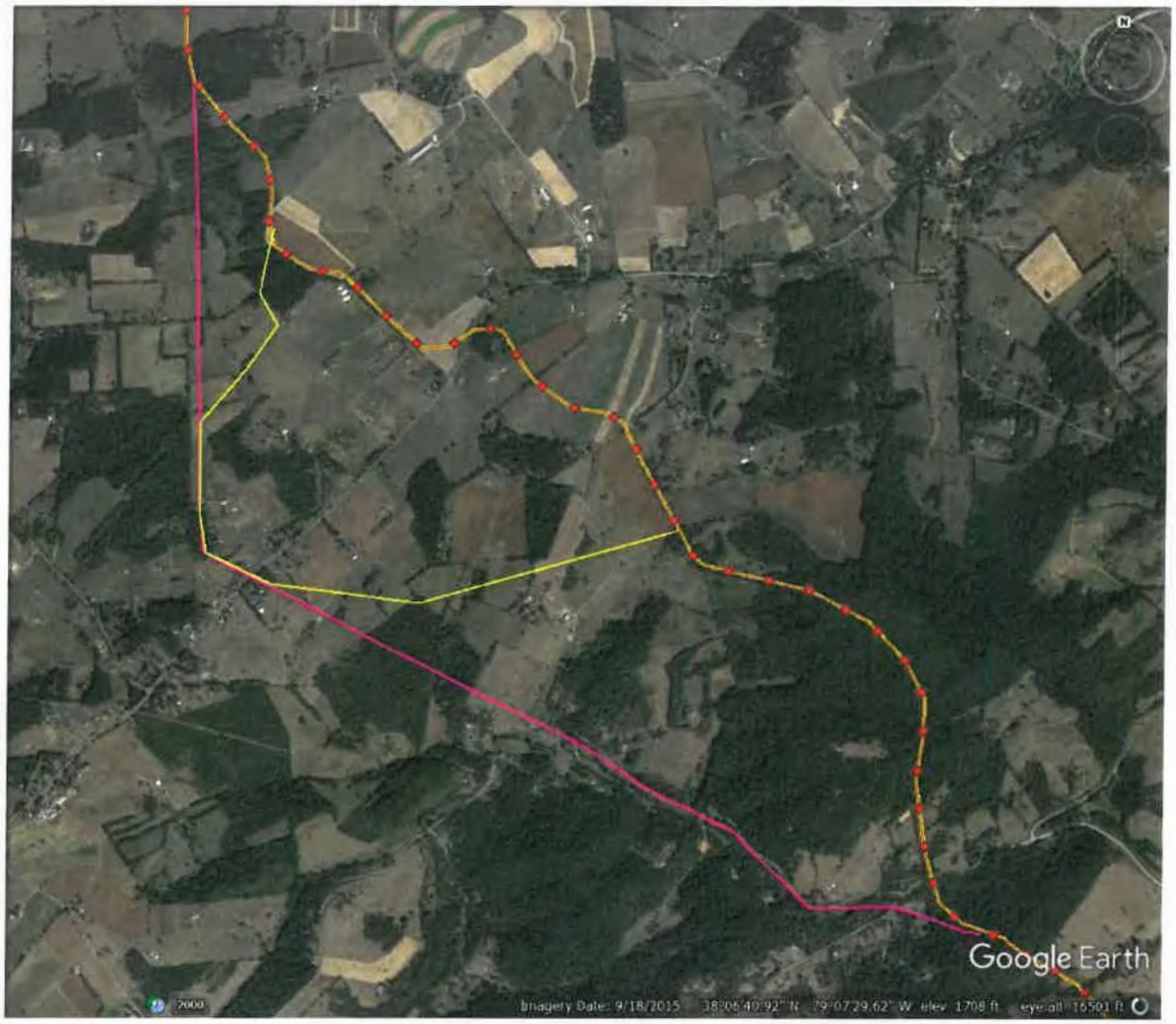
- The alternative route results in a potentially negligible to improved outcome for the following areas:
- MP 52.5 – 152.7: no change in length; moves farther away from Tiger Salamander habitat
- MP 96.7 – 98.1: change from 2.36 miles to 2.01 miles = 0.35 mile reduction
- MP 114.2 – 115.3: change from 1.62 miles to 1.48 miles = 0.14 mile reduction
- MP 125.1 – 125.4: change from 0.03 miles to 0.05 miles = 0.02 mile increase
- MP 157.0 – 157.4: change from 0.42 miles to 0.58 miles = 0.16 mile increase; the longer route avoids significant amounts of forest corridor loss by taking advantage of existing openings
- MP 170.1 – 170.8: change from 0.78 miles to 0.99 miles = 0.21 mile increase; change doesn't appear to affect resources aiding water quality protection
- MP 292.8 – 293.4: no change in length

- The alternative route results in a potentially negative outcome for the following areas:
- MP 153.3 – 154.0: minimal change in length; moved the pipeline route to a river segment that will lose more riparian buffer
- MP 240.4 – 240.8: no significant mileage change; new route crosses over multiple channels instead of one and is also relocated into a small forested wetland (approximately 0.5-1.0 acres may have been drained between 2009 and 2011per historic aerial imagery)

Eastern Spur of ACP (AP-3)

- The alternative route results in a potentially negligible to improved outcome for the following areas:
- MP 59.0 – 59.4: change from 0.40 miles to 0.45 miles = 0.05 mile increase; no significant water quality protective resources impacted
- MP 65.0 – 65.4: change from 0.39 miles to 0.40 miles = 0.01 mile increase; moves route out and farther away from wetlands and riparian buffer for an unnamed tributary of the Nansemond River
- MP 68.4 – 71.8: no significant mileage change
- Mileposts 76.0 – 76.7: change from 0.60 miles to 0.67 miles = 0.07 mile increase; minimal change in impact to resources
- The alternative route results in a potentially negative outcome for the following areas: MP 71.35 to 71.6: The proposed new route from AP-3 MP 71.35 to 71.6 puts the ACP closer to East Ditch and will not allow for a vegetated buffer between the construction right of way and a feeder ditch to Lake Drummond. Either a new adjustment should be made, or it should be moved north to allow for at least 35 feet of riparian buffer. East Ditch which drains to Lake Drummond, a Tier III Exception Water, and warrant heightened erosion and sediment control practices.
- The proposed pipeline route (Revision 11b Centerline) crosses the headwaters of the Lewis Creek watershed approximately 1.75 miles upstream of a ten-mile segment (305b ID# VAV-B12R_LEW01A00) impaired for PCBs in fish tissue as well as a benthic and *E. coli* impairments, AP-1 between MP 136.5 and 137.8. While there are no documented PCB sources along the proposed centerline, a minor route adjustment could reroute the pipeline construction outside of this headwater, reducing the risk of additional sediment entering the stream, potentially exacerbating the benthic impairment. Approximate alternative routes proposed in Figure 1 would avoid the impaired watershed entirely.

Figure 1. Alternative routes analyzed by DEQ that would bypass the Lewis Creek Watershed.

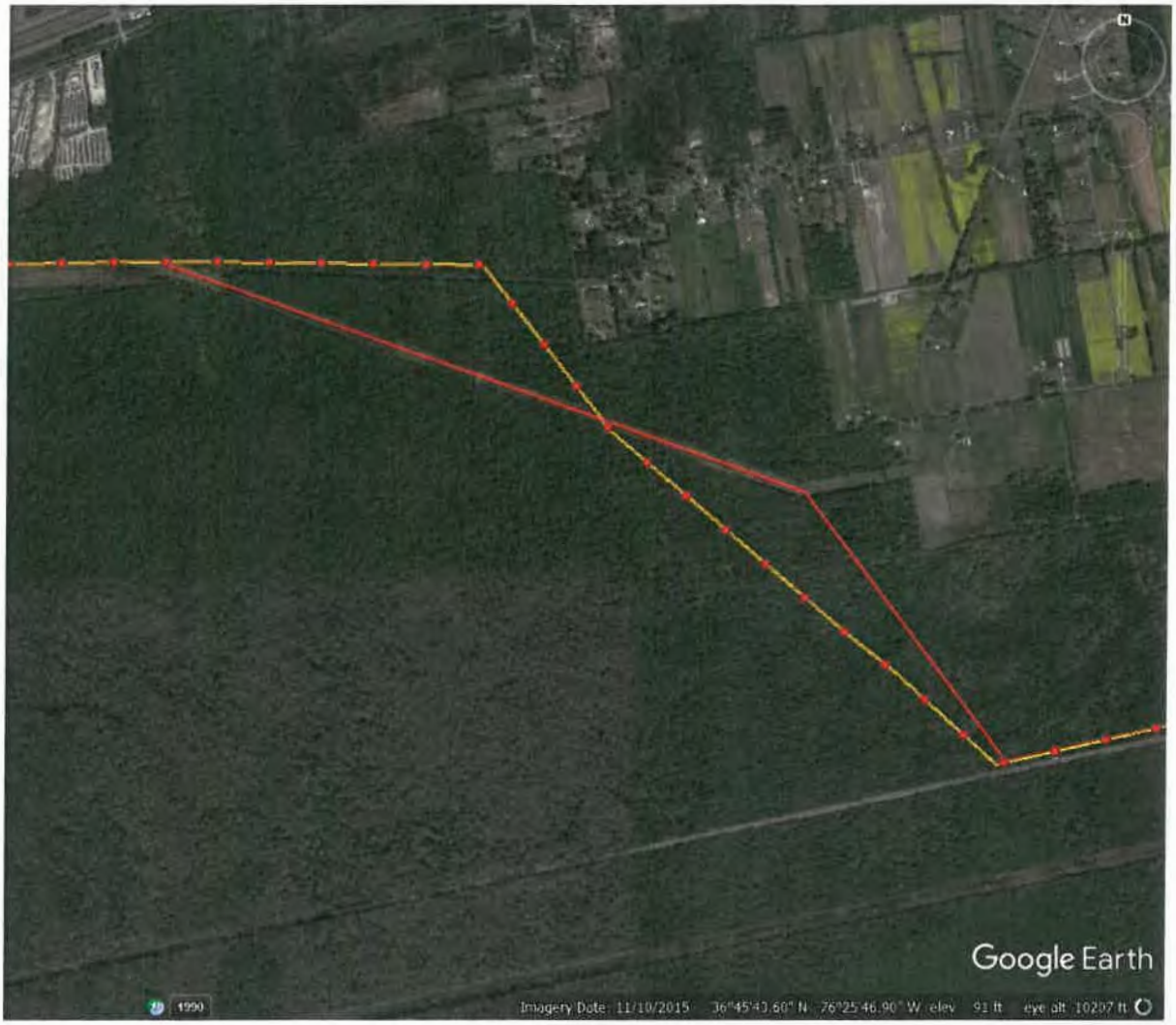


- The yellow route remains closest to the watershed boundaries and adds 0.8 miles to the pipeline project. The violet route follows a straighter path as it bypasses the Lewis Creek watershed. It adds 0.48 miles to the pipeline.
- The pipeline route crosses the James River between Mileposts 184.6 and 184.8, a segment (impaired for PCBs and Mercury in fish tissue). The route appears direct and near perpendicular to the river, minimizing disturbance to the riparian buffers on either side. No known PCB sources will be disturbed in this crossing.
- The proposed construction route crosses the Meherrin River between Mileposts 286.3 and 286.5, approximately 4.5 miles upstream of a 27-mile segment impaired for PCBs and Mercury in fish tissue, as well as for poor dissolved oxygen. The proposed crossing appears direct and will minimize disturbance. No known PCB sources will be disturbed in the construction of this crossing.
- The pipeline crosses a small tributary at Milepost 63.6 and a major section of the Nansemond River between Mileposts 64.3 and 64.8. The main stem of the river and the tributary are impaired for PCBs in fish tissue, as well as Enterococcus, fecal coliform bacteria, dissolved

oxygen, and aquatic plants. There are no known sources of PCBs that will be affected by the construction of the pipeline across these two water bodies.

- The final mile of the proposed pipeline construction crosses the Elizabeth River between Mileposts 81.8 and 82.0 parallel to the Military Highway drawbridge. The river is impaired for PCBs in fish tissue, as well as presence of dioxin and poor dissolved oxygen. The route appears to avoid documented point sources in this region; however, there is one opportunity to align the pipeline route better with an existing major power line easement. This alternative route will decrease the pipeline by approximately 0.05 miles, and reduce the loss of forested corridor by 1.35 miles. Figure 2 illustrates an alternative route that takes advantage of the existing power line easement that the ACP route already follows in part.

Figure 2. Alternative route analyzed by DEQ for ACP near the Elizabeth River.



Recommendations:

- **Wetland and Waterbody Construction and Mitigation Procedures** - The "Procedures" do not state how the upstream and downstream dams should be removed in both of the open cut dry ditch methods (dam and pump and flume method). Precautions should be made to show that dam removal will limit sediment introduction to waterways, and to limit scour when flow is restored.
- **Section 2.3.3.1, Page 2-37** - States that waterbodies will be crossed with temporary bridges that include clean rock fill over culverts, timber mats supported by flumes, railcar flatbeds, flexi float apparatuses, or other types of spans. In sediment TMDL watersheds, PWS waters, Class V and VI waters, sensitive fisheries/T&E waters/critical habitat, and benthic impairments all efforts should be made to minimally contact the benthos (e.g., railcar flatbeds, bottomless culverts, etc.)
- **Section 2.3.3.1, Page 2-37** - States that trench spoil from waterbody crossings would be placed on the banks above the high water mark for use during backfilling. In sediment TMDL watersheds, PWS waters, Class V and VI waters, sensitive fisheries/T&E waters/critical habitat, and benthic impairments spoil should be placed a minimum of 10 feet away from the water's edge or in additional extra work areas with sediment barriers to prevent the flow of spoil or silt-laden water into any waterbody. This is based on section 9.4.2.4 of Appendix G (Construction, Operations, and Maintenance Plans), which is established for NFS lands.
- **Section 2.4, Page 2-44** - States "Work would be conducted during daylight hours, except at stream crossings, final tie-in welds, and where the pipe is being installed using the HDD or bore methods..." All efforts should be made to minimize the night time work on stream crossings so that proper inspection and spill/water quality issues can be best observed.
- **Section 2.5.6 "Post-Construction Monitoring", Page 2-51** - Does not have any water quality monitoring recommendations. And in the ***Restoration and Rehabilitation Plan*** [*Rev 4 – 1/10/17*] on page 29 Section 8.1 "Monitoring" says nothing about water quality or riparian habitat which should be considered for monitoring.
- **Section 4.3.2.2, Page 4-89** - States that some of the major waterbody crossing design specifications and crossing locations have changed since the most recent site-specific drawings were submitted, and site-specific construction and restoration measures have not been incorporated into the plans. Accordingly, FERC recommends that Atlantic file with the Secretary for review the updated plans. VADEQ recommends that Atlantic also share those site-specific plans with VADEQ for review and comment.
- **Section 4.3.2.2, Page 4-92** - Discusses the stream crossings by Cathodic Protection Systems and notes that they will likely be done with the flume or dam and pump dry crossing method if flow is present in the ephemeral or intermittent streams. There is no mention of following the "Procedures." These stream crossings should follow the "Procedures"
- **Appendix G – Draft Construction, Operations, and Maintenance Plans – August 2016 (applies to NFS lands)** - Page 20 (G-30) in section 2.1.9 it states "ATWS will be required on both sides of waterbody crossings to stage construction equipment, fabricate the pipeline, and store construction materials. Except as authorized by the FERC and the AO, the ATWS will be located at least 100 feet away from the water's edge at each waterbody on NFS lands." This is also recommended in sediment TMDL watersheds, Class V and VI waters, sensitive fisheries/T&E waters/critical habitat, and benthic impairments that are in and out of NFS lands.

- **Stream and Wetland Crossing Procedures** - Chapter 9 addresses waterbody crossings in National Forest lands. The same precautions should also be applied to waters in sediment TMDL watersheds, Class V and VI waters, sensitive fisheries/T&E waters/critical habitat, and benthic impairments. Particularly those items listed in section 9.4.2 with emphasis on 9.4.2.3, 9.4.2.5, 9.4.2.8, 9.4.3, 9.4.4 , 9.4.2.8 as these are the most specifically enhanced compared to the "Procedures."

Corrections:

- On page 4-97 section 4.3.2.5 it states that the 303(d) list used was the 2012, the 2014 303(d) list should be used. The DEIS also lists the impairments crossed on this page but missed: Total Phosphorus (VAT-G14L_NWB02A08), Enterococcus (VAT-G13E_NAN03A06; VAT-G13E_WBN01A06), Aquatic Plants (Macrophytes) (VAT-G13E_NAN03A06; VAT-G13E_WBN01A06; VAT-G13E_ZZZ01A00), Dioxin (including 2,3,7,8-TCDD) (VAT-G15E_SBE02A06)
- On page 4-97 in section 4.3.2.5 it discusses public surface water intakes and water protection areas by considering 3 miles up from the intake being the cutoff. In Virginia we use a 5 mile upstream cutoff to designate the Public Water Supply (PWS) Use (9VAC25-260-390 through 9VAC25-260-540).

Table 4.3.2-4 corrections:

- The Rockfish River PWS water is not actually crossed as that PWS intake exists on a small tributary to the Rockfish River and not 3 miles (or 5) downstream of the crossed waters
- The 7 waters crossed by the pipe including Cohoon Creek and Eley Swamp Tributary to Lake Cohoon, and a number of unnamed tributaries are PWS waters draining to the City of Portsmouth PWS intake. Crossings include between: AP-3 MP 55.3 & 55.4, AP-3 MP 56.1 & 56.2, AP-3 MP 56.2 & 56.3, AP-3 MP 56.4 & 56.5, AP-3 MP 56.7 & 56.8, AP-3 MP 57.5 & 57.6, AP-3 MP 57.8 & 58.1 (3 crossings)
- The crossing of the Middle River PWS segment that drains to the City of Staunton's PWS intake should be included with the crossing of Jennings Branch (VAV-B11R_JEN01A00) at AP-1 MP 129.2
- The unnamed tributary (VAT-G14R_ZZZ01A00) that drains to Lake Prince where the City of Norfolk PWS intake is should be included with Lake Prince since it is crossed at AP-3 MP 59.4
- The unnamed tributary (VAT-G14R_ZZZ01A00) that drains to the Western Branch Reservoir where the City of Norfolk PWS intake is should be included with the Western Branch Reservoir since it is crossed between AP-3 MP 62.7 & 62.8
- **Spatial Data** - AP1: 255.3-255.7: Pipeline is intersecting an intermittent stream twice that drains to Butterwood Creek; it is not shown in the waterbody crossing layer.

Water Quality Monitoring Plan

The scope of this plan does not address water quality monitoring comprehensively for the project. **The final or supplemental EIS should include a requirement for a comprehensive Water Quality Monitoring Plan** that describes how water quality monitoring will be conducted before, during project construction and up to five years after construction is completed. The Plan should focus on identifying an appropriate number of monitoring locations above and below where open trench crossing or HDD are

used in critical areas such as wild/stocked trout streams, endangered/threatened species waters, public water supply, TMDL watersheds, Tier 3 streams, areas near acidic soils and streams with high Virginia Stream Condition Index (VSCI) scores. The Plan should consider real-time temperature, dissolved oxygen and turbidity monitoring (such as that done in VA by USGS) which could allow the public and all agencies involved to access the data real-time. Additionally, collection of macroinvertebrates, fish, and habitat data using VDEQ methods above and below identified crossings during the project and yearly for 5 years after completion of the project.

Stormwater - Erosion and Sediment Control (ESC)

DEQ considers stormwater management and ESC measures to be critically important to minimizing potential water quality impacts from the ACP project. The ACP project includes areas of special interest such as karst, steep slopes, slide prone areas and acid sulfate soils. Proper stormwater management and ESC design, implementation and monitoring will be paramount in protecting these resources.

The ESC procedures contained in the DEIS are not representative of the full scope of Virginia's requirements for stormwater and ESC. DEQ has required submission of site specific ESC plans to be reviewed and approved prior to land disturbing activity. These ESC plans will be expected to meet and exceed Virginia's requirements particularly in areas of special interest.

Recommendation:

- The final EIS should include a requirement for an **Acid Soil Mitigation Plan**. DEQ cautions that exposing these soils to the atmosphere through open trenching operations could result in acidic runoff and make revegetation difficult. DEQ recommends HDD to the maximum extent practicable in these areas. The Plan should address how these areas will be managed, the disposition of acid soils and details regarding proper storage and disposal practices.
- **Presence of acid sulfate soils along the Atlantic Coast Pipeline project:**

  Main Line
  Areas with sulfides documented in literature, however the risk is unknown:

  Mileposts 123.7-124.0, 140.5-141.4, 142.0-143.2, 155.5-155.8, 156.5-157.0, 157.2-158.7, 161.0-161.9, 175.0-177.1, 180.8-181.3, 200.8-203.6

  Moderate-high risk: PPA *10-60 Mg CaCO3/1000 Mg*: Mileposts 87.1-87.4, 90.9-92.1, 97.4-98.0, 101.7-102.2, 103.6-105.2, 108.3-110.5, 114.9-115.4, 122.6-122.9

  Lateral

  Areas with sulfides documented in literature, however the risk is unknown:

  Mileposts 13.5-17.6, 18.2-19.5, 28.3-32.2, 64.2-64.8, 81.7-81.9

Moderate-high risk*: PPA 10-60 Mg CaCO3/1000 Mg*: Mileposts 55.2-55.6, 55.8-56.5, 57.4-58.1, 60.5-61.3, 61.9-62.7

Low-Moderate risk: PPA *<10 Mg CaCO3/1000 Mg and %S <0.5*: Mileposts 34.3-38.1, 38.5-39.3, 65.0-66.5, 69.9-71.5, 72.6-73.5

Water Use for Hydrostatic Testing and Dust Control

Recommendations:

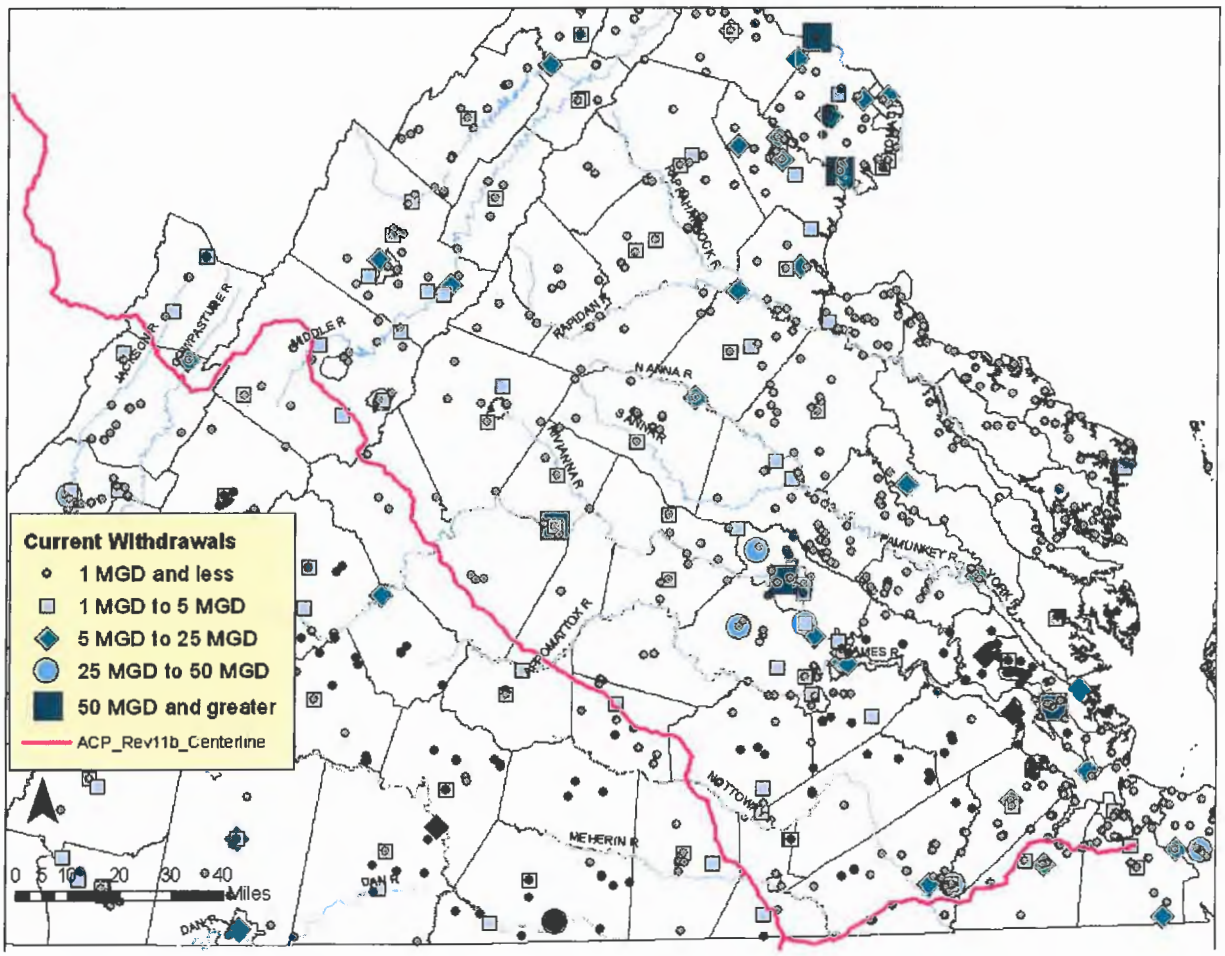
- Water Withdrawals for Hydrostatic Testing of water tight containers, pipelines, and vessels from non-tidal waters are excluded from a permit under VWP regulations (9VAC25-210-310.A.6) regardless of the volume withdrawn. However, 9VAC25-210-310.B allows the Board to require a permit if the withdrawal is found to cause an impairment, adversely affect beneficial uses, or violate water quality standards.
- To avoid an adverse effect or impairment, the withdrawals for hydrostatic testing should be managed so that:
  - No more than 10% of the instantaneous flow rate from the channel is removed;
  - The intake screens shall be designed so that screen openings are not larger than 1 millimeter and;
  - The screen face intake velocities are not greater than 0.25 feet per second.

- Provide a discussion in the EIS of what steps Dominion and its contractors will take during the hydrostatic testing to meet the requirements listed above.
- Recommend that ACP or its contractors notify DEQ-OWS prior (within 60 days) to the withdrawals for hydrostatic testing to make DEQ-OWS aware of when and where withdrawals are to occur and advise the contractors of any restrictions due to low flow or drought conditions in the area.
- EIS states that Dominion would withdraw water for hydrostatic testing generally between August and October. Since this period coincides with the typically lowest flow period for nearly all stream channels, DEQ recommends that Dominion adjust this timing to coincide with higher streamflow periods if possible.
- Provide an assessment in the EIS of the river flows where withdrawals for hydrostatic testing are proposed with a discussion of how the withdrawals will affect flows, particularly during low flow or drought conditions.
- Explain if any water withdrawals may affect downstream water users, particularly during low flow periods. Below is a list of the known withdrawals downstream of the hydrostatic testing withdrawals:
  - Spread 3A 2.8 Back Creek (MP 87.2) Dominion Bath County Facility downstream
  - Spread 5 3.2 Jennings Branch (MP 129.2) Staunton Water withdrawal, Gardner Spring
  - Spread 6 6.5 Appomattox River (MP 220.8) Chesdin Lake is downstream
  - Spread 6 8.5 James River (MP 184.7) DGIF Wildlife Management downstream
  - Spread 11 0.1 Western Branch Reservoir (MP 62.4) Lake Prince and Reservoir

- If direct withdrawals from groundwater or surface water sources are needed for hydrostatic testing that, during any single day, exceeds 10,000 gallons per day, Dominion must comply with 9 VAC 25-200 Virginia Water Withdrawal Registration and Reporting.
- Provide a discussion of what steps will be taken by Dominion and its contractors during the withdrawals to ensure that these requirements are met.

Water Use in General

- Groundwater and surface water withdrawals in Virginia are depicted in the map below. It is evident the pipeline will be in close proximity to many of these sources. Dominion should communicate with water withdrawers regarding the construction, water withdrawal, and other activity that may impact the facilities.



Environmental Analysis – Geology (section 4.1, pdf 187-190/742):

- Blasting has the potential to include *permanent* alteration of groundwater flow patterns and yields of nearby wells or springs. Temporary effects to wells and springs could potentially extend outside the current 500 ft karst investigation buffer.

Environmental Analysis – Water Resources (section 4.3 pdf 247-269/ 742):

- Consideration should be given to moving the staging area / construction site (Facility CY GWNF-6 Spr 04-A) further north and away from the sinking portion of Hamilton Branch that is believed to have a direct connection to the municipal water supply for the Town of Deerfield.

- The pipeline's route through Augusta County karst passes in proximity to several significant springs and municipal supply wells including Gardner Spring – City of Staunton, Town of Churchville Wells - ACSA, Lyndhurst – ACSA. ACP should monitor construction activities closely in these areas to minimize any potential impacts.

- Appendix H HDD Plans – H3 Site Specific Horizontal Directional Drill Plans (Vol 2, Appendix H3 pdf 222/ 276): The HDD plan and profile at Reeds Gap illustrates the location and depths of a horizontal directional drilling borehole in highly foliated Catoctin Formation through the crest of the Blue Ridge. Although test drilling in the area indicates the presence of solid rock near the entrance and exit of the borehole, there is potential to drill through transmissive fractures and intercept groundwater moving along strike through separations along foliation, and through joints and fault related fractures. The diameter, depth, and length of the boring is sufficient to potentially intercept groundwater from multiple and distinct fractured rock groundwater flow systems with hydraulic heads in excess of the HDD ingress and egress elevations.

- A contingency plan should be in place to address the potential for the introduction of a significant quantity of groundwater into the HDD borehole in case transmissive fractures are encountered during drilling. The plan should describe how the borehole will be de-watered and where removed groundwater will be routed and discharged for the duration of construction.

- Resource Report 2 – Water Use and Quality (Table 2.1.1-1, pdf 12/ 165): Reported values for range of depth to aquifer and range in well yield for Piedmont and Blue Ridge Crystalline Rock Aquifers are not accurate in this table. There are many aquifers (transmissive fractures) below 300 feet in the Piedmont and Blue Ridge. Well yields of <1gpm to >100gpm are fairly common and frequently well outside the listed range of 15 to 30 gpm. Recommend additional literature search to provide more realistic numbers.

Review of Atlantic Coast Pipeline Water Well and Spring Testing Program:

- The water well and spring testing program should document water well sampling methodology, quality control procedures, and sampling frequency that will be used in Virginia. The plan should include notification of DEQ when a groundwater impact has been reported or suspected.
- A final, georeferenced compilation of well and spring sampling results should be provided to DEQ's Groundwater Characterization Program.
- Please clarify if well yield testing will be performed and if so provide details on procedures.
- Bedrock wells within 200 feet of blasting activities should be monitored for any significant shifts in static water-level and/ or turbidity before and after blasting occurs. Yield and water chemistry should be re-evaluated if sudden changes in water level or turbidity occur that can't be attributed to recent precipitation.

- (ACP Recharge Elevations Map): In order for water supply wells to be used as a meaningful depth to water reference in the coastal plain, groundwater elevations should be restricted to using only shallow wells screened in the uppermost unconfined surficial aquifer. Well Tract # 26-013-A039 appears to show a water level elevation of 89.8 Ft below sea level, indicating that it is likely completed in a confined aquifer that is not in communication with the surficial aquifer.
- Sampling of supply wells in the coastal plain should be constrained to wells open to the uppermost unconfined aquifer. Wells completed in the confined aquifer systems of the coastal plain are extremely unlikely to be impacted by pipeline activities.

Land and Waste

The DEIS indicates that solid and hazardous waste issues were addressed and that a search of Federal and State environmental databases was conducted. DEQ staff with Geographical Information Systems and other tools conducted a 1.0 mile radius search of CERCLA sites, Federal Facilities and RCRA Corrective Action databases in addition to a 0.5 mile radius search of hazardous waste, solid waste, Virginia Remediation Program and petroleum databases for sites along the entire project corridor in Virginia. Staff identified one hundred twenty sites within the search parameters which may impact the project activity.

RCRA Corrective Action Facilities – one within 1.0 mile proximity to the project corridor

- VAD003178126, Royster Co., 100 Pratt Street, Chesapeake, VA 23324

CERCLA Sites – two within 1.0 mile proximity to the project corridor

- VAD002352151, Eppinger & Russell Co. Inc., 4010 Buell Street Money Point, Chesapeake, VA 23324. Not on the NPL.
- VAN000306937, Money Point Creosote Site, 4010 Buell Street, Chesapeake, VA 23324. Not on the NPL.

Hazardous Waste– twenty-three within 0.5 mile proximity to the project corridor

- VAR00511287, Certified Auto Body Collision Repair, 1350 Lee Jackson Highway, Staunton, VA 24402. Small Quantity Generator (SQG)
- VAD017573445, Hershey Chocolate USA, Route 608, Stuarts Draft, VA 24477. SQG
- VAD010031284, Hollister Inc. Plant, Route 608, Stuarts Draft, VA 24477. SQG
- VAD046977187, Nibco Stuarts Draft Div., Route 909 Johnson Street, Stuarts Draft, VA 24477. SQG
- VAR000016147, Target Distribution Center T0560, 345 Mount Vernon Road, Stuarts Draft, VA 24477, SQG
- VAD981108798, Atlantic Pole & Piling – Virginia, 21366 General Thomas Highway, Newsoms, VA 23874. Large Quantity Generator (LQG)
- VAD121829337, Automatic Transmission Exch, 270 Wilroy Road, Suffolk, VA 23434, SQG
- VAR00530444, Lake Gaston Water Treatment, 5416 West Military Highway, Chesapeake, VA 23321. SQG
- VAD175358068, Vanwin Coatings Inc., 2601-A Trade Street, Chesapeake, VA 23323.SQG
- VAR000502476, 7-11 #32868, 2700 Yadkin Road, Chesapeake, VA 23323. SQG

- VAR000524967, CVS Pharmacy #10013, 2981 South Military Highway, Chesapeake, VA 23323, LQG
- VAD087337820, Astro Pak Corporation, 1624 Steel Street, Chesapeake, VA 23323. LQG
- VAD86294493, Chesapeake Energy Center, 2701 Vepco Street, Chesapeake, VA 23323. SQG
- VAD988192167, Chesapeake LNG Plant, 2700 Vepco Street, Chesapeake, VA 23320. SQG
- VAD988227385, Case Power & Equipment, 4550-A Bainbridge Boulevard, Chesapeake, VA 23327. SQG
- VA0000309138, Virginia Natural Gas, 2500 South Military Highway, Chesapeake, VA 23320. SQG
- VAD988215703, Fast Fare Inc. T/A Crown VA-520, 4317 Bainbridge Boulevard, Portlock, VA 23324. SQG
- VAD000737346, Safety-Kleen Systems Inc., 4545 Bainbridge Boulevard, Chesapeake, VA 23320. LQG/Treatment Storage Disposal Facility (TSDF)
- VAR000524967, CVS Pharmacy #10013, 2981 S. Military Highway, Chesapeake, VA 23323. LQG
- VAD988198511, Amoco #60522-Tanks, 2155 Military Highway, Chesapeake, VA 23320. SQG
- VA0000605493, Chesapeake Fire Station #2, 1205 Freeman Street, Chesapeake, VA 23324. SQG
- VAR000013383, Marine and Industrial Coatings, LLC, 3925 S. Military Highway, Chesapeake, VA 23321. SQG
- VAR000521237, Precon Marine, Inc., 1401 Precon Drive, Suite 102, Chesapeake, VA 23320. SQG

The above information related to hazardous wastes, RCRA/CERCLA sites can be accessed from EPA's websites at https://www3.epa.gov/enviro/, https://rcrainfopreprod.epa.gov/rcrainfoweb/action/main-menu/view and https://www.epa.gov/superfund

Formerly Used Defense Sites (FUDS) – two within 1.0 mile proximity to the project corridor

- St. Julien's Creek Annex, Magazine Road, Chesapeake, VA 23323. NPL.
- Fort Pickett, Darvills Road, Blackstone, VA 23824. Not on NPL.

Solid Waste – eleven within 0.5 mile proximity to the project corridor ()

- SWP 585, Augusta Regional Landfill, 749 Christian Creek Road, Staunton, VA 24401. Active Sanitary Landfill
- SWP 021, Jolivue Landfill, 749 Christian Creek Road, Staunton, VA 24401, Post closure Unit #17. Closed Sanitary Landfill
- SWP 021, Jolivue Landfill, 749 Christian Creek Road, Staunton, VA 24401, Post closure Unit #1. Closed Sanitary Landfill
- SWP 484, SPSA-Boykins Transfer Station, 18449 General Thomas Highway, Boykins, VA 23827. Active Transfer Station
- PBR 596, Military Highway Recycling Center MRF, 5300 West Military Highway, Chesapeake, VA 23321. Active Material Recovery Facility
- SWP440, Dominion - Chesapeake Energy Center, 2701 Vepco Street, Chesapeake, VA 23323. Inactive Industrial Landfill
- SWP481, Dominion - Chesapeake Energy Center, 2701 Vepco Street, Chesapeake, VA 23323. Closed Industrial Landfill - Not Constructed

- SWP 474, Atlantic Aggregate Recyclers, 2501 South Military Highway, Chesapeake, VA 23324. Closed Inert Landfill
- PBR 619, Select Recycling Waste Services, Inc., 1500 Steel Street, Chesapeake, VA 23323. Active Material Recovery Facility
- PBR 554, Tidewater Green Corporation, 1500 Steel Street, Chesapeake, VA 23323. Clean Closed
- PBR 078, Safety-Kleen Systems Incorporated, 4545 Bainbridge Boulevard, Chesapeake, VA 23323. Clean Closed

Virginia Remediation Program (VRP) – four within 0.5 mile proximity to the project corridor

- VRP00278, GE Tidewater Service Center, 2601 Trade Street, Chesapeake, VA 23323. Industry
- VRP00186, Norfolk Steel, 1500 Steel Street, Chesapeake, VA 23323.
- IndustryVRP00470, Chesapeake Propane Two-Acre Site, 2516 Military Highway, Chesapeake, VA 23320. Land Disposal
- VRP00386, Steuart Investment Company Site (aka Borden Smith Douglas), 1316 Smith Douglas Road, Chesapeake, VA 23320. Industry

Petroleum Releases – within 0.5 mile proximity to the project corridor

Augusta County

- PC#19891789, Michael's Country Store, Star Route 8 Box 101, West Augusta, VA 24485. Release Date: 06/23/1989. Status: Closed.
- PC#19930071, White Way Lunch, 2175 Hankey Mountain Highway, Churchville, VA 24421. Release Date: 07/08/1992. Status: Closed.
- PC#19964813, Sentry Food Mart #29, 313 Springfield Lane, Staunton, VA 24401. Release Date: 02/02/1996. Status: Closed.PC#19985057, Sentry Food Mart #29, 313 Springfield Lane, Staunton, VA 24401. Release Date: 10/29/1997. Status: Closed.
- PC#20056015, Sentry Food Mart #29, 313 Springfield Lane, Staunton, VA 24401. Release Date: 02/25/2005. Status: Closed.
- PC#20066015, Sentry Food Mart #29, 313 Springfield Lane, Staunton, VA 24401. Release Date: 08/10/2005. Status: Closed.
- PC#20076159, Pantry #3713, 313 Springfield Lane, Staunton, VA 24401. Release Date: 06/14/2007. Status: Closed.
- PC#20116067, Pantry #3713, 313 Springfield Lane, Staunton, VA 24401. Release Date: 01/05/2011. Status: Closed.
- PC#20126085, Pantry #3713, 313 Springfield Lane, Staunton, VA 24401. Release Date: 01/24/2012. Status: Closed.
- PC#19964876, Eastover Farm, Route 722, Churchville, VA 24421. Release Date: 06/17/1996. Status: Closed.
- PC#19975086, Deerfield Community Center, Route 600, Deerfield, VA 24432. Release Date: 01/16/1997. Status: Closed.
- PC#20006133, Deerfield Grocery, Box 209, Deerfield, VA 24432. Release Date: 03.27/2000. Status: Closed.

- PC#20016149, Zastowny Farm, Guthrie Road, Staunton, VA 24401. Release Date: 03/22/2001. Status: Closed.
- PC#20046088, Darrell Via Residence, 330 Wayne Avenue, Stuarts Draft, VA 24477. Release Date: 01/06/2004. Status: Closed.
- PC#20086057, Hoecker Property, 319 Wayne Avenue, Stuarts Draft, VA 24477. Release Date: 12/21/2007. Status: Closed.
- PC#20116075, Mckee Foods-Stuarts Draft, 272 Patton Farms Road, Stuarts Draft, VA 24477. Release Date: 01/28/2011. Status: Closed.
- PC#20126014, Deno's Food Mart 9, 383 White Hill Road, Mint Spring, VA 24463. Release Date: 08/18/2011. Status: Closed.
- PC#20126045, Starkey Residence, 2120 Tinkling Spring Road, Stuarts Draft, VA 24477. Release Date: 11/03/2011. Status: Closed
- PC#20136014, Gladys Washington Residence, 370 Mill Creek Lane, Stuarts Draft, VA 24477. Release Date: 08/30/2012. Status: Closed.

Staunton City

- PC#19995181, Days Inn – Staunton, 372 White Hill Road, Staunton, VA 24401. Release Date: 02/24/1999. Status: Closed.
- PC#20006125, Forsythe Rental Property, Route 10 Box 466C, Staunton, VA 24401. Release Date: 03/15/2000. Status: Closed.
- PC#20006138, Tuttle Property, Route 10, Staunton, VA 24401. Release Date: 04/03/2000. Status: Closed.

Nelson County

- PC#20036137, Graves Grocery, 1779 Rockfish Valley Highway, Nellysford, VA 22958. Release Date: 06/02/2003. Status: Closed.
- PC#20086081, Graves Grocery, 1779 Rockfish Valley Highway, Nellysford, VA 22958. Release Date: 02/22/2008. Status: Closed.
- PC#20156110, Graves Grocery, 1779 Rockfish Valley Highway, Nellysford, VA 22958. Release Date: 03/10/2015. Status: Closed.
- PC#20056068, Janice Hopkins Residence, 165 Fitchfield Lane, Nellysford, VA 22958. Release Date: 11/29/2004. Status: Closed.
- PC#20066006, Woodson's Grocery, 2920 James River Road, Wingina, VA 24599. Release Date: 07/20/2005. Status: Closed.
- PC#20086078, Ridge Crest Baptist Church, 14654 Thomas Nelson Highway, Lovingston, VA 22949. Release Date: 02/19/2008. Status: Closed.
- PC#20126116. Wintergreen Grocers, 2184 Rockfish Valley Highway, Nellysford, VA 22958. Release Date: 04/04/2012. Status: Closed

Buckingham County

- PC#19984358, VDOT Andersonville Area HQ, Route 640 and 638, Andersonville, VA 23911. Release Date: 04/28/1998. Status: Closed.

- PC#20097151, Betty Brown Property, 5943 South James Madison Highway, Buckingham, VA 23901. Release Date: 06/25/2009. Status: Closed.
- PC#20132011, Charles Fernandez, 1105 Old Curdsville Road, Farmville, VA 23901. Release Date: 07/17/2012. Status: Closed.

Cumberland County

- PC#20097091, Jimmie Morris Property, 83 Raines Tavern Road, Farmville, VA 23901. Release Date: 12/11/2008. Status: Closed.
- PC#20102251, George Snead Property, 1240 Plank Road, Farmville, VA 23901. Release Date: 05/25/2010. Status: Closed.
- PC#20132255, Larry Skweres Residence, 74 Raines Tavern Road, Farmville, VA 23901. Release Date: 02/26/2013. Status: Closed.

Nottoway County

- PC#20102162, Childress Property, 2733 Indian Oak Road, Crewe, VA 23930. Release Date: 02/24/2010. Status: Closed.
- PC#20132029, Arthur Werner Property, 3668 Indian Oak Road, Crewe, VA 23930. 07/25/2012. Status: Closed.
- PC#20142349, Irving J. Arnold Property, 2095 West Creek Road, Crewe, VA 23930. Release Date: 03/20/2014. Status: Closed.
- PC#20152351, Walter D. Martin Residence, 1946 Cellar Creek Road, Blackstone, VA 23824. Release Date: 03/23/2015. Status: Closed.
- PC#20162162, Lanwood Lynch Residence, 1933 Mountain Hall Road, Crewe, VA 23930. Release Date: 07/30/2015. Status: Closed.
- PC#20162398, Jerry Myers Residence, 491 Green Gable Road, Blackstone, VA 23824. Release Date: 06/28/2016. Status: Closed.

Dinwiddie County

- PC#20084130, Marion Hays Coburn Estate Property, 10622 West Ziles Road, Blackstone, VA 23824. Release Date: 08/28/2007. Status: Closed.
- PC#20084129, Wallace Mary Lee Residence, 10620 West Ziles Road, Blackstone, VA 23824. Release Date: 08/28/2007. Status: Closed.

Brunswick County

- PC#19953094, Abell Lumber Corporation, Highway 634, Lawrenceville, VA. Release Date: 12/15/1994. Status: Closed.
- PC#19953094, Transferred to Library of VA, Highway 634, Lawrenceville, VA 23868. Release Date: 12/15/1994. Status: Closed.
- PC#20024465, Daniel Russell Residence, 4453 Reedy Creek Road, Freeman, VA 23856. Release Date: 06/20/2002. Status: Closed.

Greensville County

- PC#19880505, TWS Grocery, 5234 Skippers Road, Skippers, VA 23879. Release Date: 12/16/1987. Status: Closed.
- PC#20094373, Robinson James E. Property, 8319 Skippers Road, Skippers, VA 23879. Release Date: 03/17/2009. Status: Closed.

Southampton County

- PC#20005145, Cooke Betty M. Residence, 28229 Grays Shop Road, Newsoms, VA 23874. Release Date: 12/20/1999. Status: Closed.

City of Suffolk

- PC#19992300, Holland Volunteer Fire Department, 6666 O'Kelly Drive, Suffolk, VA 23437. Release Date: 12/09/1998. Status: Closed.
- PC#20035090, Williamson Callie Residence, 7508 South Quay Road, Suffolk, VA 23437. Release Date: 02/20/2003. Status: Closed.
- PC#20165090, Williamson Callie Residence, 7508 South Quay Road, Suffolk, VA 23437. Release Date: 11/12/2015. Status: Closed.
- PC#20135074, Holland Food Mart, 5703 Holland Road, Suffolk, VA 23437. Release Date: 01/28/2013. Status: Closed
- PC#20145170, Knight Residence, 7628 S. Quay Road, Suffolk, VA23437. Release Date: 04/04/2014. Status: Closed.

City of Chesapeake

- PC#19901588, Deep Creek Pharmacy, 622 N. George Washington Highway, Chesapeake, VA 23323. Release Date: 05/11/1990. Status: Closed.
- PC#19901809, Schwerman Trucking Co. of VA, 2956 S. Military Highway, 841 Canal Drive, Chesapeake, VA 23323. Release Date: 06/20/1990. Status: Closed.
- PC#19920240, Schwerman Trucking Co. of VA, 2956 S. Military Highway, 841 Canal Drive, Chesapeake, VA 23323. Release Date: 08/02/1991. Status: Closed.
- PC#19910846, Waste Management of Hampton Roads, 3016 Yadkin Road, Chesapeake, VA 23323. Release Date: 12/13/1990. Status: Closed.
- PC#19911464, Alum Plant, 1312 McCloud Road, Chesapeake, VA 23320. Release Date: 04/04/1991. Status: Closed.
- PC#19911804, IMTT – Chesapeake Terminal, 2801 S. Military Highway, Chesapeake, VA 23323. Release Date: 04/22/1991. Status: Closed.
- PC#19931500, IMTT – Chesapeake Terminal, 2801 S. Military Highway, Chesapeake, VA 23323. Release Date: 02/04/1993. Status: Closed.
- PC#20065038, IMTT – Chesapeake Terminal, 2801 S. Military Highway, Chesapeake, VA 23323. Release Date: 09/19/2005. Status: Closed.
- PC#19921198, Chesapeake Liquid Natural Gas Station, Vepco Street, Chesapeake, VA 23323. Release Date: 11/15/1991. Status: Closed.

- PC#19921184, Mid Atlantic Repair Inc., 2601 Trade Street, Chesapeake, VA 23323. Release Date: 01/03/1992. Status: Closed.
- PC#19921741, Chesapeake Energy Center, 2701 Vepco Street, Chesapeake, VA 23323. Release Date: 03/20/1992. Status: Closed.
- PC#19931091, Chesapeake Energy Center, 2701 Vepco Street, Chesapeake, VA 23323. Release Date: 12/01/1992. Status: Closed.
- PC#19931477, Chesapeake Energy Center, 2701 Vepco Street, Chesapeake, VA 23323. Release Date: 02/03/1993. Status: Closed.
- PC#19931476, Chesapeake Energy Center, 2701 Vepco Street, Chesapeake, VA 23323. Release Date: 02/03/1993. Status: Closed.
- PC#19940611, Chesapeake Energy Center, 2701 Vepco Street, Chesapeake, VA 23323. Release Date: 10/11/1993. Status: Closed.
- PC#19944554, Chesapeake Energy Center, 2701 Vepco Street, Chesapeake, VA 23323. Release Date: 06/28/1994. Status: Closed.
- PC#20015047, Chesapeake Energy Center, 2701 Vepco Street, Chesapeake, VA 23323. Release Date: 10/27/2000. Status: Open.
- PC#19930307, Crown VA 520, 4317 Bainbridge Boulevard, Chesapeake, VA 23324. Release Date: 08/14/1992. Status: Closed.
- PC#19940447, Crown VA 520, 4317 Bainbridge Boulevard, Chesapeake, VA 23324. Release Date: 09/13/1993. Status: Closed.
- PC#20005235, Crown VA 520, 4317 Bainbridge Boulevard, Chesapeake, VA 23324. Release Date: 05/24/2000. Status: Closed.
- PC#20035035, Crown VA 520, 4317 Bainbridge Boulevard, Chesapeake, VA 23324. Release Date: 10/12/2002. Status: Closed.
- PC#19932101, Rennie's Shell #633, 3013 S. Military Highway, 841 Canal Drive, Chesapeake, VA 23323. Release Date: 04/22/1993. Status: Closed.
- PC#19943196, Short Property, 2952Military Highway, Chesapeake, VA 23323. Release Date: 03/30/1994. Status: Closed.
- PC#19930539, 7-Eleven Store 1016-20291, 841 Canal Drive, Chesapeake, VA 23323. Release Date: 08/25/1994. Status: Closed.
- PC#20055130, 7 Eleven 20291, 841 Canal Drive, Chesapeake, VA 23323. Release Date: 02/10/2005. Status: Closed.
- PC#19940630, Deep Creek Pumping Station, 1221 Shell Road, 841 Canal Drive, Chesapeake, VA 23323. Release Date: 10/13/1993. Status: Closed.
- PC#19940817, Cundiff Residence, 620 Rock Drive, Chesapeake, VA 23323. Release Date: 11/12/1993. Status: Closed.
- PC#19943378, Murry Residence, 217 Jarvis Road, Chesapeake, VA 23323. Release Date: 04/12/1994. Status: Closed.
- PC#19952259, Miller Residence, 3455 Gallberry Road, Chesapeake, VA 23323. Release Date: 10/11/1994. Status: Closed.
- PC#19962217, Box USA Group, 723 Fenway Avenue, Chesapeake, VA 23323. Release Date: 08/02/1995. Status: Closed.
- PC#19962333, Sentry Food Mart #4, 5191 West Military Highway, Chesapeake, VA 23321. Release Date: 02/01/1996. Status: Closed.
- PC#20125058, Pantry Site 3698 dba Kangaroo, 5191 West Military Highway, Chesapeake, VA 23321. Release Date: 10/11/2011. Status: Closed.

- PC#19982408, Smith Douglas Plant Former, 1316 Smith Douglas Road, Chesapeake, VA 23324. Release Date: 06/17/1998. Status: Closed.
- PC#19992240, Tri-Port Terminals, 1324 McCloud Road, Chesapeake, VA 23320. Release Date: 11/05/1997. Status: Open. (this is the southern portion of property, not addressed by PC#20165149)
- PC#20165149, Tri-Port Terminals – North of McCloud Road, 1324 McCloud Road, Chesapeake, VA 23320. Release Date: 11/05/1997. Status: Closed.
- PC#19982273, Watkins Motor Lines, Inc. 2701 Trade Street, Chesapeake, VA 23323. Release Date: 11/17/1997. Status: Closed.
- PC#20005211, GSB Auto Auctions, 3064 Yadkin Road, Chesapeake, VA 23323. Release Date: 05/03/2000. Status: Closed.
- PC#20025093, Chesapeake City – Sewage Pump Station 22, 1241 Saul Drive, Chesapeake, VA 23320. Release Date: 05/22/2002. Status: Closed.
- PC#20025103, Hampton Roads Airport, 5172 W. Military Highway, Chesapeake, VA 23321. Release Date: 06/26/2002. Status: Closed.
- PC#20045038, Quest Transport LLC, 4419 Bainbridge Boulevard, Chesapeake, VA 23320. Release Date: 09/10/2003. Status: Closed.
- PC#20045044, Sexton Shirley Property – Hurricane Isabell, 4745 Sunray Avenue, Chesapeake, VA 23321. Release Date: 09/22/2003. Status: Closed.
- PC#20045056, Everett Express Incorporated, 3153 S. Military Highway, Chesapeake, VA 23323. Release Date: 09/26/2003. Status: Closed.
- PC#20045160, Mcmillan Mobile Home Park, 4535 Bainbridge Boulevard, Chesapeake, VA 23320. Release Date: 03/16/2004. Status: Closed.
- PC#20065144, Falcon Avenue Property, SE Intersection Falcon Avenue and Rte. 460, Chesapeake, VA 23320. Release Date: 04/18/2006. Status: Closed.
- PC#20065445, Eva Gardens Property – Stoney Mobile Home Park, 4425 Bainbridge Boulevard, Chesapeake, VA 23320. Release Date: 04/28/2006. Status: Closed.
- PC#20075007, Old Dominion Container Repair Incorporated, 3004 Yadkin Road, Chesapeake, VA 23323. Release Date: 07/25/2006. Status: Closed.
- PC#20135004, Khol Property, 501 Hopewell Drive, Chesapeake, VA 23323. Release Date: 0723/2012. Status: Closed.
- PC#20145152, OneSteel Recycling Inc., 2649 S. Military Highway, Chesapeake, VA 23323. Release Date: 02/03/2014. Status: Closed.
- PC#20145151, Chesapeake Public Works Operations Complex, 3316 S. Military Highway, Chesapeake, VA 23323. Release Date: 03/10/2014. Status: Closed.
- PC#20175199, Bluebird Homes Property, 114 Lake Street, Chesapeake, VA 23322. Release Date: 01/27/2017. Status: Open.

Recommendations:

- **Section 4.8, Volume 1** - Land Use, Special Interests Area, and Visual Resources, 4.8.1.1 Forest Land, Timber Removal Plan - It is recommended that all slash, chips and debris shall be managed in accordance with all applicable Federal, State, and local laws and regulations. Additionally, open burning in Virginia is only allowed in accordance with 9VAC20-81-95 of the Virginia Solid Waste Management Regulations (VSWMR). Localities may have additional open burning restrictions that should be consulted.

- **Section 5.0, Volume 1** - Conclusions and Recommendations & 5.1.8 Land Use, Special Interests Area, and Visual Resources - It is recommended to include a waste and debris management implementation plan (to be developed by Atlantic/DTI) alongside with other plans listed in this section.
- **Section 5.0 of the Contaminated Media Plan** lists the Environmental Inspectors (EIs) roles and responsibilities as defined by the Federal Energy Regulatory Commission's (FERCs) Upland and Erosion Control, Revegetation, and Maintenance Plan (Plan). In addition to the roles and responsibilities described in FERCs Plan, it is recommended that EIs includes a more specific training and proper field equipment for analyses of soil, sediment and groundwater contamination. If soil, sediment or groundwater contamination is found, Atlantic and/or DTI should contact the appropriate regulating agency.
- **Section 6.0 of the Contaminated Media Plan**: It is recommended that all potentially contaminated soil is managed in accordance with all applicable Federal, State, and local laws and regulations. Additional recommendations for managing contaminated media would be to initially test representative soil and groundwater samples for the expected contaminant class based on the current or previous source. A phase I assessment of past land use of the contaminated area discovered would allow testing for the appropriate analysts.
- **Section 7.0 of the Contaminated Media Plan**: it is recommended to address situations where contamination found to be a health or safety hazard. The area shall be evacuated until trained personal are on-site in addition to specifically identifying the appropriate Federal, State or local agency (ies) to contact.
- In addition to the Contaminated Media Plan, it is recommended for Atlantic/DTI to develop a waste and debris management plan for utilizing all excess material and debris in accordance with all applicable Federal, State, and local laws and regulations.
- ***Draft Open Burning Plan*** -Localities may have open burning restrictions, permits, etc. that should be consulted.
- **Section 3.0, *Timber Removal Plan-*** Training states that training to be conducted as listed in the FERCs Plan. It is recommended that the training be more detailed and related to each location in accordance with all applicable Federal, State and local laws and regulations pertaining to the removal of timber.
- **Section 9.1 General Requirements** under Planned Timber Removal Operations references management of timber, slash, and stumps. It is recommended that all timber, slash, and stumps are managed in accordance with all applicable Federal, State, and local laws and regulations. Localities should be consulted as they have open burning restrictions.
- **Volume 2 part 5 Appendix G (page/38/G48) of the Construction, Operations, and Maintenance Plan** applying to the national forest service lands references "Atlantic's Waste Management Plan." This Waste Management Plan has not yet been filed with FERC as informed by a DTI representative.
- **Section 3.6.10** - It is recommended that the EIs have more specific training and proper field equipment for contamination analyses of soil, sediment and groundwater than currently listed in FERCs Plan. If soil, sediment or groundwater contamination is found, Atlantic and/or DTI should contact the appropriate regulating agency(ies).

Corrections

- **Section 6.0, C. of the Contaminated Media Plan**, The Virginia Department of Emergency Management reporting numbers for the 24-hour in-state calls is 1-804-674-2400 and the 24 hours, out-of-state calls is 1-800-642-3074.
- **Volume 1 Section 4.0 Environmental Analysis**, 4.3 Water Resources, 4.3.1.6 Contaminated Groundwater: In addition to the summary of sites on Table 4.3.1-3 (the Table) lists Contaminated Site, Landfills, and Leaking Underground Storage Tanks Near the ACP, Section 4.8 Land Use, Special Interests Area, and Visual Resources, 4.8.7 Contaminated Sites, Section 5.0 Conclusions and Recommendations, 5.1.3.1

Spill Prevention, Control, and Countermeasure Plan

- Comment: SPCC Plan p.2 – Section 4.0.A. See text below. The statutory requirements for making notifications in the event of an oil spill are "immediately upon learning of the discharge". The language below suggests a process that may result in a delay in reporting.
- On page 7 Section 5.0.C it says "Concrete coating activities and washout activities will not be performed within 100 feet of wetlands, waterbodies, or springs, or within 300 feet of karst features unless the location is an existing industrial site designated for such use." Additionally, when close to a waterbody, containment structures should be placed around the area in order to minimize potential for runoff
- **Spill Coordinator** – Each Contractor will appoint a Spill Coordinator who will be responsible for coordinating Contractor Work Crews for spill cleanup, conducting site investigations, and completing spill reports. The Spill Coordinator will report spills to an Environmental Inspector (EI) 2, who will initiate the spill reporting process (see Section 7.0). The Spill Coordinator will be responsible for completing a Spill Report Form (Attachment A) **within 24 hours of the occurrence of a spill, regardless of the size of the spill.**
- The Preventive Measures in section 5.0 are textbook comprehensive and likely will be hard to achieve consistently in the field.
- Section 5.0.A.1.g., page 3- The 300 foot distance from karst areas for hazardous materials will require extensive subsurface geologic data to maintain compliance in all instances.
- Section 5.0.A.1.j., page 4 - This should state immediate reporting to DEQ, EPA and others. The language below suggests a process that may result in a delay in reporting.
- Section 7.C.3.a and b., page 8. These oil spill reporting requirement do not specify a timeframe for reporting. These reporting requirements should clearly indicate that spills should be reported "immediately upon learning of the discharge". The cited sections of Virginia water control law specify that spillers must notify the *"director or coordinator of emergency services....for the political subdivision in which the discharge occurs and any other political subdivision reasonably expected to the affected by the discharge, and the appropriate federal authorities..."*. This is not addressed in the spill reporting section of the plan.

Air

- **Construction:** Construction activities associated with the ACP project in Virginia are subject to the Air Pollution Control Regulations regarding such activities including open burning (9 VAC 5-130 et seq.) and fugitive dust (9 VAC 5 -50-60 et seq.). The project sponsor should ensure that

construction activities comply with these and any other applicable state regulations. While not required, additional mitigation of construction related air pollutants could be achieved through the use of cleaner construction and related equipment.

- **Permitting:** A new stationary source compressor station in Buckingham County is included in this project. As such an air quality permit will be required for this source. DEQ air permitting staff have met with the project sponsor and it appears that a minor new source review permit will be needed for this facility.
- **Operations:** A portion of this project goes through Suffolk and Chesapeake Cities which are part of a VOC and NOx emissions control area and therefore would be subject to any applicable existing source regulations related to its control area status.
- **GHG Considerations:** Concerns have been expressed regarding the GHG implications of this project, especially in terms of methane emissions from extraction, transmission, and combustion of the natural gas involved. Since the natural gas that will be transported by this pipeline is not being produced in Virginia, the Commonwealth has no control over this aspect of the project. However, the EPA has recently promulgated federal regulations that cover the extraction and transmission activities of the natural gas industry to reduce methane emissions. Furthermore, the project sponsor will implement a pipeline management and monitoring program that should limit the methane emissions from leakage. Finally, the end use of natural gas in the power generation sector is now subject to state and federal GHG permitting requirements, and to pending NSPS/ESPS for electric generation facilities. A prime example of this is the recent permit issued by DEQ to the Dominion Greensville Power Station that contained the most stringent CO2 emission rate limitation in the Country.

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

Street address: 629 East Main Street, Richmond, Virginia 23219
Mailing address: P.O. Box 1105, Richmond, Virginia 23218
www.deq.virginia.gov

Molly Joseph Ward
Secretary of Natural Resources

David K. Paylor
Director

(804) 698-4000
1-800-592-5482

May 16, 2016

Ms. Elizabeth Hester
Environmental Specialist
Dominion Transmission Inc.
5000 Dominion Boulevard
Glen Allen, Virginia 23060-3308

Subject: Dominion Transmission Inc. (DTI) - Atlantic Coast Pipeline Project

Dear Ms. Hester:

The Virginia Department of Environmental Quality (DEQ) is reviewing DTI's 2016 Annual Standards and Specifications for Erosion & Sediment Control and Stormwater Management. As you know, the proposed Atlantic Coast Pipeline project that will transect the Commonwealth will be covered under these Annual Standards and Specifications. Due to the scope of this project, DEQ is requiring a number of conditions in addition to those established under your Annual Standards and Specifications.

The specific requirements for this project are as follows:

1. In addition to DTI's internal review process, an individual project-specific plan is required to be submitted for DEQ review and approval,
2. The project-specific plan, DEQ approval, and supporting documents must be posted on DTI's website for public view,
3. Inspection reports conducted by DTI as well as complaint logs and complaint responses must be submitted to DEQ, and
4. As authorized under the Virginia Erosion and Sediment Control Law and the Stormwater Management Act, DTI is required to pay DEQ to cover the costs incurred from hiring additional technical expertise to assist DEQ in plan review and compliance activities.

Should you have any questions or would like to discuss further, please contact me at (804) 698-4285 or frederick.cunningham@deq.virginia.gov.

Sincerely,

Frederick K. Cunningham
Director, Office of Water Permits

c: Melanie Davenport, DEQ
Benjamin Leach, DEQ
Larry Gavan, DEQ
Hannah Zegler, DEQ

This letter is intended to provide information on what information DEQ believes is needed in order to fully evaluate your Annual Standards and Specifications and is not a final determination or case decision under the Administrative Process Act. In the event that discussions with staff do not lead to a satisfactory resolution of the contents of this letter, you may elect to participate in DEQ's Process for Early Dispute Resolution. For further information on the Process for Early Dispute Resolution, please see Agency Policy Statement No. 8-2005 posted on the Department's website under "Programs", "Water", "Permitting & Compliance" at the following address:

http://www.deq.virginia.gov/Portals/0/DEQ/Enforcement/Guidance/process%20for%20early%20dispute%20resolution%20no8_2005.pdf.

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
Street address: 629 East Main Street, Richmond, Virginia 23219
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Molly Joseph Ward
Secretary of Natural Resources

David K. Paylor
Director

(804) 698-4000
1-800-592-5482

MEMORANDUM

To: Julia Wellman, DEQ Office of Environmental Impact Review

From: Meghann Quinn, DEQ Office of Pollution Prevention

Date: February 28, 2017

Subject: DEQ #16-248F, Atlantic Coast Pipeline

DEQ advocates that principles of pollution prevention and sustainability be used in all projects as well as during operations. Effective siting, planning, and on-site Best Management Practices (BMPs) will help to ensure that environmental impacts are minimized. Pollution prevention and sustainability techniques can be included in decisions related to materials, design and operational procedures that will facilitate the reduction of environmental wastes at the source.

We have several recommendations that may be helpful:

- Consider the development of an effective Environmental Management System (EMS). An effective EMS will ensure that the proposed project is committed to complying with environmental regulations, reducing risk, minimizing environmental impacts, setting environmental goals, and achieving improvements in its environmental performance. DEQ offers EMS development assistance and recognizes facilities with effective Environmental Management Systems through its Virginia Environmental Excellence Program (VEEP). VEEP provides recognition, annual permit fee discounts and the possibility for alternative compliance methods.
- Consider reuse and recycling opportunities when evaluating waste handling, including mulching of brush and timber and water reuse opportunities.
- Consider contractors' commitment to the environment when choosing contractors. Specifications regarding raw materials and construction practices can be included in contract documents and requests for proposals.
- Choose sustainable materials and practices for construction and design, including the use of native species and pollinators when re-establishing vegetation.
- Integrate pollution prevention techniques into maintenance and operation.

- Encourage supply chain partners to implement pollution prevention, sustainability, and environmental management systems.

DEQ's Office of Pollution Prevention provides information and technical assistance relating to pollution prevention techniques and EMS. If interested, please contact Meghann Quinn, (804) 698-4021.

Molly Joseph Ward
Secretary of Natural Resources

Clyde E. Cristman
Director

Rochelle Altholz
Deputy Director of Administration and Finance

David C. Dowling
Deputy Director of Soil and Water Conservation and Dam Safety

Thomas L. Smith
Deputy Director of Operations

COMMONWEALTH of VIRGINIA

DEPARTMENT OF CONSERVATION AND RECREATION

MEMORANDUM

DATE: March 31, 2017

TO: Julia Wellman, DEQ

FROM: Roberta Rhur, Environmental Impact Review Coordinator

SUBJECT: DEQ 16-248F, ATLANTIC COAST PIPELINE DRAFT EIS

Division of Planning and Recreation Resources

The Department of Conservation and Recreation (DCR), Division of Planning and Recreational Resources (PRR), develops the *Virginia Outdoors Plan* (VOP) and coordinates a broad range of recreational and environmental programs throughout Virginia. These include the Virginia Scenic Rivers program; Trails, Greenways, and Blueways; Virginia State Park Master Planning and State Park Design and Construction.

We have reviewed the proposed project and the latest proposed alignment. Section 4 addresses most concerns regarding the resources previously submitted FERC in a letter dated June 2016. We have the following comments regarding potential impacts to the LWCF property known as Nottoway Lake.

According to the information currently in our files, Nottoway Lake (51-00232) is protected in perpetuity by section 6(f) (3) of the Land and Water Conservation Fund Act. Section 6 (f) (3) of the Land & Water Conservation Fund Act states that: "No property acquired or developed with assistance under this section shall without approval of the Secretary [of the Interior] be converted to other than public outdoor recreation uses". The LWCF program takes into account that in certain instances there is no alternative to converting a portion of a LWCF property. In those extreme cases where there is no feasible alternative, a conversion of use process must be initiated with DCR for approval from the National Park Service. In short, the conversion of use process requires that a suitable piece of replacement property be found before a conversion occurs at a LWCF protected site. "Suitable" means equivalent in fair market value and can serve as a viable public outdoor recreation area without reliance upon adjoining or additional areas. Information about the conversion of use process is outlined on the DCR website at http://www.dcr.virginia.gov/recreational_planning/lwcfconuse.shtml. Conversion of use processes must be initiated with DCR by the governmental body that owns the property. In this case, Nottoway County and Synthia Waymack of DCR, synthia.waymack@dcr.virgini.gov.

Additionally, the project will be impacting the following statewide trails (reference VA code 10.1-204): The Great Eastern Trail, the Appalachian National Scenic Trail, the James River Heritage Trail, the East Coast Greenway and the Beaches to Bluegrass Trail. Potential mitigation projects could address gaps in the four developing trail systems; please contact Jennifer Wampler for more information at Jennifer.wampler@dcr.virginia.gov. We recommend coordination with the National Park Service and the U.S. Forest Service regarding impacts to the Appalachian National Scenic Trail.

We have done a desk top gap analysis of known water access sites along three established water trails that the proposed pipeline crosses: the Meherrin River, Nottoway River, and the James River. Water access is a key feature to create a vibrant recreation experience and a top need according to the 2013 VOP. Therefore, we suggest that the project proponent coordinate with local governments to explore the possibility of creating water access sites at water crossings that correspond with established water trails.
We also recommend that native plant species be used to restore areas cleared along the proposed route.

Division of Soil & Water Conservation

We recommend that any BMPs impacted by the pipeline be reinstalled or relocated, e.g. livestock fences and stream crossings re-erected, watering systems relocated, cover crops reimbursed to the farmers, disturbed areas re-vegetated, etc. One impact that cannot be fully mitigated for will be the loss of trees in planted buffers, which if cost shared would be from combined federal/state contributions. Since these cannot be replanted near a buried pipeline, there will be some degree of permanent impact. Ground cover vegetation however should be reestablished.

Division of Dam Safety and Floodplain Management

A project in a community's special flood hazard area (SFHA), as determined by the flood insurance rate map (FIRM) that is provided by FEMA, must comply with the community's floodplain ordinance. If the pipeline will be underground in the SFHA, the original contours restored, and all structures associated with the pipeline are outside of the SFHA, the project should have no effect on the floodplains in these communities. If the floodplain will be modified, coordination with the locality is advised.
Division of Natural Heritage

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 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), and January 30, 2017 (Accession number 20170130-5221).

DCR-DNH offers the following comments on the Atlantic Coast Pipeline Draft Environmental Impact Statement (DEIS), associated documents and the updated pipeline footprint. DCR-DNH considers the pipeline footprint to include the construction right-of -way, access roads, and associated infrastructure.

Section 4.0 Environmental Analysis

4.1 Geology

From DEIS, Page 4-6, paragraph 1, bullet 3- "*Contact landowners to determine the location of private water wells and water supply springs within 150 feet (500 feet in karst terrain) of approved construction workspaces, including near locations where blasting may be required. Pending landowner permission, preconstruction well testing would be conducted to evaluate water quality and yield. In the event that construction has adversely affected the water quality and/or yield of a well, Atlantic and DTI would conduct post-construction testing and provide an alternative water source or a mutually agreeable solution.*"

Dye traces within the general project area have shown connections of karst features to springs and wells as far as 7 miles away. For areas northwest of the Staunton/Pulaski/North Mountain Fault system (e.g. the Ridge and Valley), dye tracing studies should be performed wherever both 1) the ACP crosses karst terrain AND 2) prior dye tracing information does not exist or is insufficient. Fortunately, extensive dye tracing has been done along several areas crossed by the ACP. Dye tracing southeast of the Staunton-Pulaski-North Mountain fault system (in the Great Valley) is difficult to perform and can produce misleading results. Professional discretion on the part of ACP's consultants, in consultation with agency expertise from DCR-DNH , VDEQ, VDMME and the USGS, should be used to determine which areas in the Great Valley are appropriate for dye trace studies (e.g. Cochran's Cave area in Augusta County). Further discussion on this is under comment on **Appendix-Karst Terrain Assessment Construction, Monitoring, and Mitigation Plan, filed 1/27/2017, FERC Accession number 20170127-5202** below.

4.1.2.3 Karst Geology

Page 4-10, paragraph (item) 2 - Should note that globally significant cave systems are located in the "Folded Appalachian Subsection of the Valley and Ridge province". Most significantly, these include the caves of Burnsville Cove, with ~ 100km of mapped subterranean passages. Items 1 and 3 provide more description than item 2, making it appear that item 2 (the Ridge and Valley) is less significant in terms of caves and karst development.

Page 4-14, Highland County - Please note that DCR-DNH did not comment on the Valley Center area (Dever Spring, et cetera) because we do not currently have designated significant caves or documented cave biota in the area; however it is sensitive from a karst perspective. DCR-DNH's involvement in the area to date has been performance of dye trace studies showing the recharge area of several springs. DCR-DNH recommends avoidance of karst features to the maximum extent practicable and monitoring of resurgence springs.

Page 4-15, Cochran's Cave - There was a miscommunication in regards to the Biodiversity Rank (B-Rank) of Cochran's Cave. Only the state-listed tricolored bat (*Perimyotis subflavus,* G2G3/S1S3/NL/LE*)* is known to be associated with this cave. The B-rank is 4th order globally, not first order, placing it as moderately significant from a biodiversity perspective. However, additional recent biological inventory resulted in collection of cave obligate pseudoscorpions that are likely to be very rare globally, increasing the sites B-rank. Although the cave stream is fed by upwelling water in the rear of the cave, the federally threatened Madison Cave isopod (*Antrolana lira,* G2G4/S2/LT/LT*)* has not been documented from the cave. A relatively common species, Price's cave isopod (*Caecidotea pricei,* G5/S3/NL/NL) has been collected from the cave stream. Cochran's cave is a state designated significant cave under the Virginia Cave Protection Act of 1979.

Page 4–17, DCR-DNH recommends the addition of dye trace studies, <u>after</u> final approval but <u>prior</u> to construction, as necessary to determine the subterranean flow of water entering karst features proximal to the project ROW or construction roads. In the case of a release (i.e. discharge of sediment or contaminant to a karst feature), potentially impacted stakeholders can be informed in a timely manner and spill recovery equipment can be deployed at appropriate location(s.) At the time of the DEIS preparation, all springs and wells potentially impacted by the ACP in karst had not been identified.

Appendix-Karst Terrain Assessment Construction, Monitoring, and Mitigation Plan, filed 1/27/2017, FERC Accession number 20170127-5202

DCR-DNH makes the following recommendations to address the impacts of mitigation if a failure occurs and there is a discharge to karst waters, potentially impacting subsurface habitat, drinking water, and surface streams fed by karst springs.

In Karst Survey Report Revision 1, prepared by Geoconcepts Engineering for ACP and dated February 21, 2017, Geoconcepts staff presents the result of karst surveys of the 71.3 miles of the proposed ACP alignment at the time crossing karst terrain. Of the 71.3 miles, 62.3 miles were reviewed in the field. The other 9 miles had not been covered yet due to denial of property access. Part of the field review included designation of **high risk karst features** within or inferred to receive drainage from the 300' wide construction corridor.

High risk features associated with temporary construction facilities such as access roads and layout yards should also be identified and treated in the same manner, as these areas are just as likely to cause problems during construction. High risk features identified during the field survey of the remaining 9 miles, or in any subsequent adjustments to the preferred corridor, should also be included and treated in the same manner.

DCR believes it is imperative that the **watershed identity** – the spring or springs to which these features drain – be determined so that in the event of a contaminant release during construction or operation, appropriate notification of stakeholders and deployment of recovery and mitigation apparatus may occur in a timely manner. While the avoidance and mitigation measures proposed by Dominion ACP should drastically reduce the likelihood of any such release, mistakes happen, especially on a project of this scale. Too many times on other projects in karst areas around the world, the watershed identity of sensitive features has only been discovered when contaminants arrive at a spring or well. By that point, it is very late in the game to start recovery and notification procedures.

It should be noted that the results of these hydrological delineations should not affect routing of the pipeline corridor, but rather are performed for the purpose of determining features potentially impacted by the selected corridor. Delineation of subterranean flows is necessary if the countermeasures portion of the SPCC Plan, cited page 19 of the Karst Mitigation Plan, is to be effective in karst areas.

The primary way the watershed identity of karst features is determined is through dye tracing methods connecting features to downstream waters, mainly springs and cave streams. It is recommended that this technique be used, where applicable, to establish the watershed identity of the sensitive (high risk) karst features identified by Geoconcepts. For several areas along the ACP, this work has been done previously and VA DCR will provide existing dye trace information to Dominion and to Geoconcepts Engineering so that receptors of any potential contaminant releases in those areas can be identified. Geoconcepts has already performed successful dye trace studies pursuant to the ACP in the Cochrans Cave area of Augusta County, VA.

DCR is willing to work with Dominion, Geoconcepts Engineering, and representatives of VA-DEQ to design the dye tracing study appropriate for the portions of karst crossed by the ACP in Virginia. DEQ and DCR staff recognize that dye tracing will not work in some areas, and for these areas other criteria for determining potentially impacted waters will be used, as outlined in the next paragraph.

At risk springs are those likely to be impacted by a release from a section of the ACP project construction area. These will be identified by dye tracing methods where appropriate. In karst areas characterized by more diffuse flow systems, such as portions of the Shenandoah Valley, such springs can be identified by a combination of proximity to the construction area, the local geological setting, and most importantly hydrochemical and hydrophysical characteristics from synoptic sampling. The most important of these characteristics are temperature response and electrical conductivity response to precipitation events. In particular, low conductivity springs (<~400 microsiemens per centimeter) that show a pronounced reduction in conductivity after precipitation events are at the most at risk. Springs that do not show either temperature or electrical conductivity responses to precipitation are deep circulating features producing water from a wide recharge area that has been underground for years to decades, and are as such are unlikely to be impacted significantly by any discharge from the project area. Responsive springs in proximity to the project construction area and with a clear geological connection are those most likely to be at risk in areas where dye tracing is impractical.

Virginia DEQ has already provided Geoconcepts Engineering with access to its spring database in areas crossed by the ACP corridor.

Spring monitoring is recommended for **high risk springs,** the subset of at risk springs that serve as water supplies for human consumption, or that serve as significant inputs to surface streams and water bodies that support rare, threatened, or endangered species or healthy waters. DCR recommends monitoring **high risk springs** prior to and during construction. In discussion with DEQ staff, DCR-DNH karst protection staff concurs that these **high risk springs** should ideally be monitored continuously for turbidity, conductance, and temperature in addition to periodically sampled for hydrocarbons before and during pipeline construction. Establishing the normal range of spring responses for these parameters will be key to determining if E&SC and Spill Prevention, Control, and Countermeasures (SPCC) Plan measures employed during and after pipeline construction are protective of groundwater and the surface waters to which it discharges.

Karst Survey Report, Revision 1, filed 2-24-2017

DCR recommends analysis of the karst hydrology of the area in the report. Karst hydrological delineations are necessary in order to identify karst waters at risk were a release or discharge to occur from the pipeline work area to karst features. See discussion above regarding the **Karst Terrain Assessment Construction, Monitoring, and Mitigation Plan.**

- DCR concurs with the risk assessment methodology outlined in the Karst Resource Report.
- Karst field review needs to be completed for the remaining 9 miles of the 300' wide project corridor, as well as for layout yards and temporary construction roads, areas where erosion, sedimentation, and contaminant releases are equally likely to occur.
- DCR recommends also citing Holsinger, J. R., 1975, Descriptions of Virginia Caves: Virginia Division of Mineral Resources Bulletin 85, 450 p. as a source included in the review of existing karst features locations within a ½ mile wide KRA. The Virginia Speleological Survey (VSS) database contains most of this information.
- On page 5, DCR recommends that rather than specifying parallel and/or perpendicular fractures, it is more accurate to say that enlarged joints occur in every orientation from parallel to

perpendicular to strike, with a preponderance of fractures occurring either subparallel or nearly perpendicular to strike.

- On page 5, DCR recommends adding that cover collapse sinkholes are the type most likely to occur in response to land disturbance such as grading, stormwater discharge, discharge of hydrostatic test water, et cetera to this section.

- DCR recommends changing the title of "The Folded Appalachians" to "The Allegheny Highlands Section" or "Ridge and Valley Section" throughout the report.

Appendix – Cochran's Cave Conservation Area and Moffett Lake Investigation Update, filed 1/27/2017, FERC Accession number 20170127-5202

DCR-DNH supports the ongoing efforts by GeoConcepts to characterize the karst geology and hydrology within the Cochran's Conservation Site. 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. Conservation sites are given a biodiversity significance ranking based on the rarity, quality, and number of element occurrences they contain; on a scale of 1-5, 1 being most significant. Cochran's Conservation Site has been given a biodiversity significance ranking of B4, which represents a site of moderate significance. DCR-DNH continues to recommend the avoidance of the Cochran's Conservation Site entirely, the investigations underway and ongoing adjustments to the details of the alignment have severely reduced the likelihood of a significant impact to the cave or its associated biological and hydrological resources. The presence of onsite, authorized karst specialists during the construction phase of the pipeline through this very sensitive area is absolutely essential to ensure safe construction.

4.4 Vegetation

From DEIS, Page 4-131 – "*The proposed pipeline crosses the Spruce Creek Tributary Conservation site between AP-1 MPs 162.1 and 162.6. The conservation site was established by the DCR-DNH to protect a central Appalachian low-elevation acidic seepage swamp. While the currently proposed route does not cross the seepage swamp, the route crosses the protection buffer, or conservation site, around the swamp.*"

DCR continues to recommend avoidance of the Spruce Creek Tributary Conservation Site.
On page 4-135, it is stated that of the 13 conservation sites crossed by the pipeline, DCR-DNH recommended that only 3 sites be avoided: Handsom-Gum Powerline, Branchville Powerline, and Emporia Powerline Bog Conservation Sites. According to the Rev 11a alignment and subsequent centerline modifications filed with FERC (Rev11b) on January 19, 2017, 18 Conservations Sites and 4 Stream Conservation Units (SCUs) are intersected by the pipeline footprint. This discrepancy is due to multiple pipeline route adjustments since FERC began compiling information for the DEIS and the creation of 2 new conservation sites (NFS Road Site and Gum) and 1 new SCU (Cowpasture River-Rt. 678) in 2016 by DCR-DNH due to updated information about natural heritage resources. 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.

The statement on page 4-135 that 13 sites are crossed and DCR-DNH recommends avoidance of only three is incorrect. DCR-DNH continues to recommend avoidance of all conservation sites and SCUs.

In regards to the Handsom-Gum Powerline, Branchville Powerline, and Emporia Powerline Bog Conservation Sites, DCR-DNH continues to coordinate with Atlantic in regards to potential impacts to these conservation sites and has not provided concurrence with the proposed minimization measures at these three conservation sites.

A hydrology study is proposed for the Handsom-Gum Powerline and Emporia Powerline Bog conservations sites to determine if the construction of the proposed pipeline will impact the wetland systems which support the rare plant species at these sites. It is stated that habitat for these rare plant species will be created by co-locations at both the Handsom-Gum Powerline and Branchville Powerline conservation sites. While the expansion of mowed area of the existing right of way may be expanded slightly, the pipeline construction may also be adversely impactful due to soil compaction from construction staging or other needs necessitating the use of heavy machinery in the existing rare plant habitats at both Branchville Powerline and Handsom-Gum Powerline conservation sites.

At the Emporia Powerline Bog conservation site, based on the alignment modifications filed with FERC on January 19, 2017 the pipeline has been moved to the north of the wetland bog. While this re-route may lessen the impacts to the rare plants and a hydrology study is proposed to determine the impacts to the wetland system from the construction of the pipeline, DCR-DNH continues to recommend avoidance of Emporia Bog Powerline Conservation Site. DCR-DNH requests coordination with Atlantic prior to construction at the Handsom-Gum Powerline, Emporia Powerline Bog, and Branchville Powerline Conservation Sites. As discussions are currently on-going about avoidance and minimization of impacts at these sites, DCR-DNH recommends any additional comments and recommendations be included by Atlantic as part of the FERC certification. During construction, a DCR-DNH botanist is available for consultation on site to ensure recommendations are implemented by the contractor.

4.4.4 Noxious Weeds and Other Invasive Plants

On 4-143 Wavyleaf grass is mentioned, but no specifics are given of its location. Also, lists of invasive species encountered, including designated federal noxious weeds, does not include Wavyleaf grass. For clarification purposes, DCR-DNH requests the Wavyleaf grass location via shapefile if possible as well as details of population. The subsequent conflicting information indicates the plants may have been found either in North Carolina or in southeastern Virginia.

4.7.4 State-Sensitive Species

On page 4-261 -Surveys were conducted for the Allegheny woodrat (*Neotoma magister*), southern rock vole (*Microtus chrotorrhinus carolinensis*), southern water shrew (*Sorex palustris punctulatus*), and American water shrew *(Sorex palustris*) (refer to table S-2 in appendix S). Surveys are pending at 9.6 miles of survey corridor on both the GWNF and private lands, and are anticipated to be completed in June 2017. DCR-DNH requests surveys upon completion.

4.7.4.2 Virginia

On page 4-260- As of November 2016, approximately 55.9 miles have not been surveyed for biological resources in Virginia; these surveys are expected to be completed in 2017. DCR-DNH requests copies of the 2017 surveys upon completion.

Cave Invertebrates

On page 4-264, the DEIS states "discussions regarding potential impacts to karst and species habitat are ongoing with the FERC, FWS, FS, WVDNR, and VDGIF". DCR-DNH appreciates the continued coordination of karst information and requests to be added as one of the agencies reviewing and commenting on karst related issues.

Section 5.0 Conclusions and Recommendations

5.1 Conclusions of Environmental Analysis

5.1.1 Geologic Resources

DCR-DNH strongly recommends addition of a provision to perform, where absent or insufficient, dye trace studies to delineate contributing areas to karst waters potentially impacted by ACP construction and operation. This should be performed in close coordination with DCR-DNH's karst protection staff.

5.1.3.3 Wetlands

On page 5-6, "Additionally, the Atlantic and DTI would mow and maintain a 10-foot-wide corridor centered over the pipeline within wetlands in an herbaceous state." **DCR-DNH requests additional information on how the 10 foot wide permanent right-of-way centered over the pipeline would be maintained in an herbaceous state due to the potential for impacts to DCR powerline bog conservation sites: Handsom-Gum Powerline, Emporia Powerline Bog and Branchville Powerline. DCR-DNH recommends the same management style be applied to the pipeline right-of-way as with other Dominion transmission line right-of-ways for rare plants. DCR-DNH also recommends the adjacent pipeline right-of -way and existing transmission right-of-way should be managed as one unit within the three "bog" conservation sites.**

5.1.4 Vegetation

On page 5-7, the DEIS states *"ACP and SHP would also impact vegetation communities of special concern...13 Virginia Natural Heritage Conservation Sites; 2 Virginia SCUs...Of the Virginia Natural Heritage Conservation Sites crossed, the VDCR recommended that Atlantic avoid the Handsom-Gum, Branchville, and Emporia Powerline Bog Conservation Sites to conserve documented natural heritage resources. Complete avoidance was not considered practicable due to the orientation and size of the Conservation Sites, but Atlantic proposed avoiding direct impacts to the element occurrences. Further correspondence with the VDCR is pending and, as such, we have recommended that Atlantic continue to consult with VDCR on Atlantic's proposed avoidance and minimization measures at the Handsom-Gum, Branchville, and Emporia Powerline Bog Conservation Sites, and file correspondence from the VDCR demonstrating concurrence and/or additional recommendations from the VDCR."* **As mentioned above, DCR-DNH reiterates that we recommend avoidance of all conservation sites intersected by the pipeline, not just the 3 powerline bog conservation sites crossed by the current ACP route.**

5.1.5 Wildlife

"In addition, Atlantic has the potential to have significant adverse impacts on subterranean habitat and the species associated with this habitat type. The development of karst features could be initiated by the physical disturbance associated with trenching, blasting, or grading, or by diverting or discharging water into otherwise stable karst features. In addition, the development of karst features along the ground surface greatly increases the susceptibility of underlying aquifers to contamination sources originating at the ground surface. Atlantic's and DTI's Karst Mitigation Plan (appendix I) outlines the measures that would be taken to avoid or minimize these potential impacts; however, subterranean obligate species are often endemic to only a few known locations, and are vulnerable to changes in hydrological pattern or water quality; therefore, it is possible that impacts associated with construction activities could have population level effects on these species. Discussions regarding karst impacts and impacts to wildlife that inhabit these features are ongoing between the FERC, FWS, FS, WVDNR, and VDGIF." **DCR-DNH appreciates the continued coordination of karst information and documents and requests to be added as one of the agencies reviewing and commenting on karst related issues.**

5.1.6 Aquatic Resources

"Atlantic and DTI would ensure that hydrostatic test water appropriations and discharges would not result in a significant entrainment of fish, loss of habitat, or an adverse impact on water quality. Discharge would comply with regulatory permit conditions and be controlled to prevent scour and sedimentation, flooding, or the introduction of foreign or toxic substances into the aquatic system. Atlantic and DTI would minimize the potential for spills to impact aquatic resources by implementing the measures contained in their SPCC Plan." **DCR-DNH supports best management practices to ensure hydrostatic tests do not impact natural heritage resources.**

"FERC requests Atlantic and DTI file an analysis that identifies alternative water sources and discharge locations considered for waterbodies with documented or assumed presence of ESA-listed or under review species. Atlantic and DTI should also detail why the alternatives cannot be utilized, and define FWS-approved conservation measures that would be implemented to protect ESA-listed and under review species. Also, Atlantic and DTI should file a list of waterbodies supporting ESA-listed or under review species (survey-documented and assumed) that would be crossed by or adjacent to proposed access roads, along with a detailed description of the conservation measures that Atlantic and DTI would implement to reduce impacts on ESA-listed and under review species from access road construction and use." **DCR-DNH supports avoiding and reducing impacts to RTE species from water withdrawal and discharge locations through identification of alternatives and implementation of conservation measures.**

"The Forest Service requested that Atlantic complete a baseline benthic macroinvertebrate survey at waterbodies crossed by ACP on the GWNF. Two of the streams to be sampled were not surveyed, including Laurel Run. Therefore, we have recommended that Atlantic perform and file the results of baseline benthic macroinvertebrate surveys at Laurel Run, as well as comments on the results from the GWNF." **DCR-DNH requests copies of this survey report upon completion.**

5.1.7 Special Status Species

"While Atlantic and DTI conducted surveys for several federally listed species or species under review, survey access was not available in all cases. In addition, Atlantic and DTI have not provided conservation measures to address potential impacts to these species in all cases. Therefore, we have recommended that Atlantic and DTI should not begin construction of the proposed facilities until all outstanding biological surveys are completed, the FERC staff have completed any necessary Section 7 consultation with the FWS, and Atlantic and DTI have received written notification from the Director of OEP that construction and/or use of mitigation (including implementation of conservation measures) may begin." **DCR-DNH supports construction not beginning until all biological surveys have been completed, reviewed and consultation carried out with the appropriate agencies and if appropriate implementation of conservation measures.**

"The Virginia Endangered Species Act designates the VDGIF as the agency responsible for managing Commonwealth fish and wildlife species, and the VDCR-DNH as managing Commonwealth plant and insect species. Based on survey data provided by Atlantic through November 22, 2016, there are 13 Virginia listed or sensitive fish or wildlife species, and 26 plant species that occur within ACP project area and may be adversely impacted by project activities. Atlantic and DTI are currently working with the VDGIF and VDCR-DNH to identify conservation measures for these species." **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 supports continued coordination with agencies to avoid and minimize impacts to rare, threatened and endangered resources.**

"Due to pending survey results, conservation measures, and consultations with the appropriate state agencies, in particular with regard to bat species and bat hibernacula, subterranean obligate species, and aquatic species, our determination regarding the overall impacts on state-listed and sensitive species is Conclusions and Recommendations 5-16 pending. Therefore, we have recommended that Atlantic file an evaluation of the impacts and species specific conservation measures, developed in coordination with the applicable federal and state agencies (WVDNR; VDGIF and/or VDCR-DNH; and NCWRC and/or NDEQ), for several species listed in the EIS where Atlantic has identified potential impacts and/or where the appropriate agency has requested additional analysis or conservation measures. Where survey data is still pending, Atlantic should work with the appropriate agencies to identify the conservation measures that would be implemented if the species and/or suitable habitat are identified during preconstruction surveys, or where presence has been assumed." **DCR-DNH supports FERC's recommendation for Atlantic's continued coordination with state agencies in regards to potential impacts state-listed and sensitive species.**

5.2 FERC Staff's Recommended Mitigation

37. (5-34 and 5-35) ***Prior to the close of the draft EIS comment period****, Atlantic and DTI shall file with the Secretary a revised fragmentation analysis that includes the following:*

a. Analysis based on applicable state and federal agency datasets, including:

i. West Virginia state forest fragmentation data produced by the NRAC at West Virginia University;

ii. VDCR VaNLA project; and

iii. Consult with the FS, NCWRC, and NCDEQ to determine the appropriate data sets to use in the MNF, GWNF, and North Carolina, respectively.

b. If GIS databases are not available for the project location, then manual interpretation of interior forest blocks greater than or equal to 35 acres shall be identified and evaluated for project impacts;

c. Edge habitat is considered to be 300-foot forested buffer from a corridor/disturbance with interior forest starting at the point beyond the 300-foot edge buffer;

d. Develop a table for each state and for NFS lands with the following data for each forested interior tract: type of interior forest (e.g., edge, patch, small core, large core, or ecological integrity category), county, enter and exit milepost, length crossed (feet), and area affected directly (interior forest cutting) and indirectly (buffer zone areas of remaining forest immediately adjacent to one or both sides of the new corridor that would no longer be classified as interior forest due to the new, project-related disturbances) for both construction and operation; and

e. Discuss how the creation of forest edge or fragmentation would affect habitat and wildlife, including potential impacts on federally listed threatened and endangered species and migratory birds. Describe measures that Atlantic and DTI will implement to avoid, minimize, or mitigate impacts on interior/core forest habitat. (Section 4.5.6)

DCR-DNH considers a buffer of the proposed footprint to be an underestimate of the indirect impacts of this landscape level disturbance to interior forests and the ecological

functions and services those forested cores provide DCR, working with other Virginia state agencies, has developed an analysis of forest fragmentation for the ACP, and recommended mitigation activities. These activities would more adequately compensate for the degradation of interior forest and decreased forest values that are not accounted for via other regulatory requirements (e.g. wetland impacts, impacts to threatened & endangered species). This analysis will be provided to Atlantic and FERC within the DEIS comment period to address forest fragmentation included in the following sections of the DEIS:

- **Appendix H- Forest Fragmentation Analysis-Supplemental Filing January 10, 2017**
- **Executive Summary (ES) pages 10 and 11**
- **4.5.6 Habitat Fragmentation and Edge Effects, Page 4-164 to 4-166**
- **5.1.4 Vegetation, Page 5-7**
- **5.1.5 Wildlife, Page 5-9**
- **5.2 FERC Staff's Recommended Mitigation page 5-34 to 5-35**

DCR-DNH supports the following FERC recommendations:

5. (Page 5-28) Atlantic and DTI shall file with the Secretary detailed alignment maps/sheets and aerial photographs at a scale not smaller than 1:6,000 identifying all route realignments or facility relocations; staging areas; pipe storage yards; new access roads; and other areas that would be used or disturbed and have not been previously identified in filings with the Secretary. Approval for each of these areas must be explicitly requested in writing. For each area, the request must include a description of the existing land use/cover type, documentation of landowner approval, whether any cultural resources or federally-listed threatened or endangered species would be affected, and whether any other environmentally sensitive areas are within or abutting the area. All areas shall be clearly identified on the maps/sheets/aerial photographs. Each area must be approved in writing by the Director of OEP **before construction in or near that area**. Examples of alterations requiring approval include all route realignments and facility location changes resulting from:

a. implementation of cultural resources mitigation measures;
b. *implementation of endangered, threatened, or special concern species mitigation measures*
c. recommendations by state regulatory authorities; and
d. agreements with individual landowners that affect other landowners or could affect sensitive environmental areas.

15. (5-32) ***Prior to the close of the draft EIS comment period***, Atlantic shall consult with the VDCR to determine if the route alignment and construction activities would impact the Cochran's Cave Conservation Site or Cochran's Cave No. 2. Atlantic shall file with the Secretary the result of its consultations with the VDCR along with any project design change proposals to avoid impacts to these sites. (Section 4.1.2.3)

21. (5-32) ***Prior to construction***, Atlantic shall complete the remaining field surveys for wells and springs within 150 feet of the construction workspace, and within 500 feet of the construction workspace in karst terrain, and file the results, including type and location, with the Secretary. (Section 4.3.1.5)

22. (5-33) ***Prior to construction***, Atlantic shall consult the appropriate state agencies to identify additional mitigation procedures to be implemented in the event construction activities intercept a saturated karst conduit and file with the Secretary the measures that it will implement to minimize these impacts, for review and written approval of the Director of OEP. (Section 4.3.1.7)

23. (5-33) For water supply wells and springs wells within 500 feet of identified contaminated soil or groundwater site, Atlantic and DTI shall complete **preconstruction** and **post-construction** water quality tests, and analyze for contaminants of concern from the potential source. (Section 4.3.1.7)

30. (5-33) ***Prior to construction***, Atlantic shall continue to consult with the VDCR on Atlantic's proposed avoidance and minimization measures at the Handsom-Gum, Branchville, and Emporia Powerline Bog Conservation Sites, and file with the Secretary any correspondence demonstrating concurrence and/or additional recommendations from the VDCR. (Section 4.4.2.2)

34. (5-34) ***Prior to the close of the draft EIS comment period***, Atlantic shall file with the Secretary, and provide to the FWS, FS, WVDNR, and VDGIF, a revised *Karst Mitigation Plan*, developed in coordination with the appropriate agencies that takes into account unknown underground features, porosity, and connectivity of these subterranean systems, and the potential implications to subterranean obligate species. Conservation measures included in the revised *Karst Mitigation Plan* shall be designed to appropriately address these potential impacts. (Section 4.5.2.4)

45. (5-36) Atlantic and DTI shall not begin construction of the proposed facilities **until**:

a. all outstanding biological surveys are completed;
b. the FERC staff complete any necessary Section 7 consultation with the FWS;
c. Atlantic and DTI have received written notification from the Director of OEP that construction and/or use of mitigation (including implementation of conservation measures) may begin.

Draft Biological Assessment, January 2017

Indiana and Northern Long-eared bats

- DCR supports the USFWS recommendation of adhering to a TOYR (Time of Year Restriction) for the removal of potential roost trees for the Indiana bat (p. 120) and the Northern Long-eared bat (p. 144).

Roanoke Logperch

- DCR supports the use of HDD method to cross the Nottoway River at milepost 32.6. For other stream crossings including Nottoway River at MP 260.7, Waqua Creek at MP 267.4, and Sturgeon Creek at MP 272.0, DCR supports the VDGIF TOYR for construction in waters that contain the Roanoke logperch (p. 154).

Atlantic Pigtoe

- DCR requests a copy of the Atlantic pigtoe survey that documented the Atlantic pigtoe at Nottoway River (MP 260.7) and at Sturgeon Creek (MP 272.0) according to the information contained on page 171.

- DCR supports the HDD method for the crossing of the James River to be protective of freshwater mussels.

Plant Surveys

- DCR-DNH requests shapefiles for rare plant locations from 2016 plant surveys. Plant locations are currently plotted on aerial photos and are difficult to locate on a map due to differences in aerial photo year, quality, resolution, etc. (e.g. the new location for *Ludwigia ravenii*) DCR-DNH requests the results of any 2017 plant surveys.

- There is a Valley Doll's-daisy (*Boltonia montana*, G1G2/S1/NL/LE) occurrence within 80 meters of the impact footprint and other rare species within 200-400m. This conservation site is intersected by Rev 11b which was re-routed to avoid the Lyndhurst Pond Conservation Site. According to ACP correspondence dated March 28, 2017, a survey was conducted in the Campbell and Grove Farm Ponds Conservation Site in August 2016 to search for *Boltonia montana*, as well as other target species including *Helenium virginicum* and state-listed plants; no sensitive species were identified during survey.

- Please note for rarity ranks for plant species, Atlantic referenced the February 2016 Rare Plant List. The Rare Plant List was updated in November 2016 and is on the DCR-DNH website at http://www.dcr.virginia.gov/natural-heritage/document/plantlist17.pdf

Wildlife Surveys

- Loggerhead Shrike Survey - Negative survey results at all potentially suitable habitat sites. DCR-DNH supports tree removal occurring outside the Time of Year Restrictions. VDCR-DNH recommends continued coordination with VDGIF to ensure compliance with protected species legislation.

- Fish and Mussel Survey [on GWNF section of pipeline] - DCR-DNH recommends continued coordination with USFWS and VDGIF to ensure compliance with protected species legislation.

- Virginia Fish Relocation Plan [Roanoke logperch (*Percina rex*, G1G2/S1S2/LE/LE) plus all fish of any species occupying barricaded stream crossing areas]. DCR-DNH recommends adherence to the relocation protocols provided by VDGIF and USFWS and recommends continued coordination with these agencies to ensure compliance with protected species legislation.

- Small Mammal Survey – Four stream crossing in Highland County were identified as suitable habitat for Southern water shrew (*Sorex palustris punctulatus*, G5T3/S1S2/NL/LE), and DCR recommends continued coordination with VDGIF. According to ACP correspondence dated March 28, 2017, Small Mammal Surveys are still ongoing and an updated survey report will be provided in the summer of 2017. DCR requests copies of the survey report.

- Insect Survey in GWNF October 2016 – Due to multiple factual errors in species accounts and misspellings of scientific names, DCR recommends comparing species names and information to the "Atlas of rare butterflies, skippers, moths, dragonflies & damselflies of Virginia", available at http://www.vararespecies.org/list . DCR supports the mitigation measures planned to minimize impacts for Maureen's shale stream beetle (*Hydraena maureenae*, G2?/S2?/NL/NL) including erosion and sediment control measures, minimizing disturbance to gravel bars along streams, and using dry stream crossing techniques for construction.

- Myriapod and Gastropod Report, February 2017- Hoffman's Cleidognid Millipede (*Cleidogona hoffmani*, G3/S2S3/NL/NL), a natural heritage resource tracked by DCR, was documented at 9 sites during the surveys conducted on the GWNF. These findings may indicate that this species is more common than previously thought by DCR.

- State-Listed Salamander Surveys-

  Mabee's Salamander (*Ambystoma mabeei,* G4/S1S2/NL/LT) – Negative surveys at 3 potentially suitable sites (of 118 total wetlands assessed). As stated in the report, 20 more sites merit surveys in 2017 pending landowner permission. DCR-DNH requests copies of these surveys upon completion.

  Tiger Salamander (*Ambystoma tigrinum*, G5/S1/NL/LE) – Positive survey at 1 of 5 sites with potentially suitable habitat (of 59 total wetlands assessed). As stated in the report, 4 more sites merit surveys in 2017 pending landowner permission. DCR-DNH requests copies of these surveys upon completion. One tiger salamander larva was captured at a new site SW of Sherando. The breeding pond (1.3 acres; not shown on USGS topo map but visible in aerial photos) is within 20 meters of the ROW and less than 40 meters from the centerline. The pipeline route was previously relocated in this general area to avoid the Lyndhurst Ponds Conservation Site to the northeast. It appears the line was also moved a short distance to the west (see map 1 in the report) in the vicinity of this pond to create a larger buffer. Although the pipeline avoids a direct hit of the pond, terrestrial habitat of adult and juvenile tiger salamanders will be impacted and fragmented. Tiger salamanders are known to move up to 286 meters from their breeding ponds (average distance in one study was 60 meters; see summary in R. D. Semlitsch. 1998. Biological delineation of terrestrial buffer zones for pond-breeding salamanders. Conservation Biology 12: 1113-1119), thus the pipeline will likely adversely affect the terrestrial habitat of some unknown portion of this newly documented population.

  In addition on Page 9 of the Rare Salamander report – under Section 5.1.1.1 Site wauc103f, it was stated: "A large pond where Tiger Salamanders have been previously observed (waua056e/waua056f) occurs approximately 66 meters (216 ft) toward the north end of the site." According to ACP correspondence dated March 28, 2017, larval tiger salamanders were identified at the site indicated above (waua056e/waua056f) during ACP salamander surveys in 2015. Larval salamanders were also found at site waua054f in 2015, which is nearby in Augusta County.

  DCR-DNH recommends Atlantic continue coordination with DGIF regarding possible mitigation, such as a TOYR (perhaps January-July) to avoid impacting the breeding migration of adult tiger salamanders and dispersal movements of recently metamorphosed juveniles during the year of construction. The long-term presence of the pipeline ROW after construction may disrupt future migrations of this population.

  DCR-DNH also recommends re-routing the pipeline so that it is at least 300 meters from these ponds. Reducing the construction width to 75' in the vicinity of these ponds and the permanent ROW width to 50' would increase the buffer distance slightly and perhaps reduce impacts some. DCR-DNH recommends limiting woody stump removal to areas directly above the trenchline to facilitate the re-establishment of woody species by existing root structures. Restricting grading within the ROW in the vicinity of these ponds to the area directly over the trenchline will also reduce impacts to tiger salamander terrestrial habitat, including underground burrows.

- In addition, due to a potential new record of tiger salamander larva in Augusta County at the ponds located south of milepost 153, DCR-DNH recommends a survey for tiger salamander larva at these ponds in spring of 2017.

- Cow Knob Salamander Survey [on GWNF section of latest pipeline route] – Negative survey (some potential habitat was found but no Cow Knob Salamanders); DCR-DNH has no additional comments. The pipeline route was previously altered to avoid the range of this species (which it initially crossed on Shenandoah Mountain).

- Protected Snake Conservation Plan - DCR-DNH recommends Atlantic adhere to all of the mitigation measures recommended by VDGIF.

- Updated Migratory Bird Plan August 2016 - Forest fragmentation will occur and new edge habitat will be created in some areas, impacting forest interior species. DCR-DNH recommends adherence to all mitigation measures recommended by federal and state agencies. Bald Eagle nests were documented near the pipeline route. DCR-DNH recommends coordination with USFWS to ensure compliance with the Bald and Golden Eagle Protection Act.

- Virginia Bat Survey Data - If a known maternity or roost site is documented within the ROW or in the immediate vicinity of the pipeline footprint, DCR-DNH recommends reducing the temporary construction ROW to 75' and permanent ROW to 50'.

- George Washington/Monongahela National Forest – Management Indicator Species Report - VDCR-DNH recommends reducing habitat fragmentation and the creation of new edge habitat impacting forest interior species.

- Virginia Species of Greatest Conservation Need Report –

  Table 1, page 3, the "Conservation Measures" listed for Tiger Salamander at the newly documented site are similar to those in the previous report but also mention possible route adjustment (boldface added below):

  "Surveys completed, species found in one location in Augusta County. **Consideration of route adjustment to avoid impact.** Other measures could include Project Procedures; Reduced temporary construction width (75 feet); ATWS wetland/waterbody buffer (50 feet); Wetland habitat mitigation-Clean Water Act (CWA) Section 404 Permitting through the U.S. Army Corps of Engineers (USACE); General Measures" (see **Map 1** in the state-rare salamander report) The appendix labeled "Conservation Measures for Virginia State-Listed Species" also mentions "Consideration of route adjustment to avoid impact. DCR-DNH recommends a route adjustment to avoid impacts to the documented occurrence of the Tiger salamander.

  Table 1, page 6 for Green Floater: "Habitat assessment completed and presence/absence survey ongoing." DCR-DNH requests the survey report when available and any other on-going freshwater mussel surveys. The appendix labeled "Conservation Measures for Virginia State-Listed Species" also mentions ongoing surveys for the Atlantic Pigtoe, another rare mussel.

Appendix - Restoration and Rehabilitation Plan, Rev 4, FERC Accession Number 20170110-5142, filed 1-10-2017

DCR-DNH would like to offer the following recommendations for the restoration and rehabilitation plan including proposed seed mixes.

DCR-DNH supports not using cool-season grasses to restore ground cover unless on slopes over 15%. This excludes our coastal plain bogs.

DCR-DNH recommends avoiding soil compaction in adjacent transmission rights of way at the Handsom Gum Powerline, Branchville Powerline and Emporia Bog Powerline Conservation Sites. Any work in these areas could eliminate species and habitat entirely, particularly given issues of soil compaction in these sensitive bog sites.

Topsoil should be stockpiled outside of transmission lines where rare plants occur including in forested areas at Handsom-Gum Powerline and Branchville Powerline Conservation Sites, if clearing adjacent to the line, Atlantic needs to segregate topsoil when removing trees. That would increase the chances of creating habitat for rare species in the adjacent pipeline right-of-way.

DCR-DNH recommends mowing of the pipeline corridor as the preferred right-of-way maintenance method over the use of herbicide in these sensitive areas.

DCR-DNH supports not using lime or fertilizer within 100' of wetlands as stated in document.

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. If plans deviate from the proposed revegetation and monitoring plans included in the draft EIS, DCR-DNH recommends re-coordination with this office.

Seed Mix Recommendations

- Remove *Eryngium yuccifolium* from all seed mix lists
- In Table 5.7.5-1, page 15, remove *Sporobolus compositus*, rare in WV and not viable on most substrates
- In Table 5.7.5-2, page 15-16, remove *Coreopsis lanceolate*, questionably native to WV
- In Table 5.7.5-3, remove *Andropogon ternarius* rare in mountain region and probably not viable. DCR-DNH recommends *Andropogon virginicus* or *Sorghastrum nutans* as a substitute. DCR-DNH recommends doubling the proposed seeding rate and suggests adding *Tridens flavus* to the seed mix.
- In Table 5.7.5-4, page 16, remove *Coreopsis tinctoria*, not native to WV; Remove *Coreopsis lanceolate*, questionably native to WV; Remove *Helianthus maximiliani*, not native to WV; Remove *Echinacea purpurea*, not native to WV; The seeding rate is adequate for flat topography; however, DCR-DNH recommends increasing the seeding rate within the mountain physiographic region due to steeper terrain and increasing the mass of *Monarda fistulosa* within the seed mix. DCR-DNH also recommends adding *Symphytrichum novae-angliae* to the seed mix.

- In Table 5.7.5-6, page 17, remove *Asclepias tuberosa*, cannot tolerate poorly drained sites; remove *Pycnanthemum incanum*, cannot tolerate poorly drained sites; remove *Bidens aristosa*, questionably native to WV; remove *Lupinus perennis*, cannot tolerate poorly drained sites

- In Table 5.7.5-7 and 5.7.5-8, DCR-DNH recommends increasing the seeding rate 50-100%; however, the amount of *Chamaecrista fasciculata* should not be increased. DCR-DNH recommends adding *Juncus tenuis* to these seed mixes. *Juncus tenuis* grows in full sun to partial shade, dry rocky soils to wet saturated soils, has a pH tolerance of 4.5-7.0, tolerates compaction and is easily grown.

- In Table 5.7.5-8, page 18, Remove *Coreopsis tinctoria*, not native to VA; Remove *Eryngium yuccifolium*, rare in VA and probably not viable in poorly-drained soils; Remove *Helianthus angustifolius*, rare in mountain region and probably not viable

- In Table 5.7.5-10, page 20, Remove *Coreopsis tinctoria*, not native to VA; Remove *Coreopsis lanceolata*, questionably native to VA; Remove *Helianthus maximiliani*, not native to VA; Remove *Echinacea purpurea*, not native to VA; Remove *Gaillardia pulchella*, not native to VA

- In Table 5.7.5-11, page 20, Remove *Sporobolus compositus*, rare in VA and not viable on most substrates

- In Table 5.7.5-14, page 21, Remove *Coreopsis tinctoria*, not native to VA; Remove *Eryngium yuccifolium*, rare in VA and probably not viable in poorly-drained soils

Recommended Seed Mixes by Milepost, Rev 3

- In table 2.3.1-1, page 21, remove Sericea lespedeza *(Lespedeza cuneata)*
- In Table 2.2.1-2, specify which species of Sorghum. *Sorghum halepense* is an invasive species.

- In table 2.2.1-10, page 17, *Panicum virgatum* is mentioned. *Panicum virgatum* is a tallgrass prairie and is not ideal for Virginia. There are Southeast varieties available from seed sellers that would be more appropriate for Virginia.

- In Table 2.2.1-1, page 9, Use all native species mixes 8, 10, and 11 if possible

- In Table 2.2.1-2, pages 10-13, Use all native species mixes 103,105,106,109 if possible,

- In Table 2.2.1-6, page 15, Remove *Andropogon ternarius*, rare in mountain region and probably not viable (*Andropgon virginicus* or *Sorghastrum nutans* would be a substitute)

- In Table 2.2.1-7, page 15, Remove *Coreopsis tinctoria*, not native to VA; Remove *Coreopsis lanceolate*, questionably native to VA; Remove *Helianthus maximiliani*, not native to VA; Remove *Echinacea purpurea*, not native to VA

- In Table 2.2.1-8, page 16, Remove *Coreopsis tinctoria*, not native to VA; Remove *Eryngium yuccifolium*: rare in VA and probably not viable in poorly-drained soils

- In Table 2.2.1-9, page 17, Remove *Koeleria macrantha*, not native to VA

- In Table 2.2.1-10, page 17, Remove *Sporobolus compositus*, rare in VA and not viable on most substrates; Remove *Coreopsis tinctoria*, not native to VA; Remove *Dalea purpurea*, not native to VA; Remove *Desmanthus illinoensis*, not native to VA; Remove *Helianthus maximiliani*, not native to VA

- In Table 2.2.1-11, page 18, Remove *Bouteloua curtipendula*, not viable on most substrates; Remove *Lotus corniculatus*, not native to North America; Remove *Desmanthus illinoensis*, not native to VA; Remove *Helianthus maximiliani*, not native to VA; Remove *Coreopsis lanceolate*, questionably native to VA; Remove *Bidens aristosa*, questionably native to WV; Remove *Pycnanthemum pilosum*, not native to VA (DCR-DNH suggests *Pycanthemum incanum* instead, which is native to Virginia)

  (Supplementary species listed: Buckwheat, Millet, Korean Lespedeza, etc. -- DO NOT USE.)

- In Table 2.2.4-2, page 20, Remove *Coreopsis tinctoria*, not native to VA; Remove *Coreopsis lanceolate*, questionably native to VA; Remove *Helianthus maximiliani*, not native to VA; Remove *Echinacea purpurea*, not native to VA; Remove *Gaillardia pulchella*, not native to VA

- In Table 2.2.4-3, page 21, Remove *Coreopsis tinctoria*, not native to VA; Remove *Eryngium yuccifolium*, rare in region and probably not viable in poorly-drained soils

DCR-DNH continues to coordinate with Dominion on the re-vegetation of the right-of-way for the pipeline including the proposed seed mixtures as plans are updated and modified.

Appendix G, Non-Native Invasive Plant Species Management Plan, within Draft Construction, Operations, and Maintenance Plans

DCR-DNH supports the implementation of an Invasive Species Management Plan, and the use of the Virginia Department of Agriculture and Consumer Services (VDACS) Noxious Weed List.

However, DCR-DNH also recommends use of the Virginia Invasive Plant Species List (http://www.dcr.virginia.gov/natural-heritage/invsppdflist).The Virginia Invasive Plant Species List comprises species that are established or may become established in Virginia, cause economic and ecological harm, and present ongoing management issues. To be included on the list, there must be demonstrable evidence that a species poses a threat to Virginia's forests, native grasslands, wetlands or waterways. The Virginia Department of Conservation and Recreation's Invasive Species Assessment Protocol, approved by the Virginia Invasive Species Working Group, May 2015, was used to conduct a risk assessment for each listed species. Species were ranked as exhibiting high, medium or low levels of invasiveness based on their threat to natural communities and native species

The Virginia Invasive Plant Database Tool can be found at http://www.dcr.virginia.gov/natural-heritage/ip. The Virginia Invasive Plant Database Tool provides information about invasive species based on a variety of inputs, such as geographic region, soil moisture and light requirements, VA invasiveness rank, or common and scientific names.

Please note that special concern exists for the spread of Wavyleaf grass (*Oplismenus undulatifolius)* during construction and maintenance of the pipeline and the pipeline right-of-way. It is likely that Wavyleaf grass exists in the vicinity of the route crossing of the Blue Ridge Parkway and the adjacent George Washington National Forest lands. Wavyleaf grass has a VA Invasiveness rank of high, can be found in the mountain and

piedmont regions, and prefers shade and mesic soils. It produces an abundance of small, sticky seeds which are readily carried on clothes, shoes, and construction equipment, thus aiding its spread to new sites. Considering the anticipated soil disturbance and vegetation structure alterations along the long, linear project footprint which would span mountains to piedmont to coastal plain, this project has great potential to promote a range expansion of this aggressive invasive species, invading forests, to dominate and permanently change understory forest composition and habitat, therefore impacting forest regeneration throughout the project area. The capability of this species to have this drastic impact is evidenced in parts of Virginia and Maryland where Wavyleaf grass has invaded in recent years.

DCR-DNH supports sanitization of all construction equipment daily to prevent the spread and introduction of invasive species. DCR-DNH suggests pre- construction, during construction, and post-construction monitoring for invasive species with the post-construction monitoring completed after the end of the first complete growing season following the completion of a project. DCR-DNH recommends that disturbed areas be inspected for invasive species twice during each growing season for a period of not less than five years after project completion, and that when observed, invasive species be eradicated as appropriate for species and setting, per coordination with the DCR-DNH.

Appendix S - State Species Table S-2

DCR-DNH provides the following comments on Table S-2 "Virginia Listed and Species of Greatest Conservation Need With Potential to Occur in the Atlantic Coast Pipeline Project Area" from Appendix S of the Draft EIS:

- Page S-30 Southeastern myotis should also be listed as documented in the Great Dismal Swamp Conservation Site
- Page S-31 Eastern small-footed bat should be listed as potential to occur at the Big Levels-Maple Flats Conservation Site
- Page S-31 Little brown bat should be listed as potential to occur at the Burnsville Cove Conservation Site
- Page S-32 Tri-colored bat should be listed as potential to occur at Burnsville Cove Conservation Site
- Page S-32 Dismal swamp southeastern shrew is missing from Table S-2 and should be listed as documented at the Great Dismal Swamp Conservation Site
- Page S-48 Atlantic pigtoe-should say "documented at Nottoway River-Ft. Pickett SCU and Nottoway River-Sturgeon Creek-Hardwood Creek SCU' and the following language- "potential for at Appomattox River crossing south of Stoddert, potential for at Nottoway River and Sycamore Bend swamps, potential for at Wingina crossing". DCR-DNH recommends language be updated to include all documented and potential locations.
- In October of 2016, the working draft of the table was reviewed and edited by DCR-DNH for Merjent, a subcontractor for FERC, and was titled "Virginia Listed and **Rare** Species and Species of Greatest Conservation Need With Potential to Occur in the Atlantic Coast Pipeline Project Area." The title for Table S-2 in the Draft EIS has been changed to "Virginia Listed and Species of Greatest Conservation Need With Potential to Occur in the Atlantic Coast Pipeline Project Area" removing the following rare species listed below:
- Barratt's sedge (*Carex barrattii*, G4/S2/NL/NL)

- Crowfoot sedge (*Carex crus-corvi*, G5/S1S2/NL/NL)
- Lake-shore sedge (*Carex lacustris*, G5/S1/NL/NL)
- Inflated sedge (*Carex vesicaria*, G5/S1S2/NL/NL)
- Velvet sedge (*Carex vestita*, G5/S2/NL/NL)
- Millboro leatherflower (*Clematis viticaulis*, G1/S1S2/SOC/NL)
- Hazel dodder (*Cuscuta coryli*, G5?/S2?/NL/NL)
- Plunkett's flatsedge (*Cyperus plukenetii*, G5/S2/NL/NL)
- Pineland tick-trefoil (*Desmodium strictum*, G4/S2/NL/NL)
- Tall cinquefoil (*Drymocallis arguta*, G5/S1/NL/NL)
- Dwarf burhead (*Echinodorus tenellus*, G5?/S1/NL/NL)
- Baldwin's spikerush (*Eleocharis baldwinii*, G4G5/S2/NL/NL)
- Black-fruit spikerush (*Eleocharis melanocarpa*, G4/S2/NL/NL)
- Water horsetail (*Equisetum fluviatile*, G5/S1/NL/NL)
- Northern St. John's-wort (*Hypericum boreale*, G5/S2/ NL/NL)
- Lesser marsh St. John's-wort (*Hypericum tubulosum*, G4?/S2/NL/NL)
- Marsh muhly (*Muhlenbergia glomerata*, G5/S2/NL/NL)
- Sword-leaf phlox (*Phlox buckleyi*, G2/S2/SOC/NL)
- Torrey's Mountain-mint (*Pycnanthemum torreyi*, G2/S2?/SOC/NL)
- Yellow pitcher plant (*Sarracenia flava*, G5?/S1/NL/NL)
- Reclining bulrush (*Scirpus flaccidifolius*, G2/S1/NL/NL)
- Elliott's goldenrod (*Solidago latissimifolia*, G5/S2/NL/NL)
- Freshwater cordgrass (*Spartina pectinata*, G5/S2/NL/NL)
- Dense-flowered camas (*Stenanthium densum*, G5/S1/NL/NL)
- Large cranberry (*Vaccinium macrocarpon*, G4/S2/NL/NL)

DCR-DNH would like to know the reason for the title change mentioned above, and the rationale for no longer considering impacts to these Globally and State rare plants DCR-DNH tracks as natural heritage resources.

The comments made under *Asclepias rubra* are repeated as boilerplate language throughout the Species Table S-2. Potential for impacts are varied in the nature of the conflicts and the species and sites involved and therefore using this general boilerplate language for many species is not appropriate. DCR-DNH's overall recommendation is avoidance of impacts to the different natural heritage resources documented within the pipeline footprint, including associated infrastructure. Below are DCR-DNH's recommendations providing additional detail for what is documented at each site and then recommendations for avoiding impacts to each Natural Heritage resource occurrence.

Please note, for the powerline bog species listed in Table S-2, DCR-DNH coordination with Atlantic is on-going and we continue to recommend avoidance of the conservation sites at Handsom-Gum Powerline, Branchville Powerline, and Emporia Powerline Bog Conservation Sites. In regard to some additional species associated with power line wetlands, such as those near Dismal Swamp (*Ludwigia pilosa, Xyris fimbriata*, etc), specific comments are made on where they occur within the line and avoidance recommendations. Several new resources near the Dismal Swamp will be either directly or indirectly impacted by the current pipeline alignment.

- Red milkweed (*Asclepias rubra*, G4G5/S2/NL/NL) – Statements regarding impacts due to construction "within or adjacent to the right of way" are pertinent for this species at Handsom-Gum as well as for all species near the pipe trench at other sites. Staging and other activities are taking place in adjacent acreage may impact documented natural heritage resources. Therefore DCR-DNH recommends impacts be minimized to the fullest extent possible and all staging of equipment and

materials be targeted in areas away from the mapped resources. The staging and other use of construction equipment has potential to impact Handsom-Gum directly despite location of the pipeline outside of the transmission line corridor.

- Pine barren sandreed (*Calamovilfa brevipilis*, G4/S1/NL/NL) – As stated in the Table S-2 avoiding now per line shift by Atlantic.

- America willow-herb *(Epilobium ciliatum,* G5T5/S1/NL/NL*)* – no data provided (no rare plant survey form).

- Virginia sneezeweed (*Helenium virginicum*, G3/S2/LT/LE)–2015 Rare Species Sighting Forms and shapefile to indicate relocated these species at the Lyndhurst Conservation Site. Same for Valley Doll's-daisy (*Boltonia montana,* G1G2/S1/NL/LE*).* According to ACP correspondence dated March 28, 2017, a survey was conducted in the Campbell and Grove Farm Ponds Conservation Site in August 2016 to search for *Boltonia montana*, as well as other target species including *Helenium virginicum* and state-listed plants; no sensitive species were identified during survey.

- Fraser's Marsh St. John's-wort *(Hypericum fraseri,* G5/S2/NL/NL*)* –two occurrences (both in Bath County) One population is found in the corridor on the north side (**Map 17**), but not on the line itself. DCR-DNH recommends avoiding the population to eliminate incidental impacts from the staging of equipment and materials.

- Big Gallberry *(Ilex coriacea,* G5/S1/NL/NL*)* – DCR-DNH recommends staging of equipment/materials and clearing of the right-of-way avoid the newly discovered population of *Ilex coriacea* located barely south of the actual pipeline (**Map 86**). DCR-DNH staff botanist requests further information in regards to the logistics of clearing over a 30ft area rather than the standard width of impact.

- Hairy Seedbox *(Ludwigia pilosa,* G5/S1/NL/NL*)* – **On Map 95**, some re-finds of known populations but also new occurrences for this species, some of which are actually in the path of the pipeline. This species is also found elsewhere on this map quite close to the pipeline within the corridor. DCR-DNH staff botanist requests further coordination in regards to avoidance of impacts to the documented populations within the pipeline corridor and impacts associated with staging of equipment, materials, etc Due to these issues (particularly on Map 95), DCR-DNH concurs with part of the language in their standard "Red Milkweed" language: there may be serious, direct impacts to these resources.

- Raven's Seedbox *(Ludwigia ravenii,* G1G2/S1/NL/NL)– This natural heritage resource is a globally rare species (G1G2), and therefore one of the most significant discoveries of the plant surveys conducted for this project. The population is small, and as with the other extant Virginia populations, is found in an artificial habitat (ditch). The road the ditch runs along is access road 26-060-A020.AR2 near MP 53.55. As reported in the rare plant form, "Because the population is located within a drainage ditch alongside a dirt road, this population could be at risk if upgrades to the road or drainage system occurs." DCR-DNH emphasizes the need to avoid impacts to this population during construction due to road improvements, drainage changes, staging associated with the construction of the pipeline.

- Walter's Paspalum (*Paspalum dissectum,* G4?/S2/NL/NL*)* – **On Map 95**, DCR-DNH recommends avoiding impacts within the corridor, close to the actual line. *Ludwigia pilosa* could receive direct impacts at this site as well (see above). **On Map 99**, several colonies of this species are known

within the corridor, close by and barely south of the actual pipeline route. Impacts due to pipeline-related activities must be avoided. On **Map 100**, the same applies as on **Map 99**.

- Purple Fringeless Orchid *(Platanthera peramoena,* G5/S1/NL/NL*)* – The single plant found was located along a road that apparently will not be used as an access road for pipeline work and is over 0.5 mile outside of the pipeline corridor therefore DCR-DNH has no comments based on the information provided.

- Water-plantain Crowfoot (*Ranunculus ambigens,* G4/S1/NL/NL*)* – population is located within pipeline corridor on its north side. Impacts associated with pipeline construction should be avoided in this area.

- Yellow Nodding Ladies-tresses *(Spiranthes ochroleuca,* G4/S2/NL/NL*)* – **On Map 5**, the location of this new discovery is within the path of the pipeline. Avoidance of this occurrence is recommended and DCR-DNH does not support the transplanting of this sensitive orchid species as it will not survive. DCR-DNH would like clarification of the statement "Pending GWNF and DCR-DNH review of survey reports and mitigation procedures", mainly because their mitigation procedures are not spelled out specifically. The boilerplate language use for *Asclepias rubra* supposedly applies to this species, but the list of possible impacts, consequences, and lack of specifics that they provide for cases of direct impacts means that we don't know what we could "concur" with at this point. I assume that specific discussions will be had for sites with direct impacts to plants.

- Fringed Yellow-eyed Grass *(Xyris fimbriata,* G5/S1/NL/NL) –**On Map 99**, plants are in the corridor DCR-DNH recommends avoiding impacts related to pipeline construction including staging of equipment, etc.

- Tall Yellow-eyed Grass (*Xyris platylepis,* G5/S2/NL/NL) - **On Map 99**, plants are in the corridor and some quite close to the actual pipeline. DCR-DNH recommends avoiding impacts to rare plants related to pipeline construction and operations.

- DCR-DNH recommends rare plant populations clearly be identified and flagged with orange fencing in the field prior to construction using GPS based coordinates and shapefiles. For all of documented natural heritage resources, populations should be closely monitored during construction to avoid impacts.

- Eastern big-eared bat (*Corynorhinus rafinesquii macrotis*, G3G4T3/S2/NL/LE) –82 bats were documented at a bridge roost within the construction workspace in Southampton County. These bats are sensitive to disturbance, noise, etc. DCR recommends continued coordination with VDGIF to ensure compliance with protected species legislation.

- Tiger Salamander – According to the table, DGIF recommends avoidance of wetlands and a 300 meter buffer for this species. The newly discovered population near Sherando is much closer to the pipeline route (20 m from ROW margin) than this, thus suggesting the need to identity an alternate route to avoid impacts. Also, sedimentation during construction could fill underground burrows used as habitat by tiger salamanders. DCR-DNH recommends re-routing the pipeline to avoid this population.

- Barking Treefrog (*Hyla gratiosa*, G5/S2/NL/LT) – Survey/Agency Data – the first sentence says "Reports for this species in Greensville and Southampton counties are unconfirmed." DCR-DNH has confirmed records for this species in both counties.

- Mabee's Salamander – Please note this species doesn't occur on the GWNF (right column includes GWNF and DGIF as reviewers of their survey data)

- According to ACP correspondence dated March 28, 2017, 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.

- Chestnut clearwing moth (*Synanthedon castaneae*, G3G5/SH/NL/NL) – in the Agency data part of the table it is stated that the only VA record is from Falls Church (historic). Atlantic didn't conduct any surveys for this species, but on page 98 of the ACP Preliminary Draft Biological Evaluation Report [= Appendix D Biological Evaluation] they state "Use of pheromone baits has confirmed that the species occurs in several areas in Virginia." According to ACP correspondence dated March 28, 2017, Virginia should be removed from the sentence and the statement should be revised to read, "In addition, use of pheromone baits has revealed its occurrence in several areas in Connecticut (Anagnostakis et al., 1994) and the southeast (Snow and Eichlin, 1986), including Florida, North Carolina, South Carolina, and Georgia." Citations for the listed studies are provided below.

Anagnostakis S. L., Welch K. M., Snow J. W., Scarborough K., Eichlin. T. D. 1994. The rediscovery of the clearwing chestnut moth, *Synanthedon castaneae* (Busck) (Lepidoptera: Sesiidae) in Connecticut. *Journal of the New York Entomological Society*, 102: 111-112.

Snow J. W. and Eichlin T. D. 1986. The Rediscovery and Distribution of the Clearwing Moth, *Synanthedon castaneae* (Busck) in the Southeastern United States. *Journal of Agricultural Entomology*, 3(1): 66-67.

Appendix Q-Vegetation Communities

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 1 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 1 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

DCR-DNH supports FERC's recommendation on Page ES 11 "*that Atlantic and DTI file an updated fragmentation analysis; consider a 300-foot forested buffer as the impact area; discuss how the creation of forest edge or fragmentation would affect habitat and wildlife; and identify the measures that would be implemented to avoid, minimize, or mitigate impacts on interior/core forest habitat*".

In order to provide the most accurate and up-to-date comments on the Atlantic Coast Pipeline project, DCR-DNH requests shapefiles as changes occur to the project containing updated project footprint (construction right-or-way, access roads, and associated infrastructure including proposed cellular towers referenced on page 4-342).

An explanation of species rarity ranks and legal status abbreviations can be found at http://www.dcr.virginia.gov/natural-heritage/help. Thank you for the opportunity to comment on this draft environmental impact statement for the Atlantic Coast Pipeline.

CC: Wil Orndorff, DCR-DNH-Karst
Amy Ewing, VDGIF
Troy Andersen, USFWS

Literature Cited

Landenberger, R.E., N.L. Kota, and J.B. McGraw. 2007. Seed dispersal of the non-native invasive tree Ailanthus altissima into contrasting environments. Plant Ecology 192: 55-70.

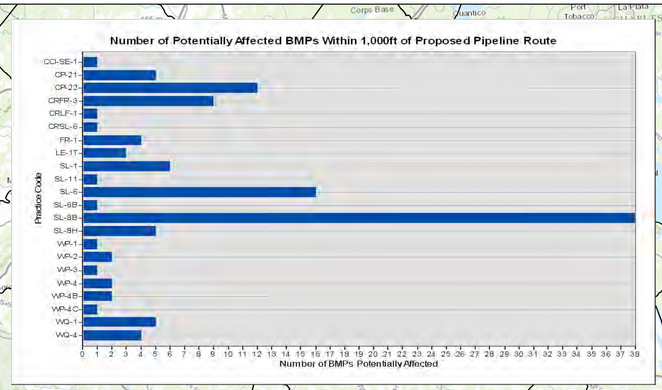
Mortensen, D.A., E.S.J. Rauschert, A.N. Nord, and B.P. Jones. 2009. Forest roads facilitate the spread of invasive species. Invasive Plant Science and Management 2: 191-199.

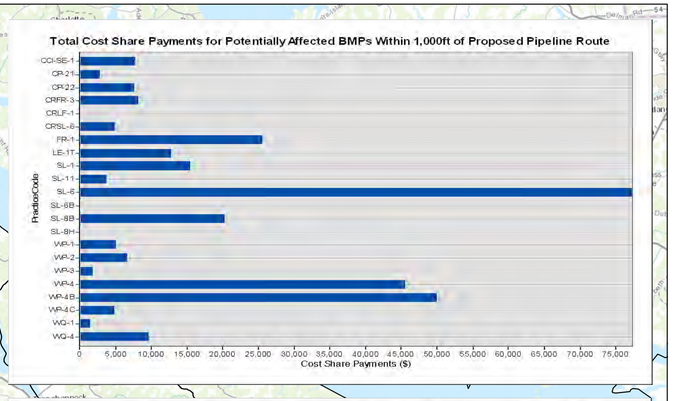
The Nature Conservancy. 2015. Reducing ecological impacts of shale development: recommended practices for the Appalachians. http://www.nature.org/media/centralapps/recommended-shale-practices-ecological-buffers.pdf

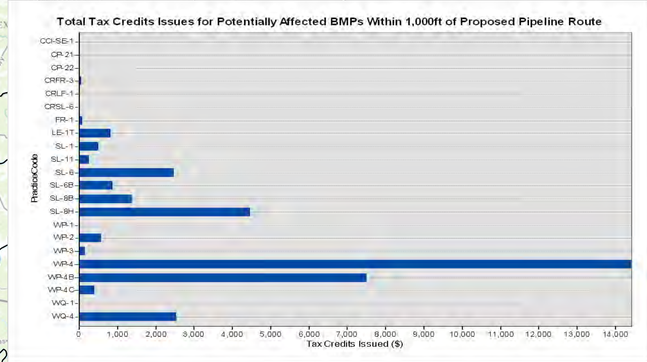
Thorell, M. and F. Gotmark. 2005. Reinforcement capacity of potential buffer zones: forest structure and conservation values around forest reserves in southern Sweden. Forest Ecology and Management 212: 333-345.

With, K.A. 2002. The landscape ecology of invasive spread. Conservation Biology 16: 1192-1203.

Potential Impact of Proposed Atlantic Coast Pipeline Route on Installed Best Management Practices







Notes:
- -121 potentially impacted BMPs
- -$311,421.61 in cost share payments made for those BMPs
- -$36,458.67 in tax credits issued for those BMPs
- -Excludes Nutrient Management, Septic and Resource Management Plan BMPs
- -Includes only Cover Crop BMPs which were installed during PY15
- -All other BMPs included regardless of lifespan

Legend

- Potentially Affected BMPs
- Atlantic Coast Pipeline Route

0 10 20 40 60 80 Miles

Sources: Esri, DeLorme, HERE, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, and the GIS User Community

Molly J. Ward
Secretary of Natural Resources

COMMONWEALTH of VIRGINIA

Department of Game and Inland Fisheries

Robert W. Duncan
Executive Director

February 24, 2017

Julia Wellman
Environmental Impact Review Coordinator
Department of Environmental Quality
629 E. Main Street
Richmond, VA 23219

RE: Atlantic Coast Pipeline
Rev 11b Corridor Review
and Draft EIS Review;
ESSLog# 34825

Ms. Wellman,

In response to your request for comments on the Draft Environmental Impact Statement (DEIS) for the Atlantic Coast Pipeline Project, we offer the following new information and updates to our previous comments. Atlantic Coast Pipeline, LLC (Atlantic) proposes to construct and operate a natural gas transmission pipeline, and associated lateral pipelines, in Virginia. As proposed, the project crosses three of VDGIF's four administrative regions, crosses one of our Wildlife Management Areas (James River WMA), and borders another WMA (Horsepen). We recently submitted a letter (enclosed, 7 February 2017), to Dominion that included our review of project corridor Rev 11a, and of survey reports, habitat assessments, and other recent information submitted to us by Atlantic regarding this project; much of it based on our recommendations and following our guidelines.

The Virginia Department of Game and Inland Fisheries (VDGIF), as the Commonwealth's wildlife and freshwater fish management agency, exercises enforcement and regulatory jurisdiction over those resources, inclusive of state or federally endangered or threatened species, but excluding listed insects. We are a consulting agency under the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), and we provide environmental analysis of projects or permit applications coordinated through the Virginia Department of Environmental Quality (DEQ), the Virginia Marine Resources Commission (MRC), the Virginia Department of Transportation (DOT), the Army Corps of Engineers (ACOE), the Federal Energy Regulatory Commission (FERC), and other state or federal agencies. Our role in these procedures is to determine likely impacts upon fish and wildlife resources and habitat, and to recommend appropriate measures to avoid, reduce or compensate for those impacts.

Rev 11b Review:

We received a shapefile depicting Rev 11b on February 6, 2017. We note that the DEIS periodically references a Rev 12, which we have not received. Review of the Rev 11b corridor confirmed that there are few significant deviations from the corridor alignment that was proposed in Rev 11a. However, the Rev 11b shapefile that we received only included the project centerline and mileposts. We were not provided a new coverage depicting proposed access roads, staging areas, metering stations, or other facilities. If any changes to the location or alignment of such features have been made since Rev 11a, we recommend that those changes be provided to us for review. The comments herein address only the Rev11b centerline.

Based on the few changes offered in this route revision, no additional listed species or designated resources under our jurisdiction were identified as in need of additional consideration. In fact, in most instances, the new alignment appears to reduce impacts upon streams, wetlands, and other natural features. However, the new alignment does result in impacts upon natural or semi-natural areas which have not yet been assessed for suitability to support the listed species for which we have previously recommended consideration.

Of particular note is the newly proposed location for the Cowpasture River crossing. The Cowpasture River has been designated a Threatened and Endangered Species Water due to the presence of federally Endangered James spinymussels. Therefore, to ensure protection of James spinymussels, we recommend that a mussel survey and relocation be performed from 100 meters upstream through 400 meters downstream of impact areas in the Cowpasture River. This survey should be performed by a qualified, permitted biologist, preferably no more than six months prior to the start of construction. All survey and relocation activities should adhere to the attached draft guidance. Any relocations should be coordinated with Brian Watson, VDGIF Region II Aquatic Resources Biologist (434-525-7522), and no federally listed species should be relocated without first coordinating with the USFWS (804-693-6694). In addition, we recommend a time of year restriction (TOYR) on all instream work of May 15 through July 31 of any year. Survey results should be made available to Amy Ewing in VDGIF's Headquarters office in Henrico, and to Brian Watson in VDGIF's Forest Office. Upon review of the results, we will make final recommendations regarding the protection of listed species known from the area. All survey reports should reference ESSLog#34825, included in the header of this letter.

If the applicant prefers, they may provide us with good, representative photographs of the impact area(s) for our review. The photos should clearly depict the size of the stream, the substrate type, and the banks upstream and downstream of the site. Upon review of the photos, we may be able to dismiss the need for a mussel survey based on the habitat available on site. Further, we recommend coordination with the USFWS regarding federally listed species in the area.

To ensure protection of listed species and designated resources under our jurisdiction, we recommend that all newly proposed areas of disturbance be assessed for their suitability to support any of the listed species known from the area, per our previous comments.

Once such habitat and suitability assessments have been performed and we have had the opportunity to review those assessments, we will make additional comments regarding the need for further assessments, surveys, or protective measures to ensure protection of wildlife resources under our jurisdiction.

DEIS Review Regarding Sensitive Wildlife Species and Resources:

Over the past few months, we have received many survey reports, habitat assessments, and other documents resulting from biological data collection along the proposed pipeline corridor; many of them based on our recommendations and following our guidelines. We provided our comments, recommendations, and guidance regarding these studies in the enclosed letter to Dominion dated February 7, 2017.

We support FERC's determination in the DEIS that construction and operation of the ACP may affect or be likely to adversely affect Indiana bats, northern long-eared bats, Roanoke logperch, and Madison Cave isopods. We are not the jurisdictional Virginia agency for management and protection of plants, so we defer to VDACS and VDCR-DNH regarding the determination for running buffalo clover. We recommend continued coordination with the USFWS regarding impacts upon these species. We support FERC's recommendations to Atlantic that they provide the information we and other agencies and organizations have requested prior to the end of the DEIS comment period. We note that we still are awaiting the results of some surveys and habitat assessments performed late in 2016, the results of biological data collection proposed for 2017, and results of surveys or assessments covering newly proposed areas of disturbance depicted in Rev 11b. Until we have been provided this information for review, we cannot make final determinations regarding likely impacts upon affected species and resources under our jurisdiction. Based on our review of the DEIS and recent submittals, however, we offer the following additional information, including updates to our earlier comments.

<u>Atlantic sturgeon (federal endangered; state endangered):</u>

We currently are finalizing Threatened and Endangered Species Water designations and protective recommendations for Atlantic sturgeon in Virginia. Until resource designations and guidance are finalized, we defer to NOAA Fisheries Service regarding protection of Atlantic sturgeon. We recommend continued coordination with them, particularly regarding the determination in section 4.6.2.2 of the DEIS that adherence to the anadromous fish use area time of year restriction for water withdrawals from the Elizabeth River is protective of Atlantic sturgeon. We note that there is evidence of Atlantic sturgeon fall-spawning activity that may warrant an additional TOYR during that season.

<u>Roanoke logperch (federal endangered; state endangered):</u>

We provided specific guidance regarding recently performed and ongoing habitat assessments for Roanoke logperch in the Nottoway River drainage in our February 7, 2017 letter to Dominion (enclosed). We recommend adherence to our guidance and that the clarity and confirmations we requested be provided. As stated in that earlier letter, we support assumption of presence in the Nottoway River, Waqua Creek, Butterwood Creek, and White Oak Creek. We recommend adherence to an instream work TOYR from March 15 through June 30 of any year in

these waters and at the site of any instream work within 1 mile upstream of these waters (tributaries). We recommend adherence to the Fish Relocation Plan, developed cooperatively between USFWS, VDGIF, and Atlantic. We recommend that the results of the on-site assessments performed in 2016 at UNT Nottoway River 1 Access Road (AR), UNT Nottoway 2, and UNT Nottoway 2 (AR) be provided to us for review. We recommend that all sites determined to provide suitable habitat but which were not accessible during 2016 be assessed for suitability as soon as they become accessible and that the results of that suitability analysis be provided to us for review. We recommend that any newly proposed areas of instream work in the Nottoway drainage be assessed for suitability to support Roanoke logperch and that the assessment be provided to us for review. Upon review of additional reports and information, we will make additional recommendations regarding protection of Roanoke logperch and the resources that support them. We recommend coordination with the USFWS regarding potential impacts upon this species associated with development and operation of the ACP.

Orangefin madtom (state threatened):

This species is native to Virginia's Roanoke River watershed, but it has been introduced into the James River drainage. Neither do we document this species, which often co-occurs with Roanoke logperch, to be native to the Nottoway River drainage. Hence, we agree with the finding in the DEIS that construction and operation of the ACP are likely to adversely impact only the introduced population of this species in the James River watershed. Therefore, we do not recommend any protective measures for this fish other than adherence to typical instream work best management practices (BMPs), including adherence to erosion and sediment controls and the Fish Relocation Plan.

Madison Cave isopod (federal threatened; state threatened):

We do not document this species from the project area, but we recognize that our data may not include all known or suitable sites that support this species. Therefore, we support coordination with us, the USFWS, and VDCR-DNH regarding survey and protective recommendations for this species. Upon review of any new information regarding this species, we will make additional comments and recommendations regarding the protection of Madison Cave isopods.

Freshwater mussels:

We received a report in late September 2016 that details the habitat assessments and surveys performed, per our recommendations and following our guidance, to address concerns related to the protection of listed freshwater mussels and the resources that support them. Specifically, we recommended consideration of James spinymussels (federal endangered; state endangered), yellow lance mussels (federal species of concern), Atlantic pigtoe mussels (state threatened), and green floater mussels (state threatened); all which have been documented from the project area. Our comments on the surveys and habitat assessments reviewed to date are included in our enclosed letter to Dominion dated February 7, 2017. We continue to support the recommendations in that letter regarding Threatened and Endangered Species Waters.

We support assumption of listed mussel presence at the crossings of the Cowpasture River, James River, Appomattox River, Nottoway River, Sturgeon Creek, Meherrin River and

their perennial tributaries, as stated in the DEIS. We reiterate that mussel surveys and relocations at the sites of instream work within any of these waters is recommended and that work should be performed by a permitted, qualified biologist and in adherence to our guidance (enclosed). We support efforts proposed for 2017 to perform assessments and/or surveys at the stream crossing sites that were not accessible during the 2016 survey season or that need to be considered based on the newly-proposed project alignment depicted in Rev 11b. We note that mussel survey and relocation lengths are partially determined by the crossing method. If blasting is required to cross any stream known or expected to support listed mussels, we may require more extensive surveys than are typically recommended for trenched stream crossings. We recommend that the applicant provide us with the location of any proposed instream blasting so that we may review each site for potential impacts upon freshwater mussels. We recommend that the results of any surveys and assessments be provided to us for further review, including the remaining late-2016 survey reports for proposed crossings of Winningham Creek, Nottoway River 1, and Cohoon Creek. Upon receipt and review of these surveys and assessments, we will offer additional comments and recommendations regarding the protection of freshwater mussels under our jurisdiction.

In our February 7, 2017 letter, we recommended consideration of impacts upon James spinymussels in Back Creek and the Jackson River, Bath County. Although we have not designated these streams as Threatened and Endangered Species Waters, our Malacologist, Brian Watson, has reason to believe that James spinymussels may occupy these streams based on their adjacency to occupied sub-watersheds (Bullpasture River/Cowpasture River). It appears, based on the information included in Appendix K1, that a mussel survey is being proposed for the crossing of the Jackson River, and that no mussels were found during a survey performed at Back Creek. We appreciate these efforts and recommend continued coordination with us and the USFWS regarding the survey of the Jackson River.

We continue to recommend that instream work in designated Threatened and Endangered Species Waters (waters known to support listed aquatic species) and instream work at sites within 1 mile upstream of such waters (tributaries) adhere to the previously-recommended time of year restrictions (TOYR) protective of mussels known from that water, whether listed mussels were found during surveys at such sites or not. It is important that listed mussels known from downstream of the work site also be protected from harm, achieved through adherence to TOYR and typical instream work BMPs. We recommend the table in Appendix K1 of the DEIS be updated to reflect commitment from Atlantic to adhere to TOYR for instream as described above. Crossings being performed via Horizontal Directional Drill (HDD) that do not include any instream work in these waters may not need to adhere to TOYR or mussel surveys and relocations.

As described in earlier correspondence with the applicant, negative surveys are only valid for two years. If the crossing sites surveyed in 2016 do not commence construction before 2018 (two years post-survey), we may recommend additional survey activities at those sites to ensure colonization of mussels has not occurred in the interim. We recommend coordination with the USFWS regarding potential impacts upon federally-listed species associated with the development and operation of the ACP.

Listed salamanders:

As described in earlier correspondence with the project applicant, both state Endangered eastern tiger salamanders and state Threatened Mabee's salamanders are documented from the project area. To ensure protection of these species and the habitats upon which they depend, we recommended that wetlands proposed to be impacted by pipeline construction, operation, or maintenance and within the documented range of these species be evaluated for habitat suitability for these species. Wetlands deemed suitable should be surveyed for the species, and occupied wetlands/ponds and an upland buffer of 300 meters around the wetland/pond should be protected from project impacts. The listed salamander report that we were provided for review details habitat assessment and salamander survey activities that occurred during the 2016 season.

Habitat assessments and surveys for eastern tiger salamanders were performed, per our recommendations, at wetlands along the pipeline corridor in Augusta and Nelson counties. Only one of the four wetlands that were identified as suitable eastern tiger salamander habitat and accessible for surveys was found to be occupied by eastern tiger salamanders (waua050f). Because eastern tiger salamanders must have access to wetlands/ponds/vernal pools to breed, and to the associated uplands in which they live the rest of the year, we recommended that waua050f and an at-least 300 meter upland buffer be avoided. After a site visit to the occupied wetland with our Herpetologist, John (J.D.) Kleopfer, and as reflected in Rev 11b, the project corridor was shifted to the west of pond waua050f and outside of its drainage area. By protecting the water source for waua050f from impacts and by moving the corridor farther from the ponded area, as shown in Rev 11b, we are satisfied that significant adverse impacts upon waua050f and the eastern tiger salamanders that inhabit it have been avoided.

We recommend that any wetlands located in Augusta or Nelson county that are newly proposed for impacts (based on the Rev 11b alignment) or that were not accessible during 2016, be assessed for suitable eastern tiger salamander habitat and that any suitable wetlands be surveyed following the previously-provided protocols. The survey protocols we provided to Atlantic and their environmental consultants stipulate that two years of surveys are necessary to confirm lack of ambystomid salamander presence in any given wetland/pond. We recommend that the wetlands that were determined to provide suitable eastern tiger salamander habitat and that were surveyed during 2016, but that were not occupied in 2016 (wauc103f, waub103f, and wnep001f), be surveyed again in 2017 to confirm lack of presence.

Habitat assessments and surveys for Mabee's salamanders were performed, per our recommendations, in wetlands along the pipeline corridor in the City of Suffolk in 2016. No Mabee's salamanders were documented at the two wetland features (ponds) determined suitable habitat and accessible for surveys in 2016.

Because two years of surveys are necessary to confirm lack of ambystomid salamander presence in any given wetland/pond, we recommend that the wetlands determined to be suitable Mabee's salamander habitat that were available for surveys in 2016 but were not occupied (wsuc101e and wsuc007e) be surveyed again during in 2017 to confirm lack of presence. In addition, we recommend that any wetlands located in the City of Suffolk that are newly proposed for impacts (based on the Rev 11b alignment) or that were not accessible during 2016 be

assessed for suitable Mabee's salamander habitat and that any suitable wetlands be surveyed following the previously-provided protocols.

We recently received Atlantic's 2017 Listed Salamander Study Plan for review. We will coordinate directly with Atlantic and their environmental consultants regarding the suitability of this plan. Upon review of upcoming surveys and assessments, we will make additional comments and recommendations regarding the protection of eastern tiger salamanders, Mabee's salamanders, and the habitats that support them, with regard to development and operation of the ACP.

Listed Bats:

Based on guidance from VDGIF and the USFWS, Atlantic and their consultants performed acoustic and mist-net surveys during 2015 and 2016 to inform our concerns for the protection of federally Endangered Indiana bats, federally Endangered Virginia big-eared bats, federally Threatened northern long-eared bats, and state Endangered Rafinesque's eastern big-eared bats, all of which are documented from the project area. All surveys followed federal protocols and were approved and permitted, as necessary. Specific comments regarding these surveys and assessments are included in our enclosed February 7, 2017 letter to Dominion.

We recommend avoidance of impacts upon all previously-known and newly documented hibernacula, roost sites, and roost trees and adherence to federal guidelines for their protection. We recommend coordination with us regarding any unavoidable impacts located within 0.5 mile of such resources for state-only listed bats. We recommend that any new lands and habitats now within the project scope, based on the Rev 11b corridor, be assessed following the protocols previously used. We continue to recommend adherence to VDGIF's "Best Management Practices for Conservation of Little Brown Bats and Tri-colored Bats" and coordination with us and the USFWS regarding potential impacts upon Virginia's bats as surveys continue into 2017.

Listed Small Mammals:

During previous coordination with Atlantic and its environmental consultants, we recommended consideration of impacts upon state Endangered rock voles, state Endangered American water shrews, and Wildlife Action Plan (WAP) Species of Greatest Conservation Need (SGCN) Tier IVa Allegheny woodrats. Accordingly, Atlantic and its environmental consultants performed habitat assessments and small mammal surveys along the currently proposed pipeline corridor. Our comments regarding those surveys and habitat assessments are included in the enclosed letter to Dominion dated February 7, 2017.

We recommend avoidance of impacts upon areas already identified as suitable listed small mammal habitat and at which there is evidence to support their presence, including latrine sites. We recommend that the applicant provide us with information regarding the four crossing sites on streams identified as suitable water shrew habitat and any proposed conservation measures to ensure avoidance of impacts upon this species. We also recommend continued coordination with us regarding small mammals as surveys and assessments continue into 2017 and onto lands not accessible during 2016 or which are newly within the project scope.

Listed Birds:

Based on their occurrence within the ACP project area, we recommended protection of state Threatened loggerhead shrikes and recommended adherence to a TOYR for ground clearing and tree removal from April 1 through July 31 of any year for work performed in Highland County, Bath County, or Augusta County; or within the Rockfish Valley Region of Nelson County. In their response to our recommendations, Atlantic and their environmental consultants agreed to adhere to the TOYR in Bath, Highland, and Augusta counties except for the area in Augusta from project mile point (MP) 114.8 – 126. Per our recommendation, surveys for loggerhead shrikes were performed throughout this area during 2016. Specific comments about these survey areas and results are included in the February 7th letter to Dominion.

The DEIS does not include any information regarding loggerhead shrikes, our recommendations regarding their protection, or the results of surveys performed for the species; nor any indication of Atlantic's commitment to adhere to the TOYR protective of nesting loggerhead shrikes. We recommend the DEIS be updated to include this information.

State Threatened peregrine falcons also have been documented from the eastern portion of the project area, primarily from nest boxes located on bridges. Although we do not document natural peregrine falcon nests (eyries) or nesting habitat along the proposed pipeline corridor, we did ask Atlantic to assess habitat along the pipeline route for such features during already-planned aerial surveys. No significant cliff habitat suitable for nesting peregrine falcons was documented along the pipeline corridor during aerial investigations. Thus, we do not anticipate this project to result in significant adverse impacts upon peregrine falcons or resources that support them. If significant bridge or near-bridge disturbance in eastern Virginia becomes part of the project, we recommend additional coordination with us regarding protection of nesting peregrine falcons on such structures.

Based on known presence of federally Endangered red-cockaded woodpeckers in southeastern Virginia and North Carolina, habitat assessments and subsequent cavity searches were performed along the proposed pipeline corridor within areas of known habitat, per USFWS guidelines. No red-cockaded woodpeckers or suitable cavities were documented from Virginia. Therefore, we do not anticipate the construction and operation of the ACP to result in adverse impacts upon red-cockaded woodpeckers. However, we recommend continued coordination with the USFWS regarding potential impacts upon this species.

Bald and Golden Eagles:

Bald and golden eagles are known from Virginia. Atlantic and its environmental consultants performed, at the request of the USFWS, aerial surveys for bald eagles and golden eagles along the proposed pipeline corridor. Both species of eagle were documented in multiple locations along the corridor. We recommend continue coordination with the USFWS regarding potential impacts upon bald and golden eagles, protected by the Bald and Golden Eagle Protection Act, as well as continued adherence to Virginia's bald eagle management guidelines.

Listed and other snakes:

Timber rattlesnakes, state Endangered canebrake rattlesnakes, and scarlet kingsnakes have been documented from the project area. We continue to recommend that the pipeline be routed to avoid impacts upon suitable habitats for these species, particularly canebrake rattlesnake habitats in southeastern Virginia. We also recommend that long-term vegetation management along the corridor in areas known to support canebrake rattlesnakes be consistent with conservation measures for the species (previously provided).

We are glad to see that the DEIS includes a commitment from Atlantic to educate construction workers engaging in pipeline construction, operation, or maintenance about snakes, including being trained in the identification, basic natural history, and legal status of canebrake rattlesnakes. We support this training and adherence to the Snake Conservation Plan during construction, operation and maintenance of the ACP.

Trout Streams:

In the DEIS, trout streams in Virginia are either identified as "wild brook" streams or "stockable" streams. We define wild trout streams (Class I – IV) as those which naturally support trout; whether brook, brown, or rainbow trout. Stockable trout streams (Class V – VIII) are those streams included in our stocking program. Stocking of brook, brown, or rainbow trout may occur in these streams. Trout and the streams that support them are ecologically and economically significant resources in Virginia.

To best protect valuable wild trout resources, we recommend that all instream work occurring in the waters listed in our February 7, 2017 letter to Dominion and/or their tributaries (within 1 mile upstream) adhere to a time of year restriction from October 1 through March 31 of any year in waters known to support brook trout and/or brown trout, and from March 15 through May 15 of any year in waters known to support rainbow trout. We recommend confirmation of Atlantic's commitment to adhere to the above recommended TOYR and an updated Appendix K1 to reflect this commitment. We note that water crossings being accomplished via Horizontal Directional Drilling (HDD) that do not include instream work may not need to adhere to the TOYR.

To ensure avoidance or minimization of conflicts with stocking and angling activities in the stocked streams listed in our February 7, 2017 letter, we understand that Atlantic is coordinating with Paul Bugas, VDGIF Region IV Aquatic Resources Manager. We support coordination with him and adherence to his recommendations regarding these resources.

Anadromous Fish Use Areas:

As stated in the DEIS, we recommend that instream work in designated Confirmed and Potential Anadromous Fish Use Areas or instream work within 1 mile upstream of Confirmed Anadromous Fish Use Areas adhere to TOYR protective of fish migration and spawning. In the DEIS, it is stated that Atlantic has committed to adhere to the TOYR from February 15 through June 30 of any year for all instream work in Anadromous Fish Use Areas and their tributaries except for the James River. However, Appendix K1 of the DEIS (ACP waterbody crossings), depicts adherence to a TOYR protective of Anadromous Fish Use Areas, shifted slightly based

on the location of the impacts within the watershed. We request clarification about Atlantic's commitment to adhere to TOYR protective of the above resources.

We reiterate that to best protect the important fisheries, all instream work in Confirmed Anadromous Fish Use Areas and their tributaries and/or within Potential Anadromous Fish Use Areas (all listed in the July 7, 2017 letter) should adhere to a time of year restriction (TOYR) from February 15 through June 30 of any year. Crossings being performed via Horizontal Directional Drill (HDD) that do not include any instream work in these waters may not need to adhere to the TOYR.

Crossing of James River Wildlife Management Area:

The ACP is proposed to cross the Department's James River Wildlife Management Area, a public resource that was purchased with federal grant funds from the U.S. Fish and Wildlife Service, located in Nelson County. If the project interferes even temporarily (e.g., during construction) with uses of the land which were established as purposes of those grants, pipeline construction will jeopardize the Department's future access to these grants. While we are working closely with Atlantic to resolve this issue to our mutual satisfaction, please be aware that this issue remains unresolved at this time, and we cannot support the project crossing of our Wildlife Management Area until this issue is resolved. We support FERC's recommendation to continue coordination with us regarding this issue.

Migratory Bird Plan:

We have reviewed the Migratory Bird Plan, developed to satisfy requirements under the Migratory Bird Treaty Act and as requested by the USFWS. We appreciate efforts to schedule tree removal and ground clearing to avoid impacts upon nesting migratory birds. We continue to recommend adherence to a TOYR for these activities from March 15 through August 31 of any year. In addition, we recommend minimization of forest fragmentation across the Commonwealth. Specific recommendations regarding our review of the Migratory Bird Plan are included in our February 7, 2017 letter to Dominion. Based on review of the DEIS and recent conversations with Atlantic's environmental consultants, we offer the following updates to relevant sections of our comments on the Migratory Bird Plan.

- Colonial Waterbird Colonies: We document colonial waterbird colonies containing great blue herons and great egrets from the project area; some confirmed and new ones observed during aerial surveys performed along the project route. We recommend that the applicant provide to us for review a map of the great blue heron colony documented from Suffolk (ROOK-ACT-02), and any other colonies located within 0.25 mile of the project areas. Upon review of this information, we will provide guidance regarding protection of any active waterbird colonies that may be impacted by construction, operation, or maintenance of the ACP.

Proposed Water Withdrawals:

Water withdrawals from Virginia's waters are proposed for use during pipeline construction for a number of purposes included hydrostatic testing, dust suppression, and HDD activities. We have not had an opportunity to review all of the specific water withdrawals and

associated instream flow data, but offer the following general comments regarding water withdrawal and use associated with development of the ACP.

We support the USFWS recommendation that withdrawals not be made from waters known to support sensitive aquatic species. To best protect resident aquatic species from impingement and entrainment associated with water withdrawals, we typically recommend that all intakes be fitted with a 1mm mesh screen and that intake velocities not exceed 0.25 fps. In addition, we recommend that no more than 10% instantaneous flow be withdrawn. We see reference to a restriction on withdrawals to no more than 25% of stream inputs. Based on the information included in the DEIS, it is difficult for us to determine what, if any, impacts upon aquatic species the proposed withdrawals may have. We recommend continued coordination with us and the USFWS regarding proposed water use during pipeline construction to ensure avoidance or minimization of impacts upon the native systems.

The DEIS makes note of the need to avoid introduction of non-native aquatic invasive species during water withdrawal and use. We support efforts to avoid introductions and recommend, as indicated in our February 7, 2017 letter to Dominion (and below), that an Aquatic Invasive Species Management Plan be developed for the project.

Forest Fragmentation:

As depicted in the DEIS, significant linear footage of forested habitat will be lost to early successional habitat. Although conversion from forested habitat to early successional habitat is not inherently harmful to wildlife, it does require perpetual maintenance and is likely to result in significant forest fragmentation across the Commonwealth. It is clearly understood that forest fragmentation results in loss of interior forested habitat, allows invasive species to colonize, and introduces new predator/prey relationships along the corridor and within adjacent habitats. As such, forest fragmentation and habitat conversion may well represent the largest impacts of this project upon wildlife resources across Virginia. We urge FERC to consider these long-term impacts, and urge the applicant minimize them to the greatest extent possible by collocating the pipeline within already-disturbed utility corridors and early successional habitats. VDGIF is represented on the inter-organizational Virginia Forest Conservation Partnership (VFCP), a group of topic experts who collaborate on large utility projects to ensure consideration of significant forest loss across the landscape. The VFCP developed a novel approach to quantifying fragmentation impacts upon core forests in the Commonwealth. We support the results of this analysis and recommendations made by the VFCP regarding ways to avoid, minimize, and mitigate for forest loss across the Commonwealth.

Karst Plan:

We reviewed the plan and do not have any significant concerns. It describes the methodology proposed for identifying the location of and describing the type of karst resources located along the pipeline corridor. Karst habitat is unique and often fragile. We recommend protection of karst structures, the wildlife species they support, and the waters

they contain. We recommend continued coordination with VDCR-DNH and other karst experts, as needed, to ensure identification and protection of these resources.

Invasive Plant Species Management Plan:

We reiterate the comments we provided in our February 7, 2017 letter to Dominion regarding our review of the subject plan.

Soil and Slope Stabilization:

We reiterate the comments we provided in our February 7, 2017 letter to Dominion regarding our review of the subject plan.

General Information:

We recommend coordination with VDCR-DNH regarding protection of resources that they track and for which they recommend protection. We also recommend continued coordination with the U.S. Fish and Wildlife Service and with NOAA Fisheries Service to ensure protection of federally-listed species known from the project area.

We reiterate the comments we made in our February 7, 2017 letter regarding instream work BMPs and ways to minimize the impacts of linear utility development on wildlife and their habitats.

Thank you for the opportunity to provide input on the Draft Environmental Impact Statement for the proposed Atlantic Coast Pipeline. Please contact me or Amy Ewing at 804-367-0509 if you have any questions or need additional information.

Sincerely,

Raymond T. Fernald, Manager
Environmental Programs

RTF/AME
CC: Angela Navarro, Deputy Secretary of Natural Resources
Kevin Bowman, FERC
David Whitehurst, VDGIF
Greg Evans, VDOF
S. René Hypes, VDCR-DNH
Nikki Rovner, The Nature Conservancy
Sara Throndson, Natural Resources Group
Kristen Lentz, Merjent

Molly J. Ward
Secretary of Natural Resources

COMMONWEALTH of VIRGINIA

Department of Game and Inland Fisheries

Robert W. Duncan
Executive Director

February 7, 2017

Richard B. Gangle
Dominion Resources Services, Inc.
5000 Dominion Boulevard
Glen Allen, VA 23060

RE: Atlantic Coast Pipeline
Rev 11a Corridor Review
ESSLog# 34825

Dear Mr. Gangle,

We have reviewed the most recently proposed Atlantic Coast Pipeline project corridor (Rev11a; received July 19, 2016) and offer the following updates to earlier comments and recommendations, as well as additional information regarding this project. Atlantic Coast Pipeline, LLC (Atlantic) proposes to construct and operate a natural gas transmission pipeline, and associated lateral pipelines, in Virginia. As proposed, the project crosses three of VDGIF's four administrative regions, crosses one of our Wildlife Management Areas (James River WMA), and borders another WMA (Horsepen).

The Virginia Department of Game and Inland Fisheries (VDGIF), as the Commonwealth's wildlife and freshwater fish management agency, exercises enforcement and regulatory jurisdiction over those resources, inclusive of state or federally endangered or threatened species, but excluding listed insects. We are a consulting agency under the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), and we provide environmental analysis of projects or permit applications coordinated through the Virginia Department of Environmental Quality (DEQ), the Virginia Marine Resources Commission (MRC), the Virginia Department of Transportation (DOT), the Army Corps of Engineers (ACOE), the Federal Energy Regulatory Commission (FERC), and other state or federal agencies. Our role in these procedures is to determine likely impacts upon fish and wildlife resources and habitat, and to recommend appropriate measures to avoid, reduce or compensate for those impacts.

Rev 11a Review:

We received a shapefile depicting Rev 11a, the most recently proposed ACP corridor, in July 2016. Review of the shapefile confirmed that there are few significant deviations from the corridor alignment that was proposed in Rev 10a, about which we provided

comments dated June 1, 2016. Based on the few changes offered in this route revision, no additional listed species and only a few additional designated resources (see Trout Streams) under our jurisdiction were identified as in need of additional consideration. However, the new alignment does result in impacts upon natural or semi-natural areas which have not yet been assessed for suitability to support the listed species for which we have previously recommended consideration. To ensure protection of listed species and designated resources under our jurisdiction, we recommend that all newly proposed areas of disturbance be assessed for their suitability to support any of the listed species known from the area, per our previous comments. Once such habitat and suitability assessments have been performed and we have had the opportunity to review those assessments, we will make additional comments regarding the need for further assessments, surveys, or protective measures to ensure protection of wildlife resources under our jurisdiction.

Habitat Assessments and Species Surveys:

Over the past few months, we have received survey reports, habitat assessments and other information regarding biological data collection that has occurred along the proposed pipeline corridor; much of it based on our recommendations and following our guidelines. We have reviewed that information and offer the following comments:

Listed salamanders:

During review of earlier iterations of the ACP, we made recommendations regarding protection of state Endangered eastern tiger salamanders and state Threatened Mabee's salamanders, both documented from the project area. To ensure protection of these species and the habitats upon which they depend, we recommended that wetlands proposed to be impacted by pipeline construction, operation, or maintenance and within the documented range of these species be evaluated for habitat suitability for these species. Wetlands deemed suitable should be surveyed for the species, and occupied wetlands/ponds and an upland buffer of 300 meters around the wetland/pond should be protected from project impacts. The listed salamander report that we were provided for review details habitat assessment and salamander survey activities that occurred during the 2016 season.

Habitat assessments and surveys for eastern tiger salamanders were performed, per our recommendations, at wetlands along the pipeline corridor in Augusta and Nelson counties. Only one of the four wetlands identified as suitable eastern tiger salamander habitat, and accessible for surveys, was found to be occupied by eastern tiger salamanders (waua050f). Because eastern tiger salamanders must have access to suitable wetlands/ponds to breed, and to the associated uplands in which they live the rest of the year, we recommended that waua050f and an at-least 300 meter upland buffer be avoided. In response to our recommendation and the applicant's concerns, Atlantic and their environmental consultants met with J.D. Kleopfer, DGIF Herpetologist, on site at wetland feature waua050f to determine how best to align the project corridor to protect this pond and the resident eastern tiger salamanders. As reflected in Rev 11a, the project corridor was shifted to the west of pond waua050f and outside of its drainage area. We are confident that, by protecting the water source for waua050f from impacts and by moving the corridor farther from the ponded area, as shown in Rev 11a, significant adverse impacts upon waua050f and eastern tiger salamanders inhabiting this area have been avoided.

We note that the survey protocols we provided to Atlantic and their environmental consultants stipulate that two years of surveys are necessary to confirm lack of ambystomid salamander presence in any given wetland/pond. Accordingly, we recommend that the wetlands surveyed in 2016 but not found occupied by ambystomid salamanders (wauc103f, waub103f, and wnep001f), be resurveyed in 2017. In addition, we recommend that any wetlands in Augusta or Nelson counties that are newly proposed for impacts (based on the Rev 11a alignment) or that were not accessible during 2016 be assessed for suitable eastern tiger salamander habitat, and that any suitable wetlands be surveyed following the previously-provided protocols. Upon review of those surveys and assessments, we will update our recommendations regarding protection of eastern tiger salamanders associated with development and operation of the ACP.

Habitat assessments and surveys for Mabee's salamanders were performed, per our recommendations, in wetlands along the pipeline corridor in the City of Suffolk during the 2016 survey season. No Mabee's salamanders were documented at the 2 wetland features (ponds) that were determined suitable habitat and that were accessible for surveys during 2016.

As noted above, 2 years of survey activity are necessary to confirm lack of ambystomid salamander presence in any given wetland/pond. We recommend that the wetlands surveyed in 2016 but not found to be occupied by Mabee's salamanders (wsuc101e and wsuc007e) be resurveyed in 2017. In addition, we recommend that any wetlands in the City of Suffolk that are newly proposed for impacts (based on the Rev 11a alignment) or that were not accessible during 2016 be assessed for suitable Mabee's salamander habitat, and that any suitable wetlands be surveyed following the previously-provided protocols. Upon review of those surveys and assessments, we will update our recommendations regarding protection of Mabee's salamanders associated with development and operation of the ACP.

Fish and Mussels, George Washington National Forest (GWNF):

In response to a request by the U.S. Forest Service (USFS), habitat assessments for roughhead shiners, orangefin madtoms, Potomac sculpins, and yellow lance mussels were performed in streams within the GWNF that were proposed for crossing by the ACP. The July 2016 habitat assessments indicated that none of the ten perennial streams to be crossed by the ACP within GWNF provide suitable habitat for these species. We will update these comments as necessary regarding any reported occurrences of listed species within the GWNF that may be affected by construction, operation, or maintenance of the ACP.

We note that Stream #9 is described as both a "perennial UNT of Jennings Branch" and as an "UNT of Cowpasture River." We recommend clarifying which of these designations accurately represents this stream.

Listed Freshwater Mussels:

We received a report in late September 2016 that details the habitat assessments and surveys performed, per our recommendations and following our guidance, to address concerns related to protection of listed freshwater mussels and their habitats. Specifically, we recommended consideration of federally Endangered James spinymussels, federal species of

concern yellow lance mussels, state Threatened Atlantic pigtoe mussels, and state Threatened green floater mussels; all which have been documented from the project area.

Based on recommendations from VDGIF and the US Fish and Wildlife Service (USFWS), Atlantic's environmental consultants evaluated all streams proposed to be crossed by the ACP for freshwater mussel habitat suitability. Where suitable habitat was identified, site assessments and then abbreviated or full surveys were performed, per our guidelines. USFWS and VDGIF agreed that sites proposed for crossing via horizontal direction drill (HDD) did not need further evaluation, as instream impacts would not be incurred at those sites.

There are forty-five proposed crossings of streams with a greater than five mile upstream drainage, including any resulting from the realignment depicted in Rev 11a. Of these streams, six are proposed as HDD crossings (James River, Nottoway River 2, Blackwater River, West Branch Nansemond River, Nansemond River, and South Branch Elizabeth River) and were, therefore, not further considered. Of the remaining thirty-nine streams, nineteen were not accessible during 2016; site assessments were performed at six sites; abbreviated surveys were performed at ten sites; three streams only became accessible late in 2016 (survey results not in yet); and one stream has undergone an incomplete assessment.

The abbreviated surveys performed in 2016 documented presence of live triangle floaters, eastern elliptios, and/or creepers at the following four crossing sites, all of which will undergo mussel relocation efforts in 2017: South River 1, North River, North River Access Road, and Willis River. We support the proposed mussel relocation efforts proposed in these waters in 2017, assuming they are performed by permitted biologists and follow the previously-provided mussel survey and relocation guidance. Dead shell material was documented at the Christians Creek crossing. No relocation efforts are currently proposed within Christians Creek for 2017. No listed mussels were documented at any of the ten sites that were surveyed in 2016 for which we have survey results.

We agree that sites determined to not provide suitable habitat, and sites where surveys were performed but no mussels were found, require no further assessment or surveys to protect listed mussels from impacts associated with instream work. We continue to recommend that any instream work in designated Threatened and Endangered Species Waters (waters known to support listed aquatic species) and instream work at sites within 1 mile upstream of such waters (tributaries) adhere to the previously-recommended time of year restrictions (TOYR) protective of mussels known from that water. Per our June 1, 2016 letter, the following streams and rivers are located in the project area and have been designated as Threatened and Endangered Species Waters due to the presence of one or more listed species, as noted in parentheses:

- Nottoway River (Atlantic pigtoe mussels, FESE dwarf wedgemussels)
- Sturgeon Creek (Atlantic pigtoe mussels)
- Three Creek (Atlantic pigtoe mussels)
- Meherrin River (ST green floater mussels, Atlantic pigtoe mussels)
- Appomattox River (Atlantic pigtoe mussels)
- James River (green floater mussels)

- Cowpasture River (James spinymussels)

We support efforts proposed for 2017 to perform assessments and/or surveys at the nineteen stream crossing sites that were not accessible during the 2016 survey season or that need to be considered based on the newly-proposed project alignment depicted in Rev 11a. We recommend that the results of these surveys and assessments be provided to us for further review, along with the remaining 2016 reports from surveys performed late in the season at Winningham Creek, Nottoway River 1, and Cohoon Creek.. We note that negative surveys are only valid for two years. If the crossing sites surveyed in 2016 do not commence construction before 2018 (two years post-survey), we may recommend additional surveys at those sites to ensure colonization of mussels has not occurred in the interim. We recommend coordination with the USFWS regarding potential impacts upon federally-listed species associated with the development and operation of the ACP.

Roanoke Logperch:

Based on presence of federally Endangered Roanoke logperch in waters proposed to be crossed by the ACP, VDGIF and the USFWS recommended protection of this species and the resources that support it within the Nottoway drainage. In response, Atlantic and its environmental consultants performed desktop habitat assessments of proposed crossings in the Nottoway drainage, revealing eleven streams that warranted further investigation. Of these eleven streams, logperch presence is assumed at three sites: Nottoway River 1, Nottoway River 2, and Waqua Creek. Of the eight other crossing sites determined suitable for Roanoke logperch, three streams were accessible during 2016 for on-site assessment.

According to the report, of the three accessible sites, only one was determined to provide suitable Roanoke logperch habitat. We believe this site to be the crossing of Sturgeon Creek; however, the report is difficult to understand. Table 2, for example, lists Nottoway River 1 and Waqua Creek as "suitable" per the in-situ habitat assessment, but at other places in the report these same crossings were depicted as not assessed on-site because presence would be assumed at these sites. Also based on Table 2, it appears that in-situ site assessments were performed at four sites (Nottoway River 1, Waqua Creek, Big Branch, and Sturgeon Creek) even though the narrative describes only having access to three sites. Atlantic should clarify which streams were assessed, the outcome of eacj assessment, and which streams are assumed to support Roanoke logperch. Atlantic also needs to clearly describe the stream crossing method proposed for each site. For example, other project documents including the freshwater mussel habitat assessment and survey report depict the Nottoway River 2 crossing as an HDD. If true, then further site assessment and adherence to certain protective measures may not be necessary at that site.

Based on documentations of Roanoke logperch and designation as Threatened and Endangered Species Waters, we support assumption of presence in the Nottoway River, Waqua Creek, Butterwood Creek, and White Oak Creek. We recommend adherence to an instream work TOYR from March 15 through June 30 of any year in these waters and at the site of any instream work within 1 mile upstream of these waters (tributaries). We recommend adherence to the Fish Relocation Plan. We recommend that the results of the on-site assessments performed in 2016 at UNT Nottoway River 1 Access Road (AR), UNT Nottoway 2, and UNT Nottoway 2

(AR) be provided to us for review. We recommend that all sites determined to provide suitable habitat but which were not accessible during 2016 be assessed for suitability as soon as they become accessible and that the results of that suitability analysis also be provided to us for review. Upon review of those reports and information, we will update our recommendations regarding protection of Roanoke logperch and the resources that support them. We recommend coordination with the USFWS regarding potential impacts upon this species associated with development and operation of the ACP.

Listed Bats:

Based on guidance from VDGIF and the USFWS, Atlantic and their consultants performed acoustic and mist-net surveys during 2015 and 2016 to inform our concerns for the protection of federally Endangered Indiana bats, federally Endangered Virginia big-eared bats, federally Threatened northern long-eared bats, and state Endangered Rafinesque's eastern big-eared bats, all of which are documented from the project area. All surveys followed federal protocols and were approved and permitted, as necessary.

These surveys documented presence of Rafinesque's eastern big-eared bats, northern long-eared bats, Indiana bats, federally Endangered gray bats, eastern small-footed myotis, tri-colored bats, and little brown bats within the project study area. However, only Rafinesque's eastern big-eared bats were tagged and followed, allowing for documentation of a roost site on a bridge over the Meherrin River, and six associated roost trees located in Southampton and Greensville counties. J.D. Kleopfer, VDGIF Herpetologist and Region 1 nongame biologist, and Susan Watson, VDGIF Terrestrial Biologist, visited the bridge during Summer 2016 to verify the species as state Endangered Rafinesque's eastern-big-eared bats. In addition, twenty-one potential hibernacula were identified along the pipeline corridor; however, only three of these karst features were identified as "suitable" to support bats. These sites were acoustically surveyed and no bats were documented.

We recommend avoidance of impacts upon all previously-known and newly documented hibernacula for listed bats. We recommend avoidance of impacts upon all known listed bat roost sites and roost trees, and adherence to federal guidelines for their protection. We recommend that any new lands and habitats now within project scope, based on the Rev 11a corridor, be assessed following the protocols previously used. We recommend that Atlantic and their environmental consultants consider impacts upon bats recently included as Virginia Wildlife Action Plan (WAP) Species of Greatest Conservation Need (SGCN) in addition to listed species. This includes eastern red bats, hoary bats, and silver-haired bats. We recommend adherence to VDGIF's "Best Management Practices for Conservation of Little Brown Bats and Tri-colored Bats" and continued coordination with us and the USFWS regarding potential impacts upon Virginia's bats as surveys continue into 2017. Assuming adherence to these recommendations and based on the project information we currently have, we have not identified any areas along the pipeline where we anticipate significant adverse impacts upon bats to occur.

Listed Small Mammals:

During previous coordination with Atlantic and its environmental consultants, we recommended consideration of impacts upon sate Endangered rock voles, state Endangered

American water shrews and WAP Species of Greatest Conservation Need (SGCN) Tier IVa Allegheny woodrats. Accordingly, Atlantic and its environmental consultants performed habitat assessments and small mammal surveys along the currently proposed pipeline corridor.

Habitat and latrine sites for Allegheny woodrats were found at two sites: Outcrop at milepost (MP) 84.0 and Rock Feature at MP 158.1. In addition, four unnamed tributaries of Warwick Run in Highland County around MP 85 were determined suitable for water shrews. It appears additional survey work will continue in 2017. We recommend avoidance of impacts upon areas already identified as suitable listed small mammal habitat and at which there is evidence to support their presence. We recommend continued coordination with us as surveys and assessments continue into 2017 and onto lands not accessible during 2016, or which are newly within the project scope.

Listed Birds:

Based on their occurrence within the ACP project area, we recommended protection of state Threatened loggerhead shrikes and recommended adherence to a TOYR for ground clearing and tree removal from April 1 through July 31 of any year for work performed in Highland County, Bath County, Augusta County, or within the Rockfish Valley Region of Nelson County. In their response to our recommendations, Atlantic and their environmental consultants agreed to adhere to the TOYR in Bath, Highland, and Augusta counties except for the area in Augusta from project mile point (MP) 114.8 – 126. Per our recommendation, surveys for loggerhead shrikes were performed throughout this area during 2016.

No shrikes were documented from the area in Augusta County where the applicant cannot adhere to the TOYR (MP 114.8 – 126). A single loggerhead shrike was documented by project land surveyors, and verified by a knowledgeable biologist, around MP 88. This is within the area where the applicant is able to adhere to the protective TOYR, resulting in avoidance of impacts upon loggerhead shrikes documented from the MP 88 area. There is no mention in the report of surveys or adherence to the time of year restriction in Rockfish Valley, which we previously recommended. We recommend follow-up with us regarding protection of loggerhead shrikes in that region.

We are agreeable to ground clearing and tree removal occurring in Augusta County from MP 114.8 – 126 during the time of year restriction. We note that negative avian surveys are only valid for 2 years. If ground clearing and tree removal in this area does not commence prior to the breeding season 2018 (2 years post-survey), we may recommend additional survey efforts for loggerhead shrikes in this area. We recommend adherence to the time of year restriction from April 1 through July 31 of any year for ground clearing and tree removal in Bath County, Highland County, Augusta County (outside of MP 11408-126), and within the Rockfish Valley Region of Nelson County.

State Threatened peregrine falcons also have been documented from the eastern portion of the project area, typically in association with falcons breeding in nest boxes on bridges in eastern Virginia. These nest boxes were erected as part of a recovery effort for peregrine falcons in Virginia and are monitored by staff from the Center for Conservation Biology in close

coordination with VDGIF. Although we do not document natural peregrine falcon nests (eyries) or nesting habitat along the proposed pipeline corridor, we did ask Atlantic to assess habitat along the pipeline route for such features during already-planned aerial surveys.

No significant cliff habitat suitable for nesting peregrine falcons was documented from the pipeline corridor during aerial investigations. As such, we do not anticipate this project to result in significant adverse impacts upon peregrine falcons or resources that support them, assuming no significant deviations from the Rev 11a corridor. If new natural habitats are proposed for impacts associated with pipeline construction or operation, we may recommend that such areas be assessed for suitable peregrine falcon nesting habitat. If significant bridge or near-bridge disturbance in eastern Virginia becomes part of the project, we recommend additional coordination with us regarding protection of nesting peregrine falcons on such structures.

Based on known presence of federally Endangered red-cockaded woodpeckers in southeastern Virginia and North Carolina, habitat assessments and subsequent cavity searches were performed along the proposed pipeline corridor within areas of known habitat, per USFWS guidelines. One suitable cavity was detected in North Carolina, but it was determined not to be active. No red-cockaded woodpeckers or suitable cavities were documented from Virginia. Based on this information, we do not anticipate the construction and operation of the ACP to result in adverse impacts upon red-cockaded woodpeckers. We recommend continued coordination with the USFWS regarding potential impacts upon this species.

Bald and Golden Eagles:

Bald and golden eagles are known from Virginia. Atlantic and its environmental consultants performed, at the request of the USFWS, aerial surveys for bald eagles and golden eagles along the proposed pipeline corridor. Both species of eagle were documented in multiple locations along the corridor. Atlantic is able to avoid impacts upon documented bald eagle nests in all locations except at two sites; one in the City of Chesapeake, and one in Nottoway County. It is our understanding that Atlantic will, if they have not already, apply for eagle take permits with the USFWS and in compliance with Virginia's bald eagle management guidelines. We support continued coordination with the USFWS regarding potential take of bald eagles.

We understand that Atlantic and its environmental consultants have been working with Dr. Katzner and other golden eagle experts in the region. We recommend continued coordination with Dr. Katzner and with VDGIF's eagle expert, Jeff Cooper, regarding the best ways to avoid and minimize impacts upon golden eagles, their wintering habitats, and migratory pathways from disturbance during construction and operation of the ACP.

We note that, in multiple documents, bald eagles are described as being listed in Virginia or protected by Virginia's Endangered Species Act. In truth, bald eagles were delisted in Virginia a number of years ago and only retain protection in Virginia under general wildlife laws and regulations. However, we recommend continued coordination with the USFWS regarding potential impacts upon bald and golden eagles, protected by the federal Bald and Golden Eagle Protection Act, as well as continued adherence to Virginia's bald eagle management guidelines.

Timber Rattlesnakes:

Timber rattlesnakes have been documented from the project area. We understand that areas of suitable denning habitat along the pipeline in GWNF in Highland, Bath and Augusta counties were evaluated and that no rattlesnakes, or evidence of them, were found. During earlier correspondence with Atlantic and its environmental consultants, we had recommended that: "construction workers be educated about this snake, how to avoid encounters with it and how to address accidental encounters when they occur. These snakes should not purposefully be harmed during any encounters. We recommend coordination with John (JD) Kleopfer, VDGIF Herpetologist, at 804-829-6703 or John.Kleopfer@dgif.virginia.gov regarding such education." We continue to support contractor education and coordination with JD regarding protection of timber rattlesnakes.

Other Significant Species and Resources:

Canebrake Rattlesnakes:

State Endangered canebrake rattlesnakes have been documented from the cities of Suffolk, Chesapeake, and Virginia Beach, in addition to areas north of the James River. To best protect this species, we continue to recommend that the pipeline be routed to avoid impacts upon suitable canebrake rattlesnake habitats in this region. We also recommend that long-term vegetation management along the corridor in areas known to support canebrake rattlesnakes be consistent with conservation measures for the species. Atlantic's environmental consultants have been provided a copy of our currently approved conservation plan for canebrake rattlesnakes along with the guidance DGIF's Environmental Services Section staff use when evaluating potential impacts upon the species. Although the latter discusses "mitigation", we do not mean to imply the need for such at this time.

In addition, we recommend that construction workers engaging in pipeline construction, operation, or maintenance be provided with education about this species including being trained in the identification, basic natural history, and legal status of canebrake rattlesnakes. This could be accomplished via an appropriate information sheet distributed to those working on the project (enclosed). Information also can be found on our website at: http://www.dgif.virginia.gov/wildlife/species/display.asp?id=030013. If a canebrake rattlesnake is observed at any time during development or construction of this project, the applicant should contact VDGIF Terrestrial Biologist/Herpetologist John (JD) Kleopfer (804-829-6580) or our Headquarters office in Henrico (804-367-8999) so that we may safely capture and relocate the animal to a suitable site.

Scarlet Kingsnakes:

We recently documented Virginia's second and most northern population of scarlet kingsnakes from Nelson County. We recommended consideration of impacts upon this species and its habitat in Nelson County. In response to our request, Atlantic has agreed to implement an educational program for construction crews to assist them in identifying the species, teach them how to deal with an unintentional encounter, and inform them regarding how to minimize disturbance within suitable habitats for the species. In addition, Atlantic has agreed to notify VDGIF of any reported occurrences of the species. We appreciate Atlantic's efforts to conserve this species and its habitat.

Anadromous Fish Use Areas:

We reiterate our earlier recommendations regarding identification and protection of Anadromous Fish Resources. As presented in our June 1, 2016 letter, the following streams are located within the project area and have been designated as confirmed or potential Anadromous Fish Use Areas. Anadromous Fishes and the waters that support them are both ecologically and economically significant resources in Virginia.

Confirmed:

- Elizabeth River
- Fountains Creek
- Meherrin River
- Nottoway River
- Blackwater River

Potential:

- Nansemond River
- Western Branch Elizabeth River
- James River
- Burnett's Mill Creek

To best protect these important fisheries, we recommend that all instream work in the above-listed confirmed Anadromous Fish Use Areas or their tributaries, or within the above-listed potential Anadromous Fish Use Areas, adhere to a time of year restriction from February 15 through June 30 of any year.

Trout Streams:

We reiterate our earlier recommendations regarding identification and protection of Trout Streams in Virginia. We have updated the list of trout streams included in our recommendations, based on review of the newest alignment, Rev 11a*:

The following streams are located within the project area and have been designated as either "stockable" trout streams, indicating their inclusion within our trout stocking program, or as "wild" trout streams that support naturally reproducing trout populations (species indicated in parenthesis below). Trout, and the streams that support them, are both ecologically and economically significant resources in Virginia.

Wild:

- Townsend Draft (brook trout)*
- Lick Draft (brook trout)*
- Bear Hollow (brook trout)*
- Erwin Draft (brook trout)*
- East Fork Back Creek (brook trout)
- North Fork Back Creek (brook trout)

- South Fork Back Creek (brook trout)
- Jennings Branch (brook trout)
- Mills Creek and its tributary (brook trout)
- Orebank Creek (brook trout)
- White Oak Draft (brook trout)
- Bolar Run (brook trout)
- Campbell Creek (brook trout)
- Cub Creek (brook trout and brown trout)
- Chestnut Lick Hollow (brook trout)
- Clayton Mill Creek (brook trout)
- Dry Run (brook trout)
- Hodges Draft (brook trout)
- Jerkemtight Branch (brook trout)
- Jackson River (rainbow trout, possibly brook trout)
- Laurel Run (brook trout)
- Little Mill Creek (brook trout)
- Little Stony Creek (brook trout)
- Pheasanty Run (rainbow trout)
- Ramsey's Draft (brook trout)
- Reuben's Draft (brook trout)
- South Fork Rockfish River (brook trout)
- Stony Run (brook trout)
- Spruce Creek (brook trout)
- Still Run (brook trout)
- Stony Creek (brook trout)
- Little Valley Run (brook trout)

To best protect these valuable wild trout resources, we recommend that all instream work within these waters and/or their tributaries adhere to a time of year restriction from October 1 through March 31 of any year in waters known to support brook trout and/or brown trout, and from March 15 through May 15 of any year in waters known to support rainbow trout.

Stockable:

- Barterbrook Branch
- Back Creek
- North Fork Back Creek
- Folly Mills Creek
- Mills Creek
- Tributary to Tom's Branch
- Tributary to Mills Creek
- Mill Creek
- South Fork Rockfish River

- Stony Creek
- Bolshers Run

To ensure avoidance of stocking and/or angling activities during project construction and long-term operation, we recommend coordination with Paul Bugas, VDGIF Region IV Aquatics Resources Manager, at 540-248-9360 or Paul.Bugas@dgif.virginia.gov.

Other Resources:

In earlier correspondence with Atlantic and their environmental consultants, we offered a number of comments regarding other species and resources for which we are responsible. We request additional follow-up on those listed below, about which we have received no response:

- Back Creek and Jackson River: Although we have not designated these streams as Threatened and Endangered Species Waters, our Malacologist, Brian Watson, believes that James spinymussels may occupy these streams based on their adjacency to occupied sub-watersheds (Bullpasture River / Cowpasture River). Therefore, we recommend that mussel surveys and relocations be performed, in adherence to our protocols (previously provided), at crossing sited proposed within these waters. Further we recommend adherence to an instream work TOYR in these waters from May 15 through July 31 of any year. We recommend coordination with the USFWS regarding potential impacts upon this federally-endangered species.

- Wildlife Action Plan Species of Greatest Conservation Need: In addition to the listed species and wildlife resources mentioned above, a number of species included as Species of Greatest Conservation Need are likely to occur, if suitable habitat exists, in and around the project area. We recommend that the Virginia Wildlife Action Plan (available through www.bewildvirginia.org) be reviewed to determine what threats are known to these species, what constitutes suitable habitat for these species, and how to best protect them and their habitats from harm. In particular, we have discussed with Atlantic and their agents the need to consider impacts upon the following WAP tiered species: golden-winged warblers, cerulean warblers, Bachman's sparrows, and Henslow's sparrows. In addition to those species, we recommend consideration of saw-whet owls, black-billed cuckoos, and Wayne's warblers.

- Bradley Pond, Augusta County: Bradley Pond is a stocked trout pond that receives significant use by anglers. It appears the pipeline route crosses the only entrance road to this pond. We recommend avoidance or minimization of impacts upon public access to Bradley Pond, particularly during fishing season.

Crossing of James River Wildlife Management Area:

The ACP is proposed to cross the Department's James River Wildlife Management Area in Nelson County, a public resource that was purchased with federal grant funds from the U.S. Fish and Wildlife Service. If the project interferes even temporarily (e.g., during construction) with uses of the land that were established as purposes of those grants, pipeline

construction will jeopardize the Department's future access to these grants. While we are working closely with Atlantic to resolve this issue to our mutual satisfaction, please be aware that this issue remains unresolved at this time, and we cannot support the project crossing of our Wildlife Management Area until this issue is resolved.

Migratory Bird Plan:

We have reviewed the Migratory Bird Plan developed to satisfy requirements under the Migratory Bird Treaty Act and as requested by the USFWS. We appreciate efforts to schedule tree removal and ground clearing to avoid impacts upon nesting migratory birds. We continue to recommend adherence to a TOYR for these activities from March 15 through August 31 of any year. In addition, we recommend minimization of forest fragmentation across the Commonwealth. We call special attention below to avian species and resources discussed in the Migratory Bird Plan that have not already been mentioned above:

- Colonial Waterbird Colonies: We document colonial waterbird colonies containing great blue herons and great egrets from the project area; some confirmed and new ones observed during aerial surveys performed along the project route. We recommend that all colonial waterbird colonies located within the project area be identified and mapped, and that the colony and a 500-foot, naturally vegetated buffer around each colony be left undisturbed. Further, we recommend that any construction activities within 0.25 mile of a colony adhere to a time of year restriction from February 1 through July of any year. Please note that this time of year restriction is an update from previous recommendations, based on recent information from Ruth Boettcher, VDGIF Nongame Biologist.

- Golden-winged warblers (WAP SGCN Tier Ia) – We previously recommended consideration of impacts upon this species along the pipeline route in Bath and Highland counties. We have not seen any information specific to protection of this species or habitats that support it. We did not recommend surveys for this species, but it appears that surveys for this species were performed in West Virginia. We recommend that habitat assessments, if not surveys, be performed along the pipeline route in Bath and Highland counties and that such assessments be provided to us for further review. We offer the following information again to assist with decision-making: Their breeding season in Virginia is May 1– July 31. The best survey window is mid-May to mid-June and a playback sequence is highly recommended to increase detectability. Breeding habitat description: across their breeding range, golden-wings are associated with a number of open, early-successional habitats with herbaceous cover (grasses and forbs), patchy shrub cover, and scattered trees. In Virginia these may include old fields, lightly-grazed pastures, regenerating clearcuts or cut-overs, young forests, and shrubby wetlands. A 2010 study in Highland and Bath counties demonstrated that the birds prefer sites where >50% of woody cover is spatially clustered or clumped. This woody cover often includes a low shrub layer such as blackberry. Contributing to the uniqueness of golden-wing habitat in Virginia is that these shrubby open patches are embedded within a forested landscape, at elevations >1500 ft. Breeding habitat occurs within a largely forested landscape context.

- Cerulean warblers (WAP SGCN Tier Ia) – We previously recommended consideration of impacts upon this species along the pipeline route in Bath, Highland, Augusta, and Nelson counties. We have not received any information from Atlantic regarding protection of this species or habitats that support it. We request description of actions to be taken to protect this species. We offer the following information again to assist with decision-making: Their breeding season in Virginia is May – July. The best survey window is mid-May to end of June. Breeding habitat includes mature deciduous forests of eastern North America (from http://amjv.org/documents/cerulean_guide_1-pg_layout.pdf). Cerulean warblers require heavily forested landscapes for nesting and, within Appalachian forests, they primarily occur on ridge tops and steep, upper slopes; though they may also occur in forested riparian habitats. They are generally associated with oak dominated stands that contain gaps in the forest canopy, that have large diameter trees (>16 inches dbh), and that have well-developed understory and canopy layers.

- Additional WAP SGCN avian species we recommend consideration of impacts upon include: Northern Saw-whet Owl, Black-billed Cuckoo, and Black-throated Green Warbler (Wayne's Warbler in vicinity of Great Dismal Swamp / Suffolk / Chesapeake). We recommend coordination with us, as needed, regarding protection of these species and their habitats.

- The following species are not known to breed in or along the proposed pipeline corridor in Virginia, and are not likely to be incidentally encountered along the corridor. Thus, we recommend removing them from consideration in the Migratory Bird Plan for Virginia: American oystercatcher, black rail, black skimmer, gull-billed tern, least tern, Hudsonian godwit, and marbled godwit.

Invasive Plant Species Management Plan:

Atlantic has developed an invasive plant species management plan for the pipeline corridor that generally describes the equipment washing and decontamination, herbicide use, soil segregation, and other measures to be implemented. The plan, however, focuses on plants designated by USDA or the states' Departments of Agriculture as noxious weeds: it does not significantly address the many other invasive plants recognized by regional (e.g., MAPAIS: the Mid-Atlantic Panel on Aquatic Invasive Species, and MAIPC: the Mid-Atlantic Invasive Plant Council) or state (Virginia Invasive Species Workgroup / Department of Conservation and Recreation / Division of Natural Heritage) authorities. We urge Atlantic to review other appropriate agency lists and resources to assemble a more complete list of invasive plant species of concern that may occur in the ACP corridor. The invasive species plan also must address animal invasive species such as zebra mussels, found near the pipeline corridor in West Virginia, that potentially could be spread into Virginia on construction equipment, personal vehicles, personal equipment, or in water used for construction or hydrostatic testing. Atlantic should consult with the USGS Nonindigenous Aquatic Species resources, MAPAIS, MAIPC, the Virginia Invasive Species Work Group Advisory Committee, VDGIF, and VDCR-DNH to

construct the appropriate list of invasive species of concern in Virginia. Atlantic should carefully review BMPs and standards established by the USFWS, BOR, NOAA Fisheries, and ACOE (to name just a few federal agencies with such guidelines), and adopt an appropriate set of construction, maintenance, monitoring, and inspection/decontamination standards for the entire pipeline project. When Atlantic adopts a specific set of standards for implementation project-wide, whether by choosing an appropriate agency standard or standards of Atlantic's development, those standards and operational practices should be submitted for public review as part of the NEPA/FERC project review process. We also note that USFS has stated to FERC that Atlantic will be responsible for invasive species management on the pipeline corridor across Forest Service properties for the life of the project; a standard that should also be considered for JRWMA and all other public or recreational lands, if not for the entire project corridor. We recognize that specific treatment measures may be determined in the field, or after future surveys are conducted, but we must feel confident in the foundations of the ACP protocols and BMPs to presume their acceptability.

Soil and Slope Stabilization:

While we recognize the applicant's experience with pipeline construction and attendant sediment and erosion controls, and we recognize that some site-specific construction details are best resolved during post-NEPA permit review, we are nonetheless concerned regarding potential for serious events including slope failures, instream sedimentation, washout of fill materials, and compromise or contamination of sensitive biological or hydrogeological features such as trout streams, Endangered or Threatened Species Waters, major stream crossings, publically-owned conservation lands, or sensitive karst resources. Construction accidents, unanticipated geological conditions, or severe weather can, and have, precipitated catastrophic impacts upon sensitive fish and wildlife resources in the past: it is the applicant's responsibility to ensure that they not only are prepared to minimize adverse environmental impacts under anticipated construction conditions, but that they have seriously considered and prepared for "unanticipated" severe weather or other project conditions that may be encountered. These contingency plans should be submitted for public review as part of the NEPA/FERC project review process.

We understand the necessity to quickly and effectively revegetate the pipeline corridor post-ground disturbance. In consideration of that and our comments above, we recommend use of native plant species, preferably those that are beneficial to pollinators. We understand such species are being considered for areas south and east of the James River and with slopes of less than 15%. We recommend consideration of using such plant species for revegetation of the corridor wherever appropriate, not only along the corridor south and east of the James River.

General Recommendations:

This project is located within 2 miles of a documented occurrence of a state or federal threatened or endangered plant or insect species and/or other Natural Heritage coordination species. Therefore, we recommend coordination with VDCR-DNH regarding protection of these resources. Further, we recommend coordination with the U.S. Fish and Wildlife Service to ensure protection of federally-listed species known from the project area.

We recommend conducting any in-stream activities, whether resulting in permanent or temporary impacts, during low or no-flow conditions, using non-erodible cofferdams or turbidity curtains to isolate the construction area, blocking no more than 50% of the streamflow at any given time, stockpiling excavated material in a manner that prevents reentry into the stream, restoring original streambed and streambank contours, revegetating barren areas with native vegetation, and implementing strict erosion and sediment control measures. To minimize harm to the aquatic environment and its residents resulting from use of the Tremie method to install concrete, installation of grout bags, and traditional pouring of concrete, we recommend that such activities occur only in the dry, allowing all concrete to harden and cure prior to contact with open water. Due to future maintenance costs associated with culverts, and the loss of riparian and aquatic habitats, we prefer that stream crossings be constructed via clear-span bridges. However, if this is not possible, we recommend countersinking any culverts below the streambed at least 6 inches, or the use of bottomless culverts, to allow passage of aquatic organisms. We also recommend the installation of floodplain culverts to carry bankfull discharges.

In many instances, we support use of directional drill, aerial crossing, or other methods that avoid impacts upon streams, wetlands, and other unique natural resources. We understand, however, that such methods are not practicable in every situation. Due to recent examples of frac-outs leading to bentonite mud spills resulting from the directional drill method, we recommend that geotechnical analysis of all proposed sites for directional drills be performed and closely reviewed to ensure that the sites are suited for such a crossing method. Depending on the sensitivity of any given stream, we may prefer trenched crossings that adhere to our instream work recommendations or any recommendations made for the protection of listed species and/or designated wildlife resources. If a directional drill is the chosen method, we recommend that a contingency/clean-up plan be developed to address frac-outs and/or spills that may occur.

We also recommend that the applicant: avoid and minimize impacts to undisturbed forest, wetlands, and streams to the fullest extent practicable; maintain naturally vegetated buffers of at least 100 feet in width around wetlands and on both sides of perennial and intermittent streams, where practicable; and, implement and maintain appropriate erosion and sediment controls throughout project construction and site restoration. We emphasize that maintaining effective erosion and sediment control during construction, and achieving soil stability after construction, will be particularly difficult in areas along the route that have steep slopes and significant topography. We are happy to work with the applicant to develop project-specific measures as necessary to minimize project impacts upon the Commonwealth's wildlife resources.

It is clear, simply based on the project scope, that significant linear footage of forested habitat will be lost to early successional habitat. Although conversion from forested habitat to early successional habitat is not always harmful to wildlife, it does require perpetual maintenance and is likely to result in significant forest fragmentation across the Commonwealth. Forest fragmentation results in loss of interior forested habitat, allows invasive species to colonize, and introduces new predator/prey relationships along the corridor and within adjacent habitats. We urge the applicant to consider these long-term

impacts and to minimize them to the greatest extent possible by collocating the pipeline within already-disturbed utility corridors and early successional habitats. VDGIF is represented on the inter-organizational Virginia Forest Conservation Partnership (VFCP), a group of specialists collaborating on review of large utility projects to ensure consideration of significant forest losses across the landscape. We support recommendations made by the VFCP regarding ways to avoid, minimize, and mitigate for forest loss across the Commonwealth.

Thank you for the opportunity to provide input on this proposed natural gas pipeline. We look forward to receiving updated project maps, project documents, and permit applications as they become available. Upon receipt of such information, we will provide additional comments and recommendations as appropriate. Please contact me or Amy Ewing at 804-367-0509 if you have any questions or need additional information.

Sincerely,

Raymond T. Fernald, Manager
Environmental Programs

RTF/AME
CC: Angela Navarro, Deputy Secretary of Natural Resources
Kimberly Bose, Secretary, FERC
David Whitehurst, VDGIF
Greg Evans, VDOF
S. René Hypes, VDCR-DNH
Nikki Rovner, The Nature Conservancy
Sara Throndson, Natural Resources Group
Kristen Lentz, Merjent

FRESHWATER MUSSEL GUIDELINES FOR VIRGINIA

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U.S. Fish and Wildlife Service
6669 Short Lane
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804-693-6694

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Last Updated: 6-22-15

DRAFT

LIST OF ENCLOSURES

1 - Federal and State-Listed Species in Virginia
2 - Mussel Survey and Relocation Guidelines in Virginia
3 - Surveyor List for Atlantic Slope Mussels in Virginia
4 - Surveyor List for Upper Tennessee River Basin Mussels in Virginia
5 - Time of Year Restrictions (See Freshwater Mollusks)
6 - Map of Federally-Designated Critical Habitat for Mussels in Virginia

INTRODUCTION

These guidelines are for project applicants and consultants planning certain activities that will impact rivers, streams, creeks, or other waterways in Virginia. The guidelines provide recommendations for conducting freshwater mussel surveys and relocations for small construction projects of short duration involving non-point pollution sources and affecting no more than 100 linear feet of waterway. Larger projects that impact waters containing State or federally listed mussels may require additional coordination or permits from the Virginia Department of Game and Inland Fisheries (VDGIF) and/or the U.S. Fish and Wildlife Service (FWS). Coordination with these agencies should always be initiated to ensure compliance with Federal and State laws.

FWS is responsible for the conservation and management of *federally* listed freshwater mussel species. VDGIF is responsible for the conservation and management of *all* freshwater mussel species throughout Virginia. If it is known that federally listed species or critical habitat (Enclosure 6) are not present within a two-mile radius of a given site, coordination with VDGIF, but not FWS, is still necessary.

GENERAL LIFE HISTORY

Freshwater mussels are often prominent in benthic stream communities where, for the most part, they are sedentary filter-feeders consuming a major portion of the suspended particulate matter. Therefore, mussel beds act as biological filters by removing inorganic and organic material from

the water column while improving water quality downstream. Individuals are typically long-lived, with particular species living for more than 50 years, while some individuals may live for more than 130 years. Because these mussels are long-lived, sedentary filter-feeders, they are prominent indicators of water quality. Freshwater mussels also serve as an important dietary component to a variety of animals, including muskrats, otters, raccoons, and some fishes.

During spawning, male mussels release sperm into the water column that females take in through their gills. The resulting larvae (known as glochidia) may be released by the female into the water column or packaged to attract fish. These larvae must attach to a fish host to survive. While attached to the gills of the fish host, development of the glochidia begins. Once metamorphosis is complete, the juvenile mussel drops off the fish host and continues to develop on the stream bottom.

Freshwater mussels are generally divided into two reproductive categories known as short-term (tachytictic) or long-term brooders (bradytictic). Short-term brooders usually spawn and release glochidia during May through July in Virginia. Long-term brooders usually spawn from August through September and release glochidia the following April through June.

SURVEYS AND RELOCATIONS

Enclosure 1 is a list of federally endangered, threatened, and candidate mussels and State endangered and threatened mussels. If a project occurs in an area that may contain suitable habitat for one of these species, FWS and/or VDGIF may recommend a survey. To determine which waterways may contain suitable habitat for State or federally-listed species, contact VDGIF for guidance (804-367-2211 or 2733). Applicants should contact FWS and VDGIF early in the planning process to determine whether federally or State-listed species or critical habitat may be impacted by the project. The effects of a project may include direct impacts from construction activities as well as downstream impacts from sedimentation and effluent discharges. If mussels were found during any previous survey/s, however old, coordination with VDGIF and FWS (where applicable) will be required. Surveys where mussels are not found (negative surveys) are typically valid for two years, after which another survey should be performed. Guidelines for freshwater mussel surveys and relocations are found in Enclosure 2. Surveyor lists are included in Enclosures 3 and 4. If listed mussels are found in or downstream of a project area, VDGIF and/or FWS are likely to recommend time of year or other restrictions to reduce impact to the mussels. Time of year restrictions are listed in Enclosure 5. If FWS determines that the project "may affect" a federally listed species or critical habitat, consultation with FWS will be required.

LAWS AND REGULATIONS PROTECTING MUSSELS

Federal Endangered Species Act (ESA) (87 Stat. 884; 16 U.S.C. 1531 et seq.; 50 CFR Part 17) Section 7(a)(2) requires Federal agencies to ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of any federally listed threatened or endangered species, or result in the destruction or adverse modification of critical habitat. The regulations implementing this Act (50 CFR 402) require the Federal agency to review its actions

at the earliest possible time to determine whether its actions may affect listed species or critical habitat. If a Federal agency determines that its action "may affect" a listed threatened or endangered species or critical habitat, the agency is required to consult with FWS regarding the degree of impact and measures available to avoid or minimize the adverse effects.

Section 9 of the ESA makes it illegal for any person subject to the jurisdiction of the United States to "take" any federally listed endangered or threatened species of fish or wildlife without a special exemption. "Person" is defined under the ESA to include individuals, corporations, partnerships, trusts, associations, or any other private entity; local, State, and Federal agencies; or any other entity subject to the jurisdiction of the United States. Under the ESA, "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or to attempt to engage in any such conduct. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavior patterns such as breeding, feeding, or sheltering. Harass is defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering.

Section 10 establishes an incidental take permit provision for private entities that includes the development of habitat conservation plans. This provision authorizes FWS, under some circumstances, to permit the taking of federally listed fish and wildlife if such taking is "incidental to, and not the purpose of carrying out otherwise lawful activities." This process is also intended to be used to reduce conflicts between listed species and private development and to provide a framework that would encourage "creative partnerships" between the private sector and local, state, and Federal agencies in the interest of endangered and threatened species and habitat conservation. When approved by FWS, this regulatory procedure results in the issuance of a permit authorizing incidental take, provided such take is mitigated by appropriate conservation measures for habitat maintenance, enhancement, and protection, coincident with development.

Virginia Endangered Species Act (29.1-563 - 29.1-570) - This law provides that VDGIF is the state regulatory authority over federally or state listed endangered or threatened fish and wildlife in the Commonwealth, defining *fish or wildlife* as "*. . . any member of the animal kingdom, vertebrate or invertebrate, except for the class Insecta, and includes any part, products, egg, or the dead body or parts thereof.*" It prohibits the taking, transportation, processing, sale, or offer for sale within the Commonwealth of any fish or wildlife listed as a federally endangered or threatened species, except as permitted by the Board of Game and Inland Fisheries for zoological, educational, scientific, or captive propagation for preservation purposes. State-listed species are provided the same protection per VDGIF Regulation 4 VAC 15-20-130.

The law further authorizes the Board of the Virginia Department of Game and Inland Fisheries to adopt the Federal list of endangered and threatened species, to declare by regulation that species not listed by the Federal government are endangered or threatened in Virginia, and to prohibit by regulation the taking, transportation, processing, sale, or offer for sale of those species. Implementing regulations pursuant to this authority (4 VAC 15-20-130 through 140) further

define "take" and other terms similarly to the Federal ESA.

Federal Endangered Species Act Cooperative Agreement - Federally listed species are also protected under VDGIF jurisdiction via a cooperative agreement signed in 1976 with FWS pursuant to Section 6 of the ESA. This Cooperative Agreement recognizes VDGIF as the Virginia agency with regulatory and management authority in Virginia over federally listed or threatened animals, excluding insects, and provides for Federal/State cooperation regarding the protection and management of those species.

Enclosure 1: Federal and State Listed Mussel Species in Virginia

U.S. Fish and Wildlife Service: Environmental Conservation Online System (ECOS) (http://ecos.fws.gov/ecp/)

Virginia Department of Game and Inland Fisheries: Special Legal Status Faunal Species in Virginia (https://www.dgif.virginia.gov/wp-content/uploads/virginia-threatened-endangered-species.pdf)

Enclosure 2: Mussel Survey and Relocation Guidelines in Virginia

There are four general assessment/survey types including:

A. **Land-based review** - land-based site visit used to determine whether a water-based survey (site assessment, abbreviated, or full survey) is warranted. During a land-based review, the surveyor should look for obvious signs that would negate the need for additional, water-based surveys. For example, if it can be determined that the water body is non-perennial and/or contains no potential mussel habitat, it is unlikely that additional surveys would be needed or recommended by VDGIF or FWS. If it is determined that suitable habitat is present, the appropriate survey will be recommended. Photographs of the project site clearly showing instream habitat conditions, as well as a thorough site description, should be sent to VDGIF and FWS for review in lieu of the site assessment. If it is determined that suitable habitat is present, the appropriate survey will be recommended.

B. **Site assessment** - 20 m upstream / 80 m downstream. A site assessment is recommended to determine if suitable habitat is present at a project location and may be recommended if the presence of a listed species is questionable. If suitable habitat is present, the appropriate survey will be recommended even in the absence of mussels, since the site assessment does not serve as a substitute for a mussel survey; however, the presence of freshwater mussels should be documented during the assessment.

C. **Abbreviated survey** - 100 m upstream / 400 m downstream of project footprint.

D. **Full survey** - 200 m upstream / 800 m downstream of project footprint.

The assessment/survey type is based on the scope of the project, potential impacts, and known species distributions. Survey lengths are measured from the project footprint. *Survey distances have primarily been developed for projects where physical alteration/disturbance of the stream is the primary impact (e.g., bridge repair/replacement, utility line crossings, etc.). Potential impacts from projects involving activities such as point and non-point source discharges, water intakes, and mining may require greater survey lengths and different methods.*

Project applicants should contract with a qualified mussel surveyor. Enclosures 3 and 4 provide a list of pre-approved mussel surveyors. If a pre-approved surveyor is not selected, please provide the proposed surveyor's qualifications and proposed survey design to FWS and VDGIF a minimum of 30 days prior to survey initiation. Individuals who take federally listed threatened

and endangered animals must obtain a permit from VDGIF, prior to surveying. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Contact information follows:

Ms. Shirl Dressler
Virginia Department of Game and Inland Fisheries
4010 W. Broad Street
P.O. Box 11104
Richmond, Virginia 23230-1104
Phone: (804) 367-6913
CollectionPermits@dgif.virginia.gov

A plan for mussel relocations, including initial surveys, must be presented to VDGIF and FWS (where applicable) for comment and approval prior to initiation of construction. Failure to provide a mussel relocation and/or survey plan may affect review and permitting of the project by VDGIF and FWS.

The recommended time of year to conduct mussel surveys and relocations is April 1 through October 31. Surveying during the cooler months is discouraged because mussels tend to be located deeper in the substrate and a greater percentage of the population is subsurface, therefore making them more difficult to find, particularly rare species. A more specific time frame may be recommended depending on the target species. A survey conducted outside this time frame requires VDGIF and Service (where applicable) approval.

Guidelines if federally-listed mussels are not present

During the initial survey, mussel species within the direct project footprint or within imminent danger from project impacts may be relocated to suitable habitat unless otherwise directed by VDGIF. Suitable habitat typically includes an area upstream of project impacts and which also harbors freshwater mussels. If such an area cannot be found, the surveyor should determine the location of most suitable habitat. The direct project footprint shall be defined as the area of potentially disturbed substrate, any zone of heavy equipment operation, plus the distance downstream that may experience significant sedimentation from construction. If not determined prior to the relocation, the surveyor is responsible for determining the most suitable relocation area. All relocated mussels must be at least partially placed in the substrate, anterior end down. Project applicants may be required to monitor relocated mussels to determine relocation success/failure.

Standard mussel relocation protocols are outlined below. These protocols may vary based on factors such as the scope of the project and the results of the initial mussel survey. If the relocation protocols vary, VDGIF will clearly outline the appropriate protocols with the project applicant. It is the project applicant's responsibility to ensure that the proper relocation protocols are used and that the contracted mussel surveyor is aware of any modifications to the standard protocols.

The reach from which mussels are to be relocated will be at least 100 m long including the

project footprint. The standard protocol is as follows:

- The 1st relocation survey must occur within 30-45 days of instream construction activities and at least 7 days prior to the 2nd relocation survey.

- The 2nd relocation survey must occur within 30 days of instream construction activities and at least 7 days after the 1st relocation survey.

- All relocation surveys must include at a minimum, two passes. The target relocation percentage of the initial number of mussels collected is 80%. If on the 2nd pass, more than 20% of the initial number of mussels is collected, continued passes must be conducted until no more than 20% of the initial number of mussels is collected on the final pass. The target relocation percentage may be adjusted higher or lower depending on the species and numbers collected during the initial survey.

- If a state-listed species is found, continued passes must be conducted until no listed species are found on the final pass. If repeated passes result in continual collection of state-listed species, modification of the survey techniques may be required.

If relocation surveys are not possible due to natural conditions such as high water, contact VDGIF to arrange contingency plans.

The location of all relocated mussels must be accurately documented (preferably with geographic coordinates) and reported to VDGIF. All state-listed mussel species must be tagged and measured for potential future monitoring.

Project applicants may be required to adhere to time of year restrictions for mussel relocations as directed by VDGIF. If this is the case, for the long-term brooders, relocations can occur from June 16 though August 14 and October 1 through October 31. For short-term brooders, relocations can occur from April 1 through May 14 and August 1 through October 31.

All mussel survey and relocation results, including tag and measurement data, must be submitted to VDGIF for review, prior to instream construction activities. Reviews will be expedited due to the potential short timeframe between surveys and/or relocations and the start of instream work. Reports must contain, at a minimum, number of species found, number of individuals per species and their sizes, and number of individuals tagged.

Guidelines if federally-listed mussel species are present

Federally-listed mussels must *not* be relocated during the initial survey. If federally-listed mussels are found, they must remain exactly where found and all specimens should be photo documented, if possible. Coordination with FWS and VDGIF must occur to determine future actions.

If it is determined that a project may affect a federally-listed species, FWS will complete a consultation with the Federal action agency and prepare a biological opinion in accordance with the Federal Endangered Species Act. The relocation procedures for federally listed mussels will be specified in FWS's biological opinion and will be determined on a project-specific basis.

If relocation surveys are not possible due to conditions such as high water, contact FWS and VDGIF to arrange contingency plans. All listed mussels must be moved to suitable habitat upstream of any potential project impacts. Mussels may be relocated downstream if habitat upstream is determined unsuitable by VDGIF and FWS. If not determined prior to the relocation, the surveyor is responsible for determining the most suitable relocation area. All relocated mussels must be at least partially placed in the substrate, anterior end down. Project applicants may be required to monitor relocated mussels to determine relocation success/failure.

The location of all relocated federally-listed mussels must be accurately documented (preferably with geographic coordinates) and reported to FWS and VDGIF. All federally-listed mussel species also must be tagged and measured for potential future monitoring.

All mussel survey and relocation results must be submitted to FWS and VDGIF for review, prior to instream construction activities. Reviews will be expedited due to the potential short timeframe between surveys and/or relocations and the start of instream work. Reports must contain, at a minimum; number of species found, number of individuals per species and their sizes, number of individuals tagged, etc.

Project applicants may be required to adhere to time of year restrictions (Enclosure 5) for mussel relocations as recommended by FWS and VDGIF. Time of year restrictions will be specified in a letter or in FWS's biological opinion.

Enclosure 3: Surveyor List for Atlantic Slope Mussels in Virginia

Approved Surveyors in Virginia for Atlantic Slope Freshwater Mussels (http://www.fws.gov/northeast/virginiafield/pdf/endspecies/Surveyor_Lists/PDF%20Format/SURVEYOR%20LIST%20-%20Atlantic%20Slope%20Mussels.pdf)

Enclosure 4: Surveyor List for Upper Tennessee River Basin Mussels in Virginia

Approved Surveyors in Virginia for Tennessee River Drainage Freshwater Mussels (http://www.fws.gov/northeast/virginiafield/pdf/endspecies/Surveyor_Lists/PDF%20Format/SURVEYOR%20LIST%20-%20TN%20Drainage%20Mussels.pdf)

Enclosure 5: Time of Year Restrictions

Virginia Department of Game and Inland Fisheries Time of Year Restrictions (TOYR) Table (https://www.dgif.virginia.gov/wp-content/uploads/VDGIF-Time-of-Year-Restrictions-Table.pdf)

Enclosure 6 - Federally-Designated Critical Habitat for Mussels in Virginia

Map of Federally-Designated Critical Habitat in Virginia (http://fws.maps.arcgis.com/apps/Viewer/index.html?appid=f6e84e675ba1461b8ae6a351adea1429)

Wellman, Julia (DEQ)

From: Kirchen, Roger (DHR)
Sent: Tuesday, February 28, 2017 1:45 PM
To: Wellman, Julia (DEQ)
Subject: RE: NEW PROJECT FERC Atlantic Coast Pipeline DEQ 16-248F

It is DHR's intention to consult directly with FERC pursuant to Section 106 of the National Historic Preservation Act.

Roger W. Kirchen, Director
Review and Compliance Division
Department of Historic Resources
2801 Kensington Avenue
Richmond, VA 23221
phone: 804-482-6091
fax: 804-367-2391
roger.kirchen@dhr.virginia.gov

From: Wellman, Julia (DEQ)
Sent: Tuesday, February 28, 2017 11:55 AM
To: Kirchen, Roger (DHR); Jordan, Elizabeth (VDOT); Sterling, Bruce (VDEM); Flaherty, W. Steven (VSP); Mitchell, Jennifer (DRPT); hcboard@htcnet.org; harrison@bathcountyva.org; coadmin@co.augusta.va.us; scarter@nelsoncounty.org; Carter, Rebecca S.; vgiles@cumberlandcounty.virginia.gov; Bartlett, W. W. (Wade); Roark, Ron; burkeville1@embarqmail.com; philipv@townofblackstoneva.com; Massengill, kevin k w; bthrower@ci.emporia.va.us; citymanager@ci.waynesboro.va.us; Woolridge, Charlette T.; cmorris@farmvilleva.com; dwhittington@greensvillecountyva.gov; Johnson, Michael W.; thowlett@cityofchesapeake.net; lreed@suffolkva.us; rpace@franklinva.com; Riedesel, Bonnie S.; cboyles@tjpdc.org; MHickman@virginiasheartland.org; bmcfarlane@hrpdcva.gov; jmcbride@hrpdcva.gov; gmoody@southsidepdc.org; Ware, Tim; Deem, Angel N. (VDOT)
Cc: Sullivan, Bettina (DEQ)
Subject: RE: NEW PROJECT FERC Atlantic Coast Pipeline DEQ 16-248F

Please note that comments on the above-referenced project were due on February 23. If you plan to comment, please email the comments to me by close of business today.

From: Wellman, Julia (DEQ)
Sent: Tuesday, January 03, 2017 3:57 PM
To: dgif-ESS Projects (DGIF); Tignor, Keith (VDACS); Rhur, Robbie (DCR); odwreview (VDH); Kirchen, Roger (DHR); Spears, David (DMME); Evans, Gregory (DOF); Watkinson, Tony (MRC); Owen, Randy (MRC); Cromwell, James R. (VDOT); Jordan, Elizabeth (VDOT); Denny, S. Scott (DOAV); Harrington, Rusty N. (DOAV); impactreview@vofonline.org; Sterling, Bruce (VDEM); Flaherty, W. Steven (VSP); Mitchell, Jennifer (DRPT); Fowler, Keith (DEQ); Winter, Kyle (DEQ); Weyland, Janet (DEQ); Weld, Robert (DEQ); Hill, Jason (DEQ); Jones, Emma (DEQ); Ballou, Thomas (DEQ); Breeding, Robert (DEQ); Cario, Anthony (DEQ); Cunningham, Frederick (DEQ); Dacey, Katy (DEQ); Davis, Dave (DEQ); Hardwick, Steven (DEQ); Isenberg, William (DEQ); Kleiner, Joseph (DEQ); Kudlas, Scott (DEQ); Lackey, Kari (DEQ); Leach, Benjamin (DEQ); Maynard, Joel (DEQ); Mckercher, Elizabeth (DEQ); Mueller, Sandra (DEQ); OMalley, Nina (DEQ); Quinn, Meghann (DEQ); Schul, Hannah (DEQ); Thompson, Tamera (DEQ); White, Bradley (DEQ); Zegler, Hannah (DEQ); Zahradka, Neil (DEQ); 'hcboard@htcnet.org'; 'harrison@bathcountyva.org'; 'coadmin@co.augusta.va.us'; 'scarter@nelsoncounty.org'; 'bcarter@buckinghamcounty.virginia.gov'; 'vgiles@cumberlandcounty.virginia.gov'; Bartlett, W. W. (Wade); Roark, Ron; 'burkeville1@earthlink.net'; 'philipv@townofblackstoneva.com'; Massengill, kevin k w; 'bthrower@ci.emporia.va.us'; 'citymanager@ci.waynesboro.va.us'; Owen, Stephen F.; Woolridge, Charlette T.; 'cmorris@farmvilleva.com'; 'dwhittington@greensvillecountyva.gov'; Johnson, Michael W.; 'thowlett@cityofchesapeake.net'; 'lreed@suffolkva.us'; 'rpace@franklinva.com'; 'bonnie@cspdc.org'; 'cboyles@tjpdc.org'; 'MHickman@virginiasheartland.org'; 'bmcfarlane@hrpdcva.gov'; 'jmcbride@hrpdcva.gov'; 'gmoody@southsidepdc.org'; Ware, Tim

DIVISIONS
ENERGY
GAS AND OIL
MINED LAND RECLAMATION
MINERAL MINING
GEOLOGY AND MINERAL RESOURCES
MINES
ADMINISTRATION

COMMONWEALTH OF VIRGINIA

Department of Mines, Minerals and Energy
Division of Geology and Mineral Resources
Fontaine Research Park
900 Natural Resources Drive, Suite 500
Charlottesville, Virginia 22903
(434) 951-6341
www.dmme.virginia.gov

February 22, 2017

Julia Wellman
Environmental Impact Review Coordinator
Department of Environmental Quality
629 E Main Street
Richmond, VA 23219

Dear Julia,
The Department of Mines, Minerals and Energy DMME) has reviewed the Draft Environmental Impact Statement for the Atlantic Coast Pipeline and has the following comments:

Bedrock and Surficial Geology
The applicant recognizes that karst, landslides, seismicity, and acid forming soil are potential geologic hazards in the project area. The portions of the route and the geologic formations that are identified in the report as being at a higher risk for these hazards appear to coincide with available geologic data reviewed by DMME. Our staff agrees that these are the most important geologic conditions associated with this project and believes that having hazard-specific plans in place as proposed will help mitigate impacts related to these conditions.

The applicant has relied on the state geologic map at 1:500,000-scale to a large extent for the geological analysis of this project, and larger scale maps are not discussed in the geology section of the report. There is a considerable amount of 1:24,000-scale geologic mapping available along the proposed route in Virginia, including: Deerfield, Craigsville, Elliott Knob, Stokesville, Churchville, Greenville, Stuarts Draft, Waynesboro West, Sherando, Howardsville (draft), Andersonville, Willis Mountain, Farmville (draft), Windsor, Chuckatuck, Bowers Hill, and Norfolk South 7.5-minute quadrangles. Most of these maps show bedrock geology and surficial geology to lesser or greater extent, and would be helpful in understanding local geologic conditions and minimizing impacts during the project. The published 1:100,000-scale map of the Staunton 30- x 60-minute quadrangle would also be helpful in assessing karst and acid-forming soil potential in the western part of the Virginia project area where more detailed mapping is not available. In addition, the U.S. Geological Survey (Carter and others, 2016) has a geologic map database available for the Blue Ridge Parkway that may be useful for that portion of the project.

The geologic description of the area near Wintergreen (157.8 to 158.7) where sub-surface drilling is proposed agrees with published mapping. There are two mapped faults that cross in this area, including a fault that separates basement and cover rocks. Both structures are inferred to be Paleozoic in age, but could result in more complicated sub-surface conditions in the area to be drilled.

Mineral Resources

The applicant correctly identifies two active non-fuel mineral resource facilities *in the project area* yet states that no active mineral resource facilities are *crossed* by the ACP. DMME's records show two sand and gravel sites in Southampton County within a quarter mile of the ACP:

a) Milepost 31.8: Hunter Darden III Pit (DMME Permit #13792AA)

b) Milepost 12.2: Rogers Quarter Pit (DMME Permit # 13772AA), which has permitted acreage in VA but influenced area is in NC.

The applicant does not identify twenty abandoned non-fuel mineral resource sites within a quarter mile of the proposed route of the ACP, including: 7 carbonate (limestone or dolostone) sites, 3 manganese prospects, 4 clay sample sites, 5 sand and gravel pits, and 1 sandstone prospect.

The proposal fails to identify abandoned mine sites near the proposed ACP route and unmined but documented prospects within the ACP route in the significant Andersonville Mining District (high-grade zones of base metal sulfides) in Buckingham County, VA.).

The applicant does not identify one abandoned fuel mineral resource within a quarter mile of the proposed route of the ACP, a coal mine adit near Farmville, VA.

Mine Subsidence

The applicant's proposal includes a thorough discussion of mine subsidence with an appropriate focus on subsurface coal mines. The potential for subsidence of other mineral resource sites within Virginia is not identified. The two areas of possible impact being the aforementioned coal adit near Farmville and abandoned pits and shafts in the Andersonville Mining District between mileposts 200-210.

Acid Producing Rock and Soils

The applicant correctly identifies several rock units in Virginia as formations that have the potential to generate acid drainage during construction and demonstrates a good understanding of the impact of acid-producing materials in pipeline construction. However, the applicant does not identify the significant potential for encountering acid-producing minerals such as pyrite in the Andersonville Mining District in Buckingham County, through which the proposed route directly passes.

Seismic Related Hazards

The applicant recognizes that portion of the project area is in an area of increased earthquake frequency that corresponds with the southwestern part of the Central Virginia Seismic Zone. A review of our database indicates that approximately 25 historic earthquake epicenters have been recorded within 10 km or the proposed centerline. The highest estimated magnitude of these events is 4.3 and the highest reported intensity was VI.

The applicant states that the 2011 Mineral, Virginia earthquake had a maximum intensity of VII, but some workers (including DMME staff; see Heller and Carter, 2015) have assigned a maximum intensity of VIII to this event.

Karst Terrain, Landslides, Slope Stability, and Steep Slopes
The applicant's identification of karst hazards and proposed mitigation measures as described in the *Karst Mitigation Plan* appear adequate.

Debris flows are mentioned in the landslide section of the report as a potential hazard, but it was not clear in the draft EIS if potential debris flow runout zones, which may be in areas where the slope is not steep, are being considered as potential landslide hazards. DMME reviewed a referenced report (Geosyntec, 2016) completed for this project and it does appear that debris-flow potential was considered as a factor in assessing "hydrotechnical" hazards. This assessment was ongoing at the time that the report was written. Coarse, unconsolidated colluvium consisting of large blocks of loose material may pose an additional challenge in areas of steep slopes.

Paleontological Resources
The applicant identifies the possibility of encountering Paleozoic and Mesozoic fossils but provides no discussion of the possibility of discovering Tertiary or Quaternary vertebrate and plant fossils in unconsolidated (non-bedrock) deposits west of the Blue Ridge in Virginia. Such sites exist in the Valley and Ridge province at Saltville, Virginia and the Gray Site in Tennessee, and have the potential for being discovered during the course of land excavation. The final EIS should contain a *Plan for Discovery of Unanticipated Paleontological Resources* that would consider the potential for encountering such fossils and include steps for their preservation.

Please let me know if you need additional information from DMME.

Sincerely,

David B. Spears
State Geologist and Director
Division of Geology and Mineral Resources

COMMONWEALTH of VIRGINIA

Randall P. Burdette
Executive Director

Department of Aviation
5702 Gulfstream Road
Richmond, Virginia 23250-2422

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ISO 9001:2008 Certified
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January 16, 2017

Ms. Julia Wellman
Environmental Impact Review Coordinator
Department of Environmental Quality
629 E. Main Street
Richmond, Virginia 23219

RE: FERC Atlantic Coast Pipeline, DEQ 16-248F

Dear Ms. Wellman:

The Virginia Department of Aviation has reviewed the Draft EIS received in your January 3, 2017 e-mail. The project sponsor should note that a 7460 form must be submitted to the Federal Aviation Administration for any portion of the proposed project that is proposed to be constructed within 20,000 linear feet of a public-use or military airport. The 7460 form is submitted in order to determine the potential impacts to the airport and determine if the proposed project constitutes a hazard to air navigation.

Additionally the Department recommends the project sponsor coordinate the proposed project with any private airfield land owner that may be impacted by the proposed project route.

If you have any questions regarding this matter, please contact me at (804) 236-3638.

Sincerely,

S. Scott Denny
Senior Aviation Planner
Virginia Department of Aviation

Wellman, Julia (DEQ)

From: Denny, S. Scott (DOAV)
Sent: Friday, February 03, 2017 8:58 AM
To: Wellman, Julia (DEQ)
Subject: RE: DEQ 16-248F: Atlantic Coast Pipeline New Supplemental Information

Julia:

The Department has reviewed the supplemental information provided. Staff has no changes to our original comments. Please let us know if any additional revisions or supplemental information becomes available. Thank you.

S. Scott Denny
Senior Aviation Planner
Virginia Department of Aviation

From: Wellman, Julia (DEQ)
Sent: Wednesday, February 01, 2017 3:20 PM
To: dgif-ESS Projects (DGIF); Tignor, Keith (VDACS); Rhur, Robbie (DCR); odwreview (VDH); Kirchen, Roger (DHR); Spears, David (DMME); Evans, Gregory (DOF); Watkinson, Tony (MRC); Owen, Randy (MRC); Cromwell, James R. (VDOT); Jordan, Elizabeth (VDOT); Denny, S. Scott (DOAV); Harrington, Rusty N. (DOAV); impactreview@vofonline.org; Sterling, Bruce (VDEM); Flaherty, W. Steven (VSP); Mitchell, Jennifer (DRPT); hcboard@htcnet.org; Harrison, Ashton; coadmin@co.augusta.va.us; scarter@nelsoncounty.org; Carter, Rebecca S.; vgiles@cumberlandcounty.virginia.gov; Bartlett, W. W. (Wade); Roark, Ron; burkeville1@embarqmail.com; philipv@townofblackstoneva.com; Massengill, kevin k w; bthrower@ci.emporia.va.us; citymanager@ci.waynesboro.va.us; Owen, Stephen F.; Woolridge, Charlette T.; cmorris@farmvilleva.com; dwhittington@greensvillecountyva.gov; Johnson, Michael W.; thowlett@cityofchesapeake.net; lreed@suffolkva.us; rpace@franklinva.com; Riedesel, Bonnie S.; cboyles@tjpdc.org; MHickman@virginiasheartland.org; bmcfarlane@hrpdcva.gov; jmcbride@hrpdcva.gov; gmoody@southsidepdc.org; Ware, Tim
Cc: Sullivan, Bettina (DEQ)
Subject: DEQ 16-248F: Atlantic Coast Pipeline New Supplemental Information

Dominion has submitted supplemental information on the following topics to the Federal Energy Regulatory Commission:

- Supplemental Information – January 27, 2017
- Appendix A – Cochran's Cave Conservation Area Investigation Update
- Appendix B – Karst Terrain Assessment, Construction, Monitoring and Mitigation Plan
- Appendix C – Second Draft of the Construction, Operations, and Maintenance Plan
- Appendix D – Updated Draft Biological Assessment
- Appendix E – Update to the Migratory Bird Plan
- Appendix F – Wetland and Waterbody Delineation Reports
- Appendix G – Archaeological Site Testing Reports
- Appendix H – Agency Correspondence for the Atlantic Coast Pipeline – Public
- Appendix I – Agency Correspondence for the Atlantic Coast Pipeline – Privileged
- Appendix J – Agency Correspondence for the Supply Header Project – Public

The documents are available on the FERC docket at http://elibrary.FERC.gov/idmws/file_list.asp?accession_num=20170127-5202.

Bettina K. Ring
State Forester

COMMONWEALTH of VIRGINIA

Department of Forestry

900 Natural Resources Drive, Suite 800 • Charlottesville, Virginia 22903
(434) 977-6555 • Fax: (434) 296-2369 • www.dof.virginia.gov

February 23, 2017

Memorandum for: Julia Wellman, Environmental Impact Review Office, Department of Environmental Quality

From: Greg Evans, Mitigation Program Manager

Subject: Virginia Department of Forestry Comments Pertaining to the Federal Energy Regulatory Commission's (FERC) Atlantic Coast Pipeline (ACP) Draft Environmental Impact (DEIS) Findings and Recommendations

BACKGROUND

The Virginia Department of Forestry (VDOF) appreciates the opportunity to provide comments pertaining to the above subject project as a participating agency in the Virginia Department of Environmental Quality's Environmental Impact Review Process. VDOF is charged with conserving the Commonwealth's forest resources for the use and enjoyment of current and future generations of Virginia citizens and its recommendations to the Federal Energy Regulatory Commission (FERC) reflect that charge. VDOF is responsible for assuring that Virginia's forest resources are managed in a sustainable manner so they remain viable as healthy ecosystems. Key elements of its mission include: improving forest health, sustaining an adequate supply of raw materials for Virginia's forest products industry, and protecting water quality and water supply sources while providing recreational opportunities to the public. Land conversion activities that impact the forest landscape impact these values.

VDOF protects Virginia's 15.8 million acres of forest land from degradation due to land use practices, fire, insects and disease. It manages state lands totaling over 70,000 acres for timber, recreation, water, research, wildlife and biodiversity and provides assistance to non-industrial private forest landowners through professional forestry advice and technical management programs.

VDOF supports the Virginia Department of Environmental Quality (VDEQ) as a participating state agency in the VDEQ environmental impact review (EIR) process. The VDOF's responsibility in evaluating proposed projects brought before regulatory bodies is to identify the forest resources that may be impacted; provide assessments; and provide recommendations and comments pertaining to forest health, conservation, management and mitigation needs aimed at conserving Virginia's forest resources in keeping with state executive policy and/or as part of the federal consistency determination/certification process. The VDOF does not represent or advocate for private landowners, or developers before governmental bodies that approve, permit, license, or construct projects.

Virginia has been losing approximately 16,000 acres of forestland annually based on a 10 year average of Forest Inventory Analysis (FIA) data. Urbanization and long, linear infrastructure project development represent the two biggest factors in the loss of this forestland acreage. The ACP qualifies as a long, linear

infrastructure project having a landscape level impact for which a comprehensive mitigation plan is needed.

VDOF will collaborate with VDEQ and Virginia's other natural resource agencies working in association with FERC and other federal agencies such as USFS and USFWS to mitigate this loss. Our goal is to use a mitigation plan to minimize impacts and/or compensate for unavoidable disturbances or impacts to forests of the Commonwealth.

In designing and implementing a mitigation program, Virginia adheres to CEQ NEPA guidelines (40 Code of Federal Regulations (CFR) 1508.20). These establish four classes of mitigation: preservation, avoidance, restoration/afforestation, and enhancement/creation. The intent is to generally avoid forest conversion through planning, restoration of the forest resource, creating new forests, and/or providing an in-lieu of payment with the funding used to carry out a mitigation response to compensate for unavoidable forest loss. Understanding what the forest loss will be therefore, and how and where it will occur if the preferred route is followed, and what mitigation is planned is very important.

DOF RESPONSE AND REQUESTS PERTAINING TO INDIVIDUAL FERC FINDINGS

1. DOF concurs with the following FERC findings and recommendations noted in Section 5.1 CONCLUSIONS OF THE ENVIRONMENTAL ANALYSIS

   5.1.4 Vegetation
   Impacts on vegetation from ACP and SHP would range from short-term to permanent due to the varied amount of time required to reestablish certain community types, as well as the maintenance of herbaceous and shrub vegetation within the permanent right-of-way and the conversion of aboveground facility locations and new permanent access roads to non-vegetated areas.

   Construction of ACP and SHP would affect about 7,490 acres of vegetation, including about 6,103 acres of upland forest vegetation (deciduous, coniferous, and mixed). Operation of ACP and SHP would affect about 4,208 acres of vegetation, including about 3,424 acres of upland forest vegetation (deciduous, coniferous, and mixed).

   ACP and SHP would also impact vegetation communities of special concern, including areas of red spruce forest of West Virginia and Virginia; longleaf pine forest and peatland pocosin and canebrake communities of North Carolina; 13 Virginia Natural Heritage Conservation Sites; 2 Virginia SCUs; and 13 North Carolina NHNAs.

   DOF also supports the FERC staff's recommendation that the ACP partnership sponsors continue to consult with the Virginia Department of Conservation (VDCR) and Recreation on the project's proposed avoidance and minimization measures at the Handsom-Gum, Branchville, and Emporia Powerline Bog Conservation Sites, and file correspondence from the VDCR demonstrating concurrence and/or additional recommendations from the VDCR.

DOF further agrees with and supports FERC's findings that:

- The greatest impact on vegetation would be on forested vegetation due to the removal of approximately 6,800 acres of forested vegetation (includes 3,800 acres of permanent impacts), fragmentation of interior forest blocks, and contribution to the introduction and/or spread of invasive species.
- Construction in forest lands would remove the tree canopy over the width of the construction right-of-way, which would change the structure and local setting of the forest area.

- The regrowth of trees in the temporary workspaces would take years and possibly decades. Moreover, the forest land on the permanent right-of-way would be affected by ongoing vegetation maintenance during operations, which would preclude the re-establishment of trees on the right-of-way.
- Construction of the proposed pipeline facilities would have a long-term to permanent impact on forest vegetation communities within the construction right-of-way. Maintenance activities would result in permanent conversion of some areas of existing upland forested vegetation to herbaceous or scrub-shrub vegetation.

VDOF agrees with FERC's findings that ACP and SHP would also contribute to forest fragmentation however because forest fragmentation would occur on such a large, landscape scale, DOF, as the Virginia state agency having forest management responsibilities for the Commonwealth's forests, affirms that even though the projects are collocated for 14 percent of their routes along existing rights-of-way and in areas prescriptively altered by harvesting practices as noted by FERC, the fragmentation impact is still extensive and needs to be further mitigated.

VDOF further requests that the FERC staff recommendation that the ACP Restoration and Rehabilitation Plan be revised to incorporate WVDOF recommended mitigation measures and seed mixes be extended as well to Virginia and that the ACP sponsors be asked to incorporate VDOF recommended measures where appropriate.

5.1.5 Wildlife

FERC concludes that ACP and SHP would impact wildlife species and their habitats. Construction of ACP and SHP facilities would affect about 7,490 acres of wildlife habitat. Of this, about 3,424 acres of upland forested habitat and 416 acres of woody wetland habitat would be permanently converted and maintained in an early successional stage by mowing and periodic tree removal during operations.

VDOF defers to the Virginia Department of Game and Inland Fisheries with regard to whether the FERC staff conclusion that cutting, clearing, and/or removal of existing vegetation within the construction work area could also adversely impact wildlife but only on a short-term basis. However, it can concur with the FERC conclusion that the re-establishment of forested habitats is a long-term problem that could take decades to happen.

FERC further concludes that the primary impact from construction and operation would be on forested habitats crossed by ACP and SHP, including the removal of approximately 6,800 acres of forested vegetation (includes 3,800 acres of permanent impacts), fragmentation of interior forest blocks (see section 4.5.6 of the FERC comments), and contribution to the introduction and/or spread of invasive species. Fragmentation of forested habitat would make the right-of-way permanently unsuitable for interior forest species, but may create new habitat for species that prefer ecological edges.

The FERC report also notes that several state and federal agencies expressed concerns regarding forest fragmentation and the impacts on interior forest and their associated wildlife species. FERC findings conclude the following:

- Assuming that 31.0 miles of interior forest habitat would be impacted, there could be indirect impacts on about 2,255 acres of interior forest.
- Although the creation of edge habitat could favor some species, it could also increase the risk of establishment of invasive species, modify microclimate, change vegetation species composition, or increase risk of nest parasitism.
- While impacts on species inhabiting interior forest blocks 35 acres or greater were analyzed, other species have minimum interior forest patch areas greater than 35 acres.

These findings led FERC staff to make the following recommendations which VDOF concurs with:

- [Although] Atlantic and DTI would attempt to minimize these impacts through the implementation of their construction and restoration plans, in addition to our recommendations; … due to the length of time required to recover forested habitat, these impacts would be considered long-term to permanent.
- We have recommended that Atlantic [ACP] and DTI file submit a revised fragmentation analysis that is based on West Virginia state forest fragmentation data produced by the NRAC at West Virginia University, VDCR VaNLA project, and data sets recommended from consultations with the FS, NCWRC, and NCDEQ.
- We have also recommended that edge habitat be considered a 300-foot forested buffer from a corridor/disturbance with interior forest starting at the point beyond the 300-foot edge buffer; and that Atlantic [ACP] and DTI discuss how the creation of forest edge or fragmentation would affect habitat and wildlife, including potential impacts on federally listed threatened and endangered species and migratory birds, and the measures that would be implemented to avoid, minimize, or mitigate impacts on interior/core forest habitat.

VDOF strongly endorses these recommendations. The impact of forest fragmentation on its forest resources is a major concern to the Commonwealth of Virginia. Forest products represent Virginia's third largest industry and its forests are major contributors of recreational and ecosystem services. VDOF has been collaborating with its sister natural resource agencies in using the VDCR VaNLA methodology to assess and quantify the impact of fragmentation across the entire proposed ACP route. This methodology is being shared with the adjacent state natural resource agencies and federal agencies such as USFS, USFWS and BLM. It is very important to Virginia that the ACP fragmentation analysis incorporate the VaNLA findings.

VDOF also requests that it be included for reporting purposes where appropriate and concurs with the following FERC staff recommended mitigation measures to be included as specific conditions in the Commission's Order if the Commission authorizes ACP and SHP as noted in Section 5.2 of the staff report. The stated rationale for making these recommendations was the staff's belief that these "measures would further mitigate the environmental impact associated with construction and operation of the proposed ACP and SHP." VDOF has restricted its comments to only those recommendations pertaining to non-Federal lands in Virginia unless otherwise noted.

1. Atlantic and DTI shall follow the construction procedures and mitigation measures described in its application and supplements (including responses to staff data requests) and as identified in the EIS, unless modified by the Order. Atlantic and DTI must:
    a. request any modification to these procedures, measures, or conditions in a filing with the Secretary;
    b. justify each modification relative to site-specific conditions;
    c. explain how that modification provides an equal or greater level of environmental protection than the original measure; and
    d. receive approval in writing from the Director of OEP **before using that modification**.

2. The Director of OEP has delegated authority to take whatever steps are necessary to ensure the protection of all environmental resources during construction and operation of ACP and SHP. This authority shall allow:
    a. the modification of conditions of the Order; and
    b. the design and implementation of any additional measures deemed necessary (including stop-work authority) to assure continued compliance with the intent of the environmental conditions as

well as the avoidance or mitigation of adverse environmental impact resulting from project construction (and operation).

6. Within 60 days of the acceptance of the Certificate and before construction begins, Atlantic and DTI shall file their respective Implementation Plans with the Secretary for review and written approval by the Director of OEP. Atlantic and DTI must file revisions to their plans as schedules change. The plans shall identify:

a. how Atlantic and DTI would implement the construction procedures and mitigation measures described in its application and supplements (including responses to staff data requests), identified in the EIS, and required by the Order;
b. how Atlantic and DTI would incorporate these requirements into the contract bid documents, construction contracts (especially penalty clauses and specifications), and construction drawings so that the mitigation required at each site is clear to on-site construction and inspection personnel;
c. the number of EIs assigned per spread and how the company would ensure that sufficient personnel are available to implement the environmental mitigation;
d. the number of company personnel, including EIs and contractors, who would receive copies of the appropriate material;
e. the location and dates of the environmental compliance training and instructions Atlantic and DTI would give to all personnel involved with construction and restoration (initial and refresher training as the projects progress and personnel change), with the opportunity for OEP staff to participate in the training session(s);
f. the company personnel (if known) and specific portion of Atlantic's and DTI's organizations having responsibility for compliance;
g. the procedures (including use of contract penalties) Atlantic and DTI would follow if noncompliance occurs; and
h. for each discrete facility, a Gantt or PERT chart (or similar project scheduling diagram) and dates for:
    i. the completion of all required surveys and reports;
    ii. the environmental compliance training of on-site personnel;
    iii. the start of construction; and
    iv. the start and completion of restoration.

7. Atlantic and DTI shall employ a team of EIs (i.e., two or more or as may be established by the Director of OEP) per construction spread. The EI(s) shall be:

a. responsible for monitoring and ensuring compliance with all mitigation measures required by the Order and other grants, permits, certificates, or other authorizing documents;
b. responsible for evaluating the construction contractor's implementation of the environmental mitigation measures required in the contract (see condition 6 above) and any other authorizing document;
c. empowered to order correction of acts that violate the environmental conditions of the Order, and any other authorizing document;
d. a full-time position, separate from all other activity inspectors;
e. responsible for documenting compliance with the environmental conditions of the Order, as well as any environmental conditions/permit requirements imposed by other federal, state, or local agencies; and
f. responsible for maintaining status reports.

8. Beginning with the filing of the Implementation Plans, Atlantic and DTI shall each file updated status reports with the Secretary on a weekly basis until all construction and restoration activities are complete. On request, these status reports would also be provided to other federal and state agencies with permitting responsibilities. Status reports shall include:

a. an update on Atlantic's and DTI's efforts to obtain the necessary federal authorizations;
b. the construction status of each spread, work planned for the following reporting period, and any schedule changes for stream crossings or work in other environmentally sensitive areas;
c. a listing of all problems encountered and each instance of noncompliance observed by the EIs during the reporting period (both for the conditions imposed by the Commission and any environmental conditions/permit requirements imposed by other federal, state, or local agencies);
d. a description of the corrective actions implemented in response to all instances of noncompliance, and their cost;
e. the effectiveness of all corrective actions implemented;
f. a description of any landowner/resident complaints that may relate to compliance with the requirements of the Order, and the measures taken to satisfy their concerns; and
g. copies of any correspondence received by Atlantic and DTI from other federal, state, or local permitting agencies concerning instances of noncompliance, and Atlantic's and DTI's responses

13. Atlantic shall not exercise eminent domain authority granted under section 7(h) of the NGA to acquire a permanent pipeline right-of-way exceeding 50 feet in width. In addition, where Atlantic has obtained a larger permanent right-of-way width through landowner negotiations, routine vegetation mowing and clearing over the permanent right-of-way shall not exceed 50 feet in width. (Section 2.2.1.1)

20. Prior to the close of the draft EIS comment period, Atlantic shall file with the Secretary, the plans and typical drawings, as well as, site-specific designs of representative construction segments to display the magnitude of the proposed slope modifications (cuts and fills) for the MNF and GWNF as requested by the FS. (Sections 4.1.6.1 and 4.1.6.2)

28. Prior to construction, Atlantic shall file with the Secretary and the WVDOF a revised Restoration and Rehabilitation Plan that incorporates recommended mitigation measures and seed mixes for Seneca State Forest based on consultation with the WVDOF. (Section 4.4.2.1) **VDOF requests that Atlantic also be directed to consult with VDOF regarding recommended mitigation measures and seed measures for any forested areas that may be adjacent to or near VDOF state forest and/or easement properties.**

35. Prior to construction, Atlantic shall file with the Secretary, and provide to the FWS for approval, a revised Migratory Bird Plan, and provide to the FS for approval, a revised COM Plan that identify areas where Atlantic will construct during the migratory bird season, and identify the additional conservation measures developed in coordination with the FWS and/or FS, and other appropriate agencies, that it will implement to minimize impacts on nesting migratory birds in areas where construction during the active season cannot be avoided. (Sections 4.5.3.5 and 4.3.9)

36. Prior to construction, Atlantic and DTI shall file with the Secretary a revised Migratory Bird Plan that includes appropriate conservation measures developed in coordination with the FWS and the appropriate state/commonwealth agencies for the following active rookeries with disturbance buffers that overlap ACP workspace: ROOK-ACT-02 (VA), ROOK-01 (WV), WBC 01 (NC), WBC 02 (NC), WBC 04 (NC), WBC 05 (NC), WBC 07 (NC), WBC 12 (NC), and WBC 15 (NC). Atlantic shall also coordinate with VDGIF, WVDNR, and NCWRC to verify that no additional conservation measures would be required for the NHI and CCB rookeries, and provide copies of agency correspondence related to these discussions. (Section 4.5.3.5)

37. Prior to the close of the draft EIS comment period, Atlantic and DTI shall file with the Secretary a revised fragmentation analysis that includes the following:

a. Analysis based on applicable state and federal agency datasets, including:
   i. West Virginia state forest fragmentation data produced by the NRAC at West Virginia University;
   ii. VDCR VaNLA project; and
   iii. Consult with the FS, NCWRC, and NCDEQ to determine the appropriate data sets to use in the MNF, GWNF, and North Carolina, respectively.
b. If GIS databases are not available for the project location, then manual interpretation of interior forest blocks greater than or equal to 35 acres shall be identified and evaluated for project impacts;
c. Edge habitat is considered to be 300-foot forested buffer from a corridor/disturbance with interior forest starting at the point beyond the 300-foot edge buffer;
d. Develop a table for each state and for NFS lands with the following data for each forested interior tract: type of interior forest (e.g., edge, patch, small core, large core, or ecological integrity category), county, enter and exit milepost, length crossed (feet), and area affected directly (interior forest cutting) and indirectly (buffer zone areas of remaining forest immediately adjacent to one or both sides of the new corridor that would no longer be classified as interior forest due to the new, project-related disturbances) for both construction and operation; and
e. Discuss how the creation of forest edge or fragmentation would affect habitat and wildlife, including potential impacts on federally listed threatened and endangered species and migratory birds. Describe measures that Atlantic and DTI will implement to avoid, minimize, or mitigate impacts on interior/core forest habitat. (Section 4.5.6)

59. Prior to the close of the draft EIS comment period, Atlantic and DTI shall consult with the FWS and appropriate agencies to identify the conservation measures that would be implemented to avoid or minimize impacts on listed plant populations that were documented in 2016, and that may be documented in the 2017 surveys. Atlantic and DTI shall also file with the Secretary, and provide to the FWS and appropriate agencies the final avoidance and minimization plan for these listed plant species. (Section 4.7.1.15).

60. Prior to the close of the draft EIS comment period, Atlantic shall file with the Secretary and FS a revised BE that:

d. provides start and end milepost and acreage of impacts on old growth forests according to the MNF and GWNF old growth forest definition;

65. Prior to the close of the draft EIS comment period, Atlantic shall file with the Secretary a description of the impacts and species-specific conservation measures, developed in coordination with the applicable federal and state agencies (WVDNR; VDGIF and/or VDCR; and NCWRC and/or NCDEQ), for the species listed in table 4.7.4-4 where Atlantic has identified potential impacts, and/or where the appropriate agency has requested additional analysis or conservation measures. Where survey data is still pending, Atlantic shall work with the appropriate agencies to identify the conservation measures that it will implement if the species and/or suitable habitat are identified during preconstruction surveys, or where presence has been assumed. (Section 4.7.4.6)

67. Prior to construction, Atlantic and DTI shall file with the Secretary, for the review and written approval of the Director of OEP, finalized Timber Extraction Plans. (Section 4.8.1.1)

DOF RECOMMENDED ADDITIONAL MITIGATION ACTIONS

DOF concurs with FERC that specific additional mitigation measures are required as conditions to any authorization issued by the Commission and supports the mitigation measures proposed. However, DOF observes that the FERC proposed mitigation actions are focused primarily on preservation and avoidance and to a lesser extent, restoration/afforestation. No specific enhancement/creation mitigation actions are proposed as envisioned in the CEQ NEPA mitigation framework guidelines (40 Code of Federal Regulations (CFR) 1508.20).

Given the adverse, landscape level impact to forestland that has been documented and recognized by FERC as significant, long term and therefore permanent in its analysis, DOF requests that FERC direct ACP sponsors as a condition of it project permit approval to negotiate with the Commonwealth of Virginia through the Office of the Secretary of Natural Resources an acceptable enhancement/creation mitigation plan to offset and compensate for the significant impact to forestland that will result if the ACP goes forward.

In addition, DOF offers the following technical advice, comments and recommendations to FERC to consider in its on-going review of the ACP project plan:

1. **Construction Activities:** When a new pipeline is built, there can be temporary impacts from construction access by cranes and other heavy equipment, construction traffic on unpaved access roads, and boring for pipeline installation activities. Different machines and techniques are used to remove trees depending on whether the forests consist of mature trees, have large quantities of understory trees, or are in sensitive environments such as a wooded wetland. These machines can range from large whole tree processors which can cause rutting and compaction of the forest floor to hand clearing with chainsaws in more sensitive environments. Compacted soil restricts root penetration and nutrient cycling. Compaction also restricts water movement into soil, resulting in less water available for plant growth and increased runoff, erosion, and nutrient loss. This can result not only in diminished forest health but also reduced ability of the forest to fulfill its water quality improvement functions. DOF recommends activities to minimize construction impacts including:
    - Restoring contours to pre-construction conditions and controlling erosion until re-vegetation stabilizes the disturbed areas.
    - Restoring vegetation to native species and protecting the natural functions of the pre-construction ecosystem.
    - Using machinery where feasible, that when combined (example: earth mover and cart) weigh less than 10 tons per axle. Research has shown that this will help alleviate compaction to the top 6-8 inches of soil where it can be more easily addressed. Combination vehicles weighing more than 10 tons can create compaction as deep as 3 feet which is very difficult to mitigate.
    - Minimizing traffic lanes for transporting cleared timber from the site.
    - Following Forestry Best Management Practices (BMPs) for water quality as outlined by the Virginia Department of Forestry's Voluntary BMP Guidelines publication for all harvesting operations.
    - Stock piling soil away from trees that are to remain standing. Piling soil at a tree stem can kill the root system of the tree. Soil stockpiles should be covered, as well, to prevent soil erosion and fugitive dust.
    - Retain existing groupings and/or clusters of trees and natural vegetation on the sites of the support facilities, where feasible, to provide aesthetic and environmental benefits, as well as reducing future open space maintenance costs.

2. **Invasive Species Management:** While the width of the area of the removed forest within the ROW may not be great, there may be severe consequences for the species that depend on the existing non-fragmented habitat. Fragmentation makes interior forest species more vulnerable to predators, parasites, competition from edge species, and catastrophic events. Invasive plants can grow prolifically in the cleared-edge habitats of pipeline ROWs and can spread into the forest interior, limiting the growth of native species. Careful vegetation management in the ROW can mitigate some of these effects. DOF recommends:
    - Considering the likely response of invasive species or target species when prescribing activities that result in soil disturbance or increased sunlight.
    - During construction and follow-on maintenance activities, take steps to guard against construction vehicles inadvertently bringing into forest interiors invasive and/or non-native plant species from other locations. Weed seed and fungal spores can be transported in the mud or dirt on vehicles. Prior to moving equipment onto and off of an activity area, scrape or brush soil and debris from exterior surfaces, to the extent practical, to minimize the movement of invasive plants, pests and diseases to non-infested areas. Another option is to wash vehicles before they enter a weed-free area or when they leave an infested area. The emphasis of the cleaning should be in the wheels, wheel wells, bumpers, and undercarriage of the vehicle where most mud and dirt collects.
    - If seeding or planting is necessary to minimize the threat of highly damaging invasive species from spreading, use native seed or non-invasive cover plants for revegetation.

3. **Biodiversity Planning:** A pipeline ROW can fragment a larger forest block into smaller tracts that diminish their ability to function as integrated habitat units. As a result, the continued fragmentation of a forest can cause a permanent reduction in species and suitable habitat as noted in FERC's findings. The linear nature of pipeline right-of-ways can impact the predator-prey relationship. Right-of-way vegetation removal or modification methods before pipeline construction may also affect vegetation in areas adjacent to the ROW. Plant communities may be damaged by the removal of tall-growing vegetation. Physical changes in the habitat caused by ROW vegetation control may adversely affect non-target vegetation. The growth or viability of plant species within or adjacent to the right-of-way may be reduced. DOF recommends adopting management practices that mitigate these potential impacts including:
    - Avoiding routes that fragment major forest blocks.
    - Keeping ROW clearing to the minimum width necessary to prevent interference from trees and other vegetation.
    - Establishing herbaceous species and shrubs or some low-growing trees that are considered desirable ground cover and valuable wildlife habitat along the right-of-way in the project's vegetation management and revegetation plan.
    - Maintaining a scrub habitat, dominated by low growing, bushy vegetation and young trees is preferable to mowing in forest habitats. It can provide quality habitat for wildlife species that are dependent on early successional habitat (birds, reptiles, and amphibians).

This concludes the Virginia Department of Forestry's comments and recommendations. The DOF is available to discuss any of the points made in these comments with FERC if that would be helpful.

GE/ge

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February 21, 2017

VIA EMAIL IN PDF AND EXPRESS DELIVERY

Ms. Julia Wellman
Environmental Impact Review Coordinator
Department of Environmental Quality
629 E. Main Street
Richmond, VA 23219

Re: Atlantic Coast Pipeline Project
DEQ #16-248F
Docket Nos. CP15-554-000, CP15-554-001, and CP15-555-000
FERC/EIS-0274D

Dear Ms. Wellman:

As the Mayor of the City of Staunton, located in the beautiful Shenandoah Valley of Virginia where we treasure our natural resources, I write to affirm the Staunton City Council's objection overall to the Atlantic Coast Pipeline project and lodge a specific objection based upon the threat to a critical water source for our citizens and for Augusta County. We submit that both Dominion and the Federal Energy Regulatory Commission, as evidenced in the Draft Environmental Impact Statement (DEIS), have utterly failed to account yet for the potentially catastrophic consequences of the project as to the route of the line that would be unacceptably within the ambit of our water source known as Gardner Spring. We believe the huge gas pipeline would cut through the recharge area that is an integral aspect of the Gardner Spring resource that serves both our City and our neighbors in the County, putting all those who rely upon the water in jeopardy.

Please understand that I do not intend this letter to be exhaustive or even comprehensive and certainly not a formal brief in support of the City's position. I simply highlight aspects that even without a highly sophisticated submission beg for immediate pause and fundamental reconsideration of the DEIS and certainly against any approval. Actually, we ask that the Virginia Department of Environmental Quality (VDEQ) demonstrate the

exercise of independent judgment, even against what may be political pressures on your agency otherwise, and we request the DEQ itself lodge with the Federal Energy Regulatory Commission strong objection to the project at least as it relates to our water supply. Will you?

Our citizens are fortunate that our predecessor leaders of our City had the foresight to secure for them a vitally important water source referred to as Gardner Spring, which actually is located in neighboring Augusta County. Gardner Spring benefits residents both of our City and of Augusta County. The City initially acquired the rights to Gardner Spring in the 1930s. The precious water from Gardner Spring is processed at our City's water plant and then redistributed through pipelines in our City and into Augusta County to those who depend on it, including individuals and those in important Shenandoah Valley commerce. Our City has invested millions in not only our water plant but also more recently in new water lines that help to serve Augusta County users as well. Gardner Spring provides a majority of the water for our City residents, being capable of offering as much as or more than 5 million gallons of raw water per day for treatment by the City of Staunton, again both for the ultimate benefit of the City and of Augusta County.

The Gardner Spring resource is incontrovertibly priceless and any chance of it being put in jeopardy by the Atlantic Coast Pipeline project is actually putting the safety and the welfare of the City of Staunton and Augusta County and their users at risk. From what we can discern (and we are not engineers), nothing in Dominion's submission and nothing in the DEIS begins to address this critical resource in any meaningful way even though the DEIS acknowledges generally in section 4.1.2.3 potential underground damage because of Karst geology that prevails in our region. As the DEIS states, "Karst terrain is characterized by the presence of sinkholes, caverns, an irregular 'pinnacled' bedrock surface, and springs." Despite seemingly glibly admitting that "[t]hese features could present a hazard to the pipeline both pre- and post-construction due to cave or sinkhole collapse, and can also provide direct conduits from the ground surface to the groundwater, increasing the potential for groundwater contamination," nowhere is it obvious that Dominion has been required to have done and submitted to you or the Federal Energy Regulatory Commission an independent, detailed study and analysis of the potentially momentous adverse consequences for Gardner Spring, a major and critical water supply. It is not obvious to us that anything in the "Construction Impacts and Mitigation" aspects of the DEIS addresses Gardner Spring or, without specific reference by name, even anything similar to this uniquely vital water resource for so many who depend on it daily. If the DEIS includes such a discussion, would you or the Federal Energy Regulatory Commission point it out for us and our citizens in order that we may assess it?

We would anticipate that Dominion may attempt to assert that its proposed, huge pipeline does not go directly into the center of Gardner Spring; however, that contention would be illusory at best, because the proposed route is sufficiently near Gardner Spring that the recharge area of Gardner Spring is implicated and quite possibly directly jeopardized.

That recharge area is vital, because the bulk of the water that feeds Gardner Spring comes from an extensive underground aquifer system and network of karst channels that the DEIS has wholly failed to acknowledge, much less analyze. Gardner Spring's underground paths provide a fairly constant flow, allowing the spring to discharge a steady, reliable resource of critical water. The water, drawing from a large recharge area, is fed by precipitation, which enters the ground, and the water is discharged from Gardner Spring approximately 28 to 45 days later. The recharge contribution area for Gardner Spring may extend as many as five or more miles from Gardner Spring. **Where is that explicitly mentioned at all in the DEIS?**

Based on what we know about a spring water source generally and our own Gardner Spring, we believe that it is essential that any meaningful analysis of the environmental impact must be based on a careful, thorough consideration of the recharge area. Spring recharge areas are, without doubt, recognized to be as vital to the quality of groundwater resources as the center of the spring itself, perhaps more so in ways that are particularly pivotal in this instance. The water quality, without a spring recharge area "can be adversely affected by land uses that allow groundwater contamination to migrate into underlying aquifers." *Emery & Gardner Groundwater, Inc., Hydrogeologic Investigation of Gardner Spring* (July 2002). Even distant spills can reach Gardner Spring through the Karst aquifer system. As such, the Gardner Spring recharge area is highly susceptible to a wide variety of potential contaminants, and the area should continue to be protected from land uses that even might threaten the quality of the water.

Let me mention another consideration that is revealing about Dominion and this project that Dominion is trying to impose, selfishly for profits, on us and others. Several months ago, a City representative invited Dominion to visit with us and sit down just with our City Council and discuss the project, being mindful of the potentially calamitous implications for Gardner Spring. We could not have really imagined that Dominion would not join us around the table in our Caucus Room. To our surprise and dismay, Dominion arrogantly refused even the courtesy of a meeting discussion, rebuffing our request and invitation. That speaks volumes to us and to our City citizens—and should speak volumes to VDEQ and to the Federal Energy Regulatory Commission.

VDEQ declares that its mission "is to protect and improve the environment for the well-being of all Virginians." You also promise that "DEQ collaborates . . . to enhance the quality of our environment and to strengthen the role everyone plays in environmental protection." Will you collaborate with us and our citizens to protect Gardner Spring?

We hope and trust you are listening, even though we realize that some of Virginia's elected officials appear quite a while ago to have been advocating for the Atlantic Coast Pipeline project even well before the issuance of the DEIS. Despite the political muscle visited by Dominion and the pressure, will both VDEQ and the Federal Energy Regulatory Commission truly act independently and protect our environment, including our Gardner Spring?

So that you will appreciate perhaps even more the sincerity and consistency of our objection and advocacy now, I also enclose a copy of our City Council's resolution adopted October 23, 2014. As you and the Federal Energy Regulatory Commission know, many others also have objected to or taken issue with the project, which will cut through some of the priceless natural resource treasures in our region and state. We also are keenly mindful, as you should be, that the water coming from Staunton and Augusta County is the headwaters of both the James and Shenandoah rivers and eventually flows into our state's capital as well as into our nation's capital. Our City, beyond the reasons stated by many others for objection, objects strongly because its critical water resource now apparently is directly and indirectly implicated by the proposed route reflected in the DEIS.

We ask you to honor that promise and refuse to permit this pipeline project to proceed, advocating similarly with the Federal Energy Regulatory Commission. At the very least, we urge DEQ and the Federal Energy Regulatory Commission to insist that Dominion have independent outside professional engineers and other professionals, undertake and complete and publish for comment a detailed study regarding the potential implications for our Gardner Spring water source. Both VDEQ and the Federal Energy Regulatory Commission should mandate that Dominion complete and submit its study for public exposure and comment before the process proceeds further. **Will you or the Federal Energy Regulatory Commission insist that Dominion do so?**

We thank you for your time and consideration. We look forward to your and the Federal Energy Regulatory Commission's response in the near future. Please provide us with specific responses to our questions and, to use VDEQ's own words, honor the commitment to "protect and improve the environment for the well-being of all Virginians." **Will you, please do so—through action, not just words, forcing Dominion to respect your mission and the critical interests of Staunton and Augusta County citizens?**

Sincerely,

Carolyn W. Dull

Carolyn W. Dull
Mayor

cc: Federal Energy Regulatory Commission
Members of the Staunton City Council
Members of the Augusta County Board of Supervisors
Members of the Board of Directors of the Augusta County Service Authority

Enclosure

Atlantic Coast Pipeline Project
DEQ #16-248F
Docket Nos. CP15-554-000, CP15-554-001, and CP15-555-000
FERC/EIS-0274D

RESOLUTION OF THE
COUNCIL OF THE CITY OF STAUNTON, VIRGINIA
IN OPPOSITION TO ATLANTIC COAST PIPELINE

WHEREAS, Dominion Virginia Power has entered into what the company describes as a joint venture with three other major U.S. energy companies—Duke Energy, Piedmont Natural Gas and AGL Resources—to build and own a natural gas pipeline which will traverse portions of three states, including 11 counties and two cities in the Commonwealth of Virginia; and

WHEREAS, the proposed project will pass in close proximity to a public water source and boundary of the City; and

WHEREAS, representatives of Dominion Virginia Power, upon the invitation of City Council of the City of Staunton, Virginia, made a presentation about the project to Council at its meeting on August 28, 2014, held at Robert E. Lee High School to accommodate an overflow audience; and

WHEREAS, reflective of the considerable public interest in the project, dozens of individuals at the meeting, through questions submitted to City Council and comments made during the public comment period, registered their strong opposition to the project, as proposed; and

WHEREAS, members of City Council share many of the concerns expressed by citizens of the City and desire, as a body, to express their opposition to the project.

NOW, THEREFORE, BE IT RESOLVED by the Council of the City of Staunton, Virginia, that:

1. Council joins with other localities in the Commonwealth of Virginia, including the counties of Augusta and Nelson, in their expressions of concern about and opposition to the Atlantic Coast Pipeline.

2. Council opposes the construction of the Atlantic Coast Pipeline and urges Dominion Virginia Power and all others involved to reduce reliance on natural gas and to seek solutions for the 21st century, including conservation and renewable energy such as solar and wind power, that will satisfy future energy needs without imperiling the natural bounty and beauty of our region and the health and safety of our citizens.

3. In the event Dominion Virginia Power and its partners submit an application for construction of the Atlantic Coast Pipeline to the Federal Energy Regulatory Commission ("FERC"), Council, in the strongest possible terms, urges FERC to withhold approval of the project, on the basis that the natural gas to be transported is not believed to be required to serve the energy needs of Virginia or North Carolina (a significant portion of which can be satisfied by conservation and renewable energy

sources) and, therefore, the pipeline will neither serve the public interest nor satisfy the legal standard of "public convenience and necessity."

4. Council respectfully requests that the Governor of Virginia reconsider his public endorsement of the Atlantic Coast Pipeline, and, after consultation with the City of Staunton and other localities that would be impacted by the project and consideration of risks to the environment (including threats to karst environments and water supplies locally in the Shenandoah Valley, elsewhere in the Commonwealth of Virginia and in the District of Columbia and the State of Maryland) and the state's economy (including its agricultural and tourism sectors), oppose the project.

5. Council respectfully requests that Senator Mark Warner, Senator Tim Kaine and Congressman Bob Goodlatte join publicly in opposition to the project, communicate their opposition to FERC and take appropriate action to encourage FERC to withhold approval of the project.

6. In the event Dominion Virginia Power and its partners elect to proceed with the construction of the Atlantic Coast Pipeline, and the project is approved by FERC, Council implores Dominion Virginia Power and its partners to give full consideration to the use of existing utility and highway corridors for the project, so as to minimize, to the greatest extent possible, the impacts of construction, maintenance and operation of the project.

7. Council directs that the Clerk of Council send a copy of this resolution to Dominion Virginia Power, Senator Mark Warner, Senator Tim Kaine, Congressman Bob Goodlatte, Governor Terry McAuliffe and Cheryl A. LaFleur, Chairman of FERC.

Adopted this 23th day of October, 2014.

Carolyn W. Dull

Carolyn W. Dull, Mayor

Attest: Linda Little

Linda Little, Clerk of Council

CAROLYN W. DULL
MAYOR

DIRECT DIAL 540.332.3810
FACSIMILE 540.851.4001

CITY OF STAUNTON VIRGINIA

116 W. BEVERLEY STREET
P.O. BOX 58
STAUNTON, VA 24402

February 21, 2017

VIA EXPRESS DELIVERY

Mr. Nathaniel J. Davis, Sr.
Deputy Secretary
Federal Energy Regulatory Commission
888 First Street N.E., Room 1A
Washington, D.C. 20426

Re: Atlantic Coast Pipeline Project
Docket Nos. CP15-554-000, CP15-554-001, and CP15-555-000
FERC/EIS-0274D

Dear Mr. Davis:

Enclosed please find a letter (with enclosure) sent this date on behalf of the City of Staunton, Virginia, to Ms. Julia Wellman, Environmental Impact Review Coordinator of the Virginia Department of Environmental Quality (VDEQ), with comments made on behalf of the city concerning the draft environmental impact statement for the Atlantic Coast Pipeline Project. I call particular attention to the city's request that Atlantic Coast Pipeline, LLC and Dominion Transmission, Inc. be required to complete and submit to the Federal Energy Regulatory Commission or VDEQ an independent, detailed study and analysis of the potentially momentous adverse consequences of the project for Gardner Spring, a major and critical water supply of the city.

Sincerely,

Carolyn W. Dull

Carolyn W. Dull
Mayor

Enclosure

cc: Members of the Staunton City Council (w/o enclosure)
Members of the Augusta County Board of Supervisors (w/o enclosure)
Members of the Board of Directors of the Augusta County Service Authority (w/o enclosure)
Julia Wellman, Virginia Department of Environmental Quality (w/o enclosure)

Wellman, Julia (DEQ)

From: Green, Charles (VDACS)
Sent: Thursday, January 12, 2017 11:15 AM
To: Wellman, Julia (DEQ)
Cc: Tignor, Keith (VDACS)
Subject: RE: NEW PROJECT FERC Atlantic Coast Pipeline DEQ 16-248F

Follow Up Flag: Follow up
Flag Status: Flagged

Julia,
Thank you. In looking over the draft EIS, I am comfortable with the stated impact to prime farmland. As I believe is highlighted in the draft, the permanent impact on prime farmland is de minimis. While the areas of prime farmland impacted during construction would be greater, these areas of prime farmland or farmland of statewide importance that are temporarily impacted and currently in agriculture could return to that use after construction. Construction of aboveground facilities and permanent access roads would permanently impact 228.2 acres of prime farmland and 213.2 acres of farmland of statewide importance.

Charles Green
Deputy Commissioner
Virginia Department of Agriculture & Consumer Services

From: Wellman, Julia (DEQ)
Sent: Thursday, January 12, 2017 10:47 AM
To: Green, Charles (VDACS)
Cc: Tignor, Keith (VDACS)
Subject: FW: NEW PROJECT FERC Atlantic Coast Pipeline DEQ 16-248F

Mr. Green,

I believe you were on the Secretary's conference call this morning regarding the pipelines. I'm forwarding you the request to review the draft EIS and the proposed route shapefiles (which were provided by Dominion). (Keith is our contact, so I have copied him.) If you need anything regarding the draft EIS, please feel free to reach out.

Thank you.

Julia Wellman
Environmental Impact Review Coordinator
Department of Environmental Quality
629 E Main Street
Richmond, VA 23219
(804) 698-4326
Julia.Wellman@deq.virginia.gov
www.deq.virginia.gov

**** For program updates and public notices, please subscribe to the OEIR News Feed.****

Virginia Department of Health Review Comments

DEQ #16-248F
Atlantic Coast Pipeline Project

Office of Drinking Water

The Office of Drinking Water has reviewed the Atlantic Coast Pipeline project. Below are our comments as they relate to proximity to public drinking water sources (groundwater wells, springs and surface water intakes). Potential impacts to public water distribution systems or sanitary sewage collection systems must be verified by the local utility.

The following public groundwater wells are located within a 1 mile radius of the project site (wells within a 1,000 foot radius are formatted in **bold**):

PWSID	City/County	Waterworks Name	Facility Name
2015200	AUGUSTA	DEERFIELD - ACSA	DEERFIELD SPRING
2015200	AUGUSTA	DEERFIELD - ACSA	DEERFIELD WELL
2015821	AUGUSTA	WHITES WAYSIDE DINER	WELL
2125020	NELSON	WINTERGREEN GROCERS	WELL
2125026	**NELSON**	**BOLD ROCK CIDERY**	**DRILLED WELL**
2125056	NELSON	DEVILS BACKBONE BREWING COMPANY	WELL #1 (EMERGENCY ONLY)
2125398	NELSON	WILD WOLF BREWING COMPANY	WELL 1
2125910	NELSON	NCSA - WINTERGREEN	WELL 12
2125910	NELSON	NCSA - WINTERGREEN	WELL 16
2125920	**NELSON**	**WINTERGREEN - RECEPTION CENTER**	**DRILLED WELL**
3081730	**GREENSVILLE**	**ROLLING ACRES - FOX RUN**	**WELL 1**
3175100	SOUTHAMPTON	BOYKINS_BRANCHVILLE SYSTEM	WELL NO. 3 (BRANCHVILLE)
3175100	SOUTHAMPTON	BOYKINS_BRANCHVILLE SYSTEM	WELL NO. 2 (BOYKINS)
3175100	SOUTHAMPTON	BOYKINS_BRANCHVILLE SYSTEM	WELL NO. 1 (BOYKINS)
3175460	**SOUTHAMPTON**	**KINGSDALE ARTIS**	**DRILLED WELL**
3175461	SOUTHAMPTON	KINGSDALE MOSELEY	DRILLED WELL
3175500	SOUTHAMPTON	TOWN OF NEWSOMS	DRILLED WELL NO. 1
3175500	SOUTHAMPTON	TOWN OF NEWSOMS	DRILLED WELL NO. 2
3175720	SOUTHAMPTON	TURNER TRACT WATER SYSTEM	WELL #1
3175720	SOUTHAMPTON	TURNER TRACT WATER SYSTEM	WELL #2
3550051	CHESAPEAKE	CITY OF CHESAPEAKE - NORTHWEST RIVER SYS	WESTERN BRANCH WELL NO. 1
3550051	CHESAPEAKE	CITY OF CHESAPEAKE _ NORTHWEST RIVER SYS	WB #3
3550705	CHESAPEAKE	PLANTATION MOBILE HOME PARK	WELL NO. 2
3550800	CHESAPEAKE	SUNRAY WATER CO., INC.	DRILLED WELL #2
3710100	NORFOLK	NORFOLK, CITY OF	WELL NO. 1
3710100	NORFOLK	NORFOLK, CITY OF	WELL NO. 4
3710100	NORFOLK	NORFOLK, CITY OF	WELL NO. 2

Virginia Department of Health Review Comments

DEQ #16-248F
Atlantic Coast Pipeline Project

3800629	SUFFOLK	FARMER FRANKS	DRILLED WELL
3800694	SUFFOLK	PRUDEN CENTER FOR INDUSTRY & TECHNOLOGY	WELL
3800800	SUFFOLK	SPSA REGIONAL LANDFILL-SUFFOLK	DRILLED WELL
3800830	SUFFOLK	TIDEWATER AGRI RESEARCH & EXT CTR	DRILLED WELL
5025550	BRUNSWICK	NOTTOWAY ACRES SUBDIVISION	WELL NO.3

The following surface water intakes are located within a 5 mile radius of the project site:

PWSID	Waterworks Name	Facility Name
2015575	SOUTH RIVER SANITARY DISTRICT	COLES RUN RESER
2125650	NCSA - SCHUYLER	JOHNSONS BRANCH
2125910	NCSA - WINTERGREEN	LAKE MONACAN (ALLEN CREEK) INTAKE
2125910	NCSA - WINTERGREEN	STONEY CREEK (PEGGY'S PINCH) INTAKE
2125910	NCSA - WINTERGREEN	VALLEY POND INTAKE
2790600	STAUNTON, CITY OF	NORTH RIVER DAM
2790600	STAUNTON, CITY OF	MIDDLE RIVER
3595250	EMPORIA, CITY OF	MEHERRIN RIVER
3710100	NORFOLK, CITY OF	WESTERN BRANCH
3710100	NORFOLK, CITY OF	LAKE PRINCE
3740600	PORTSMOUTH, CITY OF	LAKE MEADE
3740600	PORTSMOUTH, CITY OF	PITCHKETTLE RAW WATER
3740600	PORTSMOUTH, CITY OF	LAKE KILBY
3800805	SUFFOLK, CITY OF	LONE STAR LAKE
3800805	SUFFOLK, CITY OF	CRUMPS MILL POND
5029085	BUCKINGHAM CO WATER SYSTEM	TROUBLESOME CRK
5135160	CREWE, TOWN OF	CRYSTAL LAKE
5147170	FARMVILLE, TOWN OF	APPOMATTOX RIVER

Virginia Department of Health Review Comments

DEQ #16-248F
Atlantic Coast Pipeline Project

The project is located within the watershed of the following public surface water sources (intakes where the project falls within 5 miles into their watershed are formatted in **bold**):

PWSID	Waterworks Name	Facility Name
2043125	TOWN OF BERRYVILLE	SHENANDOAH RIVER
2043634	MOUNT WEATHER	SHENANDOAH RIVER
2163550	MAURY SERVICE AUTHORITY	MAURY RIVER
2187406	FRONT ROYAL, TOWN OF	SOUTH FORK SHENANDOAH RIVER
2580100	COVINGTON, CITY OF	JACKSON RIVER
2790600	**STAUNTON, CITY OF**	**MIDDLE RIVER**
3081550	GCWSA - JARRATT	NOTTOWAY RIVER INTAKE
3595250	**EMPORIA, CITY OF**	**MEHERRIN RIVER**
3670800	VIRGINIA-AMERICAN WATER CO	APPOMATTOX RIVER
3710100	NORFOLK, CITY OF	NOTTOWAY RIVER
3710100	**NORFOLK, CITY OF**	**WESTERN BRANCH**
3710100	**NORFOLK, CITY OF**	**LAKE PRINCE**
3740600	PORTSMOUTH, CITY OF	LAKE KILBY
3740600	PORTSMOUTH, CITY OF	LAKE MEADE
3740600	PORTSMOUTH, CITY OF	PITCHKETTLE RAW WATER
4041035	APPOMATTOX RIVER WATER AUTHORITY	LAKE CHESDIN RAW WATER INTAKE
4075735	JAMES RIVER CORRECTIONAL CTR	JAMES RIVER INTAKE
4087125	HENRICO COUNTY WATER SYSTEM	HENRICO RAW WATER INTAKE
4760100	RICHMOND, CITY OF	RAW WATER INTAKE
5680200	LYNCHBURG, CITY OF	JAMES RIVER-COLLEGE HILL
5680200	LYNCHBURG, CITY OF	JAMES RIVER-ABERT
6059501	FAIRFAX COUNTY WATER AUTHORITY	INTAKE (POTOMAC RIVER)
6107300	LEESBURG, TOWN OF	POTOMAC INTAKE

Best Management Practices (BMPs) should be employed on the project site, including Erosion & Sediment Controls as well as Spill Prevention Controls & Countermeasures.

Care should be taken while transporting materials in and out of the project site, as to prevent impacts to surface water intakes within 5 miles.

There may be impacts to public drinking water sources due to this project if the mitigation efforts outlined above are not implemented.

Office of Environmental Health Services, Division of Onsite Sewage and Water Services

See attached memo from Dwayne Roadcap, Division Director, dated January 27, 2017.

Virginia Department of Health Review Comments

DEQ #16-248F
Atlantic Coast Pipeline Project

Office of Environmental Health Services, Division of Shellfish Sanitation

See attached memo from B. Keith Skiles, Division Director, dated February 3, 2017.

Office of Epidemiology, Division of Environmental Epidemiology

No comments.

Office of Radiological Health

No comments.

January 27, 2017

Memorandum on Atlantic Coast Pipeline Project

To: Drew Hammond, Acting Director, ODW
Arlene Warren, Policy and Planning Specialist

Through: Allen Knapp, Director, OEHS

From: Dwayne Roadcap, Division Director

RE: Comments regarding the Atlantic Coast Pipeline from OEHS

This is in reply to your request for additional comments on the Atlantic Coast Pipeline project as requested by the Department of Environmental Quality.

Our understanding is that the pipeline's path and exact location may change and is not finalized at this time. Once the pipeline's path and exact location is known, then records at each local county health department can be reviewed to determine what records are available with respect to wells and onsite sewage systems.

In 1990, the Board of Health promulgated the Private Well Regulations (12VAC5-630-10 et. seq.), which establish requirements for the location and construction of private wells in the Commonwealth. These requirements include minimum separation distances from contaminant sources and other features contained in section 380 and Table 3.1. You can find a copy of the Private Well Regulations here. Homeowners in the counties associated with the pipeline could be using springs, cisterns, hand-dug wells, and drilled wells near the pipeline's path. These water systems would likely have varying types of construction and not meet today's construction standards or regulations.

Protecting water quality for these property owners is a paramount concern so once the pipeline's location is confirmed, OEHS would recommend that a complete sanitary survey along the pipeline's path be performed by a team of persons with expertise in geology, hydro-geology, epidemiology, and public health. OEHS recommends that a sanitary survey within 1,000 feet on either side of the pipeline be performed at a minimum to ensure people and properties using local and regional groundwater and surface water for recreational use or human consumption are identified and protected. Keep in mind that some wells may be located below the ground surface and not visible to the eye, which might require a door-by-door assessment in some cases.

In November, 2014, OEHS provided Natural Resources Group (NRG), working on behalf of ACP, with available electronic information regarding the location of private wells constructed in the proposed project area. Please note, only wells permitted since 2003 are included in the information provided to NRG. Records for private wells constructed prior to 2003 may be available in hard copy, but many owners are likely to be using water sources that pre-date 2003. VDH recommends that the project team performing the sanitary survey contact each local health department in the project area to obtain additional hard copy records to assure appropriate

separation distances will be maintained between the proposed pipeline and private wells, springs, or cisterns serving nearby properties. You can find contact information for local health departments at http://www.vdh.virginia.gov/home/local-health-districts .

In additional to private well records, each local health department has records regarding the location of onsite sewage (septic) systems. In addition to making sure the pipeline does not impact groundwater and drinking water systems, the project team leading the sanitary survey project should identify onsite sewage systems near the pipeline's final path. Property owners must submit an application to the local health department in which the property is located to relocate any onsite sewage system impacted by the pipeline's construction.

The pipeline permitting and approval process should provide numerous options and safeguards to protect local and regional surface water and aquifers. The pipeline goes pass through karst topography, which presents specialized concerns. The Atlantic Coast Pipeline will likely have a 42-inch diameter piping system. Burying the pipeline, if necessary, would likely require clearing wide swaths of brush, digging, boring, drilling, blasting and use of fuels and lubricants for heavy equipment. These activities can adversely affect karst landscapes or possibly create new sinkholes depending on site grading and landscaping.

The pipeline project needs to protect public health as follows:

- FERC and/or the Atlantic Coast Pipeline project owners should provide VDH with copies of permits, plans, and studies performed throughout the project so VDH can stay informed, review material, and provide informal comments as necessary throughout the process.

- FERC should provide a mechanism to keep the public and local property owners informed through public notice and solicitation of public comments (i.e., 30-day comment period). Holding informational meetings to gather public input on the issues of water supply and recreational water to assess the impact of the project would be valuable. VDH should be invited to participate and offer formal comments though the permitting and application process. Specifically, VDH recommends receiving public comments related to the following questions:

    1. What are the public's concerns related to the impact of the project on water quality and quantity of private wells?
    2. What are the public's concerns related to the impact of the project on recreational use of surface water?
    3. What role should VDH play in assuring that public health is protected in regard to private wells and recreational water use in regard to the project?
    4. What safeguards should be in place to protect private wells and recreational water?
    5. Are additional legislative safeguards desired to protect human health, drinking water, or recreational water?

- FERC should acknowledge and address public comments received and defend any decision to issue an approval for the pipeline. VDH stands ready to help ensure VDH's comments are adequately addressed.

- The public should be allowed to request a public hearing on the project so that questions and information can be provided.

COMMONWEALTH of VIRGINIA
Department of Health
DIVISION OF SHELLFISH SANITATION
109 Governor Street, Room 614-B
Richmond, VA 23219
Ph: 804-864-7487
Fax: 804-864-7481

MEMORANDUM

DATE: 2/3/2017

TO: Julia H. Wellman
Department of Environmental Quality

FROM: B. Keith Skiles, MPH, Director
Division of Shellfish Sanitation

SUBJECT: Atlantic Coast Pipeline

City / County: Cities of Suffolk and Chesapeake

Waterbody: Nansemond River (Mainsteam & West Branch), Southern Branch Elizabeth River

Type: ☐ VPDES ☐ VMRC ☐ VPA ☐ VWP ☐ JPA ☑ Other: Draft Environmental Impact Statement

Application / Permit Number: 16-248F

☐ The project will not affect shellfish growing waters.

☐ The project is located in or adjacent to approved shellfish growing waters, however, the activity as described will not require a change in classification.

☐ The project is located in or adjacent to condemned shellfish growing waters and the activity, as described, will not cause an increase in the size or type of the existing closure.

☐ The project will affect condemned shellfish waters and will not cause an increase in the size of the total condemnation. However, a prohibited area (an area from which shellfish relay to approved waters for self-purification is not allowed) will be required within a portion of the currently condemned area. See comments.

☐ A buffer zone (including a prohibited area) has been previously established in the vicinity of this discharge, however, the closure will have to be revised. Map attached.

☐ This project will affect approved shellfish waters. If this discharge is approved, a buffer zone (including a prohibited area) will be established in the vicinity of the discharge. Map attached.

☑ Other. The December 2016 proposed route of the project will cross condemned shellfish growing waters in three locations: 1] Western Branch Nansemond River, 2] Nansemond River, and 3] Southern Branch Elizabeth River. The activity, as described, will not cause an increase in the size or type of these existing shellfish closures provided the pipeline infrastructure is installed and operated in a safe and prudent manner that is free from the release of any harmful materials into these watersheds.

ADDITIONAL COMMENTS:

Area #: 63, 65

eta

COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION
1401 EAST BROAD STREET
RICHMOND, VIRGINIA 23219 2000

Charles A. Kilpatrick, P.E.
Commissioner

March 3, 2017

Julia Wellman
Department of Environmental Quality
Office of Environmental Impact Review
629 E. Main Street, 6th Floor
Richmond, VA 23219

RE: Atlantic Coast Pipeline (DEQ Project Number 16-248F)

Dear Ms. Wellman -

The Virginia Department of Transportation is providing comments on the Draft Environmental Impact Statement (DEIS) for the Atlantic Coast Pipeline (ACP) and Supply Header Project (SHP) as proposed by Atlantic Coast Pipeline, LLC (Atlantic) and Dominion Transmission, Inc. (DTI), respectively. The below represents the general comments of our agency.

General (Statewide) Comments

1. VDOT requests that FERC include in the Final EIS and the Record of Decision the following:
    a. a commitment for Atlantic and DTI to document the existing conditions of affected roadways, pavement conditions, and drainage structures in Virginia prior to construction and to provide this documentation to VDOT;
    b. a commitment for Atlantic and DTI to monitor and report conditions throughout construction and for a period of two years following construction completion ; and
    c. a clear commitment for Atlantic and DTI to restore roadway features to pre-construction conditions or better.
2. Any work that occurs within VDOT right-of-way or easements or impacts vehicular traffic operations on VDOT highways will be required to comply with the Land Use Permit Regulations (24VAC30-151) and all current VDOT specifications and standards, including the Virginia Work Area Protection Manual.

3. Detailed plans for all work within the right-of-way will need to be submitted and approved by VDOT prior to land use permit issuance.
4. A detailed traffic management plan, encompassing how traffic will be managed or detoured during highway improvements for handling construction traffic and during pipeline installation across highways should be provided as part of the FERC EIS or required to be provided prior or concurrently with detailed plans for work within the highway right-of-way.
5. Any parallel installations of pipeline in highway right-of-way should be located as close to the edge of the right-of-way as possible.
6. Experience in some districts with the movement of heavy loads has shown that construction traffic in the winter may have an inordinate destructive impact compared to such traffic in warmer seasons. Movement of heavy loads or equipment (construction traffic) should occur mostly in the normal construction season. If construction is on-going in the winter, such traffic should be limited as much as practicable during cold weather.
7. Entrances along roadways impacted by pipeline construction should remain open as much as practicable. If closures are necessary, negotiation with the entrance owners and provision of alternate access or other accommodations will have to be provided as part of the project.
8. Crossings of limited access highway right-of-way should be made as close as possible to perpendicular to the right-of-way and will require additional approvals.
9. Crossings of state highways should, when practicable, be made without open-cutting the pavement.

In addition to the above requests we are also providing the attached additional comments from VDOT districts impacted by the project. We trust you find these comments informative and ask that you reach out to Mr. Robert Hofrichter at 804-786-0780 should you have questions or need additional clarifications.

Regards,

Angel N. Deem
Environmental Division Director

Attachment

cc: Mr. Robert Hofrichter, VDOT

Attachment
Atlantic Coast Pipeline (DEQ Project Number 16-248F)
Summary of VDOT District-Specific Comments

Staunton District

1. The current pipeline route will impact Highland, Bath, and Augusta Counties within the district.

Lynchburg District

1. The current pipeline route will impact Nelson, Buckingham, Cumberland, and Prince Edward Counties within the district, for a length of approximately 68.7 miles.
2. The current plan shows a compressor station in Buckingham County near Route 56.
3. There is one active VDOT Secondary Six-Year Plan project that overlaps the planned ACP project in the district: Route 644 between Route 24 and Route 638 (UPC T18765).
4. Two active projects are relatively close to the ACP route and should be closely monitored during construction phase for potential conflicts: Route 737 between Route 664 and Route 601 (UPC T18770) and Route 151 at Route 664 (UPC 109528).
5. There are eight planned repaving and treatment jobs currently scheduled along or near the ACP route.
    a. Route 151 from 0.105 mile North of Route 664 to Route 612 (UPC 109694)
    b. Route 722 from Route 56 to Route 645 (UPC 109318)
    c. Route 646 from Route 56 to end of hard surface (UPC 109152)
    d. Route 626 from Route 56 to Route 743 (UPC 107453)
    e. Route 633 from Route 15 to Route 640 (UPC 109151)
    f. Route 609 from Route 636 to Route 15 (UPC 107498)
    g. Route 633 from Route 15 to Route 640 (UPC 109151)
    h. Route 15 from Route 636 to 0.92 mile North of Route 633 (UPC 107925)

Richmond District

1. ACP work may have an impact on the following major highways in Richmond District: I-85, I-95, Route 58, Route 360, and Route 460.
2. The ACP project may have an impact on an active VDOT project: Route 616 in Dinwiddie County (UPC 106204).

Hampton Roads District

1. The current pipeline route will impact Greensville and Southampton Counties and the Cities of Suffolk and Chesapeake within the district, for a length of approximately 75.7 miles.
2. The pipeline should coordinate plans with municipal authorities for construction of roadways in Chesapeake and Suffolk.

COMMONWEALTH of VIRGINIA

Marine Resources Commission
2600 Washington Avenue
Third Floor
Newport News, Virginia 23607

Molly Joseph Ward
Secretary of Natural Resources

John M.R. Bull
Commissioner

February 22, 2017

Ms. Julia Wellman
Department of Environmental Quality
Office of Environmental Impact Review
629 E. Main Street, 6th Floor
Richmond, VA 23219

Re: Atlantic Coast Pipeline and
Supply Header Project
Draft Environmental Impact Statement
FERC/EIS-0274D

Dear Ms. Wellman:

This will respond to your agency's request for review of the above-referenced Draft Environmental Impact Statement (DEIS) prepared by the Federal Energy Regulatory Commission (FERC). Atlantic Coast Pipeline, LLC (Atlantic) and Dominion Transmission, Inc. (DTI), request authorization to construct and operate a total of 641.3 miles of an interstate natural gas transmission pipeline, known as the Atlantic Coast Pipeline (ACP) and Supply Header Project (SHP), in Docket Numbers CP15-554-000, CP15-554-001, and CP15-555-000. The two projects, when considered as one, propose work in Pennsylvania, West Virginia, Virginia and North Carolina. Together these projects would provide about 1.44 billion cubic feet per day of natural gas to electric generation, distribution, and end use markets in Virginia and North Carolina.

As proposed, all work associated with the SHP is restricted to West Virginia and Pennsylvania. As such, all comments to follow will be restricted to the ACP, which proposes work in West Virginia, Virginia and North Carolina. In Virginia, the ACP will be constructed within a right-of-way originating in Highland County and will pass through multiple Counties and beneath multiple waterways, exiting the Commonwealth in Greensville County.

The Virginia Marine Resources Commission (Commission), as the custodian of Virginia's submerged lands, has the proprietary authority and responsibility to issue permits for activities that take place over, under, through and on all submerged lands throughout the Commonwealth. This authority is based on the Commonwealth's ownership of submerged lands, as provided for in Chapter 12 of Title 28.2 of the Code of Virginia, and was clarified through an opinion by Gerald L. Baliles, Attorney General, on May 3, 1982. This opinion stated, in part, that "(t)he Commission should assume that all streams above some administratively determined minimum size...." are subject to its jurisdiction. The Commission has defined the minimum size of non-tidal waterways as those perennial streams with a drainage area of five (5) square miles or with a mean annual instream flow of five (5) cubic feet per second.

Given these thresholds, VMRC will exert jurisdiction over 92 of the project's 663 non-tidal stream crossings in Virginia, based on drainages areas currently identified in the DEIS, and three (3) tidal streams. The project will additionally impact approximately 67,954 square feet (1.56 acres) of tidal wetlands in the City of Chesapeake. The Commission is acting as the local wetlands board, pursuant to Chapter 13 of Title 28.2 of the Code of Virginia, for the proposed project since the City of Chesapeake has not adopted the model wetlands ordinance contained within the Virginia Wetlands Act.

Proposed activities within the non-tidal waterways identified in the DEIS with less than a five (5) square mile drainage basin, or in adjacent non-tidal wetlands and uplands, do not require authorization from this agency.

For the jurisdictional stream crossings, appropriate construction methodologies for buried utilities routinely permitted by the Commission include directional drill, cofferdam construction, dam and pump or flume-around technology. Since ACP proposes to install the Virginia portion of the proposed pipeline with the aforementioned construction methodologies and best management practices, the Commission currently views this component of the project as consistent with its Subaqueous Guidelines.

We also understand that the applicant has been working with the Department of Game and Inland Fisheries (DGIF) regarding project specific impacts to freshwater aquatic resources for all waterbody crossings. As such, the Commission recommends that the FEIS include a table citing the DGIF recommendations at each of the VMRC non-tidal jurisdictional stream crossings and the applicant's intention of following those recommendations.

We recommend that all proposed VMRC jurisdictional stream crossings adhere to the Commission's standard instream permit conditions listed below:

(1) A "frac-out" contingency plan must be provided for any crossings utilizing the directional drill method to address potential frac-outs or related spills associated with any directional drilling activities. In an effort to minimize adverse impacts to threatened and endangered fish and mussel species, instream surveys and species relocations may be required;
(2) No instream construction shall be conducted during any recommended time-of-year restrictions of any year unless waived by DGIF in writing;
(3) The instream construction activities shall be accomplished during low flow periods utilizing dam and pump, flume around or within cofferdams constructed of non-erodible materials in such a manner that no more than half the width of the waterway is obstructed at any point in time. All areas of State-owned bottom and adjacent lands disturbed by this activity shall be restored to their original contours and natural conditions within thirty (30) days from the date of completion of the authorized work. All excess materials shall be removed to an upland site and contained in such a manner to prevent its reentry into State waters;

(4) Erosion and sediment control measures shall be in conformance with the 1992 Third Edition of the Virginia Erosion and Sediment Control Handbook and shall be employed throughout construction;
(5) If it is determined that blasting is necessary at any of the crossings, DGIF shall be notified a minimum of 48 hours in advance of the blasting;
(6) The Department of Conservation and Recreation shall be contacted for any stream crossings where karst landscape features are encountered during installation;
(7) DGIF shall be contacted for any work in trout waters to avoid conflicts with trout stocking activities.

We also concur with FERC's recommendations that, prior to completing any geotechnical boring beneath streams in karst terrain, Atlantic should consult with VDCR karst protection personnel regarding each geotechnical boring and follow the Virginia Cave Board's "Karst Assessment Standard Practice" for land development when completing borings.

Lastly, for all proposed temporary and permanent tidal wetland impacts, VMRC recommends that the FEIS contain a copy of the final wetland mitigation plans for consideration by Commission staff. Additionally, Atlantic and DTI should implement the measures identified in their *Invasive Plant Species Management Plan* to minimize the potential introduction of the invasive common reed, *Phragmites australis*, for all wetland crossing sites except for site wChro002.

Please be advised that the Commission's final permit action and identification of specific permit conditions cannot be finalized until completion of the National Environmental Policy Act (NEPA) documentation and our public interest permit review process.

Should you have any questions regarding this letter, please feel free to contact me at (757) 247-2200.

Sincerely,

Randal D. Owen
Environmental Engineer

RDO/lra
HM
cc: John M. R. Bull, Commissioner
Tony Watkinson, Chief Habitat Management
Ray Fernald, Department of Game and Inland Fisheries
Dr. Mark Luckenbach, Virginia Institute of Marine Science

VIRGINIA OUTDOORS FOUNDATION

March 10, 2017

Ms. Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street NE, Room 1A
Washington, D.C. 20426

RE: **Atlantic Coast Pipeline, LLC**
Atlantic Coast Pipeline
Docket No. CP15-554-001
VOF comments on the DEIS

Dear Secretary Bose:

The Virginia Outdoors Foundation (VOF) would like to file comments with FERC on the Draft Environmental Impact Statement (DEIS) issued on December 30, 2016 and to provide an update on the VOF Board of Trustees meeting held on February 9th, 2017 where Atlantic Coast Pipeline (ACP) presented its applications for conversion of open space land on 10 VOF easements.

The DEIS issued by FERC on December 30th addressed the VOF open space easements potentially impacted by the ACP in several areas. In section 3.4.1 FERC addressed the Spruce Creek Variation, which would cross an 11th VOF open space easement in Nelson County. The VOF wrote a letter to FERC on September 6, 2016 stating that crossing this open space easement could impair the significant resources found on the property including historic sites, scenic protection, open farm land, riparian areas, deciduous woodlands and diverse wildlife habitat.

In the DEIS, after comprehensive analysis, your staff stated that, "based on the factors discussed above and information presented in the numerous comment letters filed for these routes, it does not appear that the Spruce Creek Route Variation would offer a significant environmental advantage when compared to Atlantic's proposed route and we do not recommend that it be incorporated as part of the project." VOF supports the FERC staff determination and hopes that this recommendation will be incorporated into the Final Environmental Impact Statement (FEIS).

Even without the inclusion of this 11th open space easement in Nelson County, the Commonwealth's protected conserved lands and VOF's open space program would be significantly impacted by this project. FERC staff made the following statement regarding the crossing of 10 open space easements: "based on a review of the regulations pertaining to VOF easements, it is believed that the project would not be precluded from establishing an easement for ACP on each VOF easement crossed. Atlantic submitted applications for each easement for minor conversions and, along with the VOF, agreed to defer VOF consideration of Atlantic's conversion applications until after publication of this EIS."

The VOF has consistently taken the position that construction, maintenance and operation of the interstate gas transmission line is inconsistent with the open space protections afforded by the subject easements. Therefore, the construction, operation and maintenance of the ACP will constitute a conversion of the easement property as outlined in Va. Code § 10.1-1704. VOF has stated on many previous occasions that the impact is very significant and by no means "minor".

ACP presented its applications for conversion of open space on the 10 VOF easements in Highland, Bath, Augusta and Nelson Counties at the February 9, 2016 VOF Board of Trustees meeting. The VOF Board of Trustees (BOT) heard presentations by both the ACP and VOF staff on the applications and the proposed mitigation for converting open space land. The BOT also heard comments from many landowners, including landowners directly impacted by the project on VOF easement land. They also heard from various individuals and organizations opposed to and in support of the pipeline.

After listening to all the information presented during the public comment period and by the ACP and VOF staff, the Board voted to defer a decision on the Atlantic Coast Pipeline applications. However, to ensure that FERC has the benefit of the staff's conclusions and findings, the Board directed the Executive Director to provide FERC with the VOF staff reports on the ACP conversion applications.

Attached to this filing, you will find the 10 VOF staff reports for the ACP applications. These reports include a great deal of background information on the VOF easements, as well as the findings of the staff on the statutory requirements under §10.1-1704 of the Code of Virginia. The appendices of the reports include: ACP applications for Conversion of Open Space; Correspondences; VOF Baseline Documentation Reports; VOF Open Space Deeds of Easement; Staff Site Investigation and Analysis; Permanent Impact Profiles; Open Space Land Act, Section 10.1-1704 Language; County Statements; and reference to comprehensive Substitute Land Reports titled Hayfields Farm and Rockfish River Parcel.

The final conclusions for each application are found at the end of each staff report. These conclusions included a number of recommended conditions that should be imposed on any approval of the ACP applications. Specifically, the conclusions provide:

If the Board of Trustees finds that ACP applications meet the requirements of Section 10.1-1704, staff would recommend the following conditions:

- *Issuance of a Certificate of Public Convenience and Necessity (Certificate) by FERC and all other necessary state and federal permits for the proposed ACP route crossing this easement.*

- *VOF approval and sign off of final ROW easement permitting only a permanent 50-foot easement for one 42-inch diameter underground natural gas pipeline and the associated permanent access road easement. No above-ground structures are permitted within this permanent ROW except for above ground pipeline markers as required by law.*

- *ACP transfer of fee-simple interest to VOF of the proposed 1,034-acre Hayfields Farm Property and Rockfish River Parcel as Substitute Land for the converted areas of the open-space easement property.*

- *The acceptance of funds from ACP to: (i) serve as a Stewardship Fund to support VOF with the operation and management of the substitute properties, and (ii) partially offset VOF's unreimbursed costs associated with the ACP.*

- *Written requests from both VOF and ACP to FERC to include the above stated requirements as conditions of the FERC approval.*

Additional site specific conditions may be developed with ACP representatives and the current landowner of the easement property such as minimizing the extent of the permanent easement and construction footprint where feasible, developing pollinator corridors and restoring other natural habitat areas to help preserve the purpose of the open-space deed of easement.

If a Final EIS is issued for this project, VOF respectfully requests these conditions be included in the Final EIS as requirements ACP must satisfy. Additionally, if a Certificate of Public Convenience and Necessity is issued for this project, VOF respectfully requests these conditions be included in the Certificate as requirements ACP must satisfy.

VOF appreciates the opportunity to provide comments on the DEIS and additional information on VOF's own review process. We hope that this will assist FERC in its analysis and preparation of the Final Environmental Impact Statement (FEIS). Please contact Martha Little at 804-577-3337 or via email at mlittle@vofonline.org with any questions, comments or concerns.

Respectfully,

Brett Glymph

Brett Glymph
Executive Director, VOF

CC [EMAIL ONLY]:

- Molly Plautz, External Affairs Manager, Federal Affairs, Dominion Resources Services, Inc.

Document Content(s)