ATLANTIC COAST PIPELINE, LLC
ATLANTIC COAST PIPELINE

and

DOMINION TRANSMISSION, INC.
SUPPLY HEADER PROJECT

Supplemental Filing
February 24, 2017

APPENDIX L

Response to the Fish and Wildlife Service

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

February 24, 2017

Ms. Sumalee Hoskins
U.S. Fish and Wildlife Service
Virginia Ecological Services Field Office
Gloucester, Virginia 23061

Re: Atlantic Coast Pipeline and Supply Header Project Response to U.S. Fish and Wildlife Service letter to FERC dated January 31, 2017

Dear Ms. Hoskins:

Atlantic Coast Pipeline, LLC (Atlantic) is a company formed by four major U.S. energy companies – Dominion, Duke Energy, Piedmont Natural Gas, and Southern Company Gas. The company was created to develop, own, and operate the proposed Atlantic Coast Pipeline (ACP), an approximately 600-mile-long, interstate natural gas transmission pipeline system designed to meet growing energy needs in Virginia and North Carolina. For more information about the ACP, visit the company's website at www.dom.com/acpipeline. Atlantic has contracted with Dominion Transmission, Inc. (DTI), a subsidiary of Dominion, to permit, build, and operate the ACP on behalf of Atlantic.

In addition, DTI proposes to construct and operate approximately 37.5 miles of pipeline loop and modify existing compression facilities in Pennsylvania and West Virginia. This project is referred to as the Supply Header Project (SHP) and will enable DTI to provide firm transportation service of up to 1.5 million dekatherms per day to various customers, including Atlantic. Atlantic will be a Foundation Shipper in the SHP, and will utilize the SHP capacity to allow its shippers access to natural gas supplies from various DTI receipt points for further delivery to points along the ACP.

Atlantic and DTI are seeking authorization from the Federal Energy Regulatory Commission (FERC) under Section 7(c) of the Natural Gas Act to construct, own, operate, and maintain the proposed facilities. As required under Section 7 of the Endangered Species Act of 1973 (as amended), projects that require Federal authorization must undergo consultation with U.S. Fish and Wildlife Service (FWS) and the National Oceanic and Atmospheric Administration National Marine Fisheries Service.

Atlantic and DTI filed a copy of the fourth draft of the Biological Assessment (BA) for the ACP and SHP (collectively referred to as the Projects) on October 20, 2016. Atlantic and DTI met with the FWS to discuss the BA on November 29, 2016, and received a comment matrix from the FWS on December 12, 2016. On December 30, 2016, the FERC issued a draft Environmental Impact Statement (DEIS) for the Projects and requested that the FWS initiate formal consultation. Atlantic and DTI filed a copy of the fifth and final draft of the BA for the Projects on January 27, 2017 at the request of the FERC as the lead federal agency. Comments received during the November 29, 2016 meeting and written comments received from the FWS on December 12, 2016 were addressed in the final draft of the BA filed on January 27, 2017, or were addressed as responses to the attached comment matrix.

The following addresses items outlined in the FWS letter to FERC dated January 31, 2017:

The ROW centerline is approximately 0.6 miles from the edge of the Virginia Department of Conservation and Recreation Natural Heritage Conservation Site, Barterbrooke Blue, which encompasses the Cave Hill/Stegar's fissure area, located approximately 2.3 miles from the ROW centerline. Stegar's fissure is the top ranked location for the MCI.

See Comment Response Number 76.

The Service recommends that a third party observer be present at locations where pipeline placement occurs in the sensitive karst areas.

The request for third party monitors for karst features in Madison Cave isopod habitat has been acknowledged. Atlantic will have karst specialists on site during construction as described in the Karst Terrain Assessment, Construction, Monitoring, and Mitigation Plan; two of the three FWS approved karst specialists are monitoring work in karst areas on the Project.

The Service recommends Atlantic monitor karst features in MCI potential habitat areas for 1-3 years post-construction to ensure karst features are stable.

See Comment Response Number 101.

Prior to pipeline construction, the Service also recommends Atlantic conduct a hydrologic delineation for karst features in MCI potential habitat. The delineation will inform on-site personnel about the flow direction in case a spill occurs.

See Comment Response Number 78. Atlantic assumes karst features are interconnected and connected to the groundwater. As such, a Karst Terrain Assessment, Construction, Monitoring and Mitigation Plan (Karst Mitigation Plan) was developed to protect karst features and area receptors from impact. Atlantic's karst plan details the measures which will be implemented to prevent contamination (e.g. sediment, spills) from entering wells, springs, and recharge areas.

The Karst Survey Report has been updated and filed in February 2017 and provides information on the location (surveyed in the field) of karst features in relation to the right-of-way. The detailed mapping coupled with the Karst Mitigation Plan will protect the wells, springs, and recharge areas.

The Service is currently awaiting results of the electrical resistivity imaging testing of the sinkholes near Cochran's Cave. The Service cannot complete a thorough and accurate MCI effects analysis until the results are received.

The results from electrical resistivity imaging testing of the sinkholes near Cochran's Cave were provided on February 2, 2017 to Virginia and West Virginia FWS.

There are 3 Indiana bat (Myotis sodalis), federally listed endangered, hibernacula within 5 miles of the proposed ROW for the ACP/SHP project.

See Comment Response Number 39.

The Service recommended Atlantic conduct pedestrian surveys for potential bat hibernacula and conduct Phase I and II portal assessments as necessary in WV. The Service is currently awaiting the results of the remaining pedestrian surveys, along 18% of the proposed ROW in WV and any necessary follow-up Phase I and II portal assessments resulting from the remaining pedestrian surveys.

See Comment Response Numbers 18, 55, and 121.

Based on the draft BA, survey results, and karst documents noted above, the Service cannot complete a thorough and accurate effects analysis for Indiana bat and NLEB at this time. While discussions at our November 29, 2016, meeting suggest that multiple avoidance measures will be implemented as part of the proposed project, the avoidance measures have not been adequately documented within the draft BA and associated documents.

See Comment Response Numbers 18, 55, and 121.

The karst plan, karst survey report, and draft BA do not include any avoidance measures. Mitigation and remediation of potential impacts to features found in the field are noted, but no effort to avoid such features is provided.

An updated Karst Terrain Assessment, Construction, Monitoring, and Mitigation Plan (Karst Plan) was provided in Attachment F of the BA. Additional conservation measures for karst features have been included in the Karst Plan and conservation measures specific to the Madison Cave isopod have been included in Section 5.12.4 of the BA. Avoidance measures for karst features which were implemented during routing are discussed in Sections 5.4.3, 5.5.3, 5.6.3, 5.7.3, and 5.12.3 of the BA.

The proposed ROW bisects a karst-rich area of WV that has multiple hibernacula for both Indiana bats and NLEBs north and south of the proposed line. In the center of this known-use area, surveys for potential hibernacula along the proposed ROW have not been completed due to land access issues. Without data which support that no cave passages cross underneath the proposed ROW through this section, the Service cannot conclude that the project will not adversely affect winter habitat for Indiana bats or NLEBs.

Surveys are on-going, and results will be provided as they become available. See Comment Response Numbers 18, 55, and 121.

The karst plan and karst survey report have conflicting numbers regarding miles of karst crossed by the project (32.5 miles vs. 71.3 miles); this should be clarified and corrected.

An updated Karst Survey Report will be provided in February 2017 and corrections will be made.

The West Virginia and Virginia Field Offices recommend Atlantic reach out to the West Virginia and Virginia Speleological Societies to inquire about cave mapping data in the vicinity of the unsurveyed area for the ACP/SHP project. Data showing mapped passages and where they exist in relation to the project will help demonstrate how the project may or may not impact these passages. Once these data have been gathered, Atlantic should discuss why proposed actions involved with construction and operation of the project (i.e., blasting and trenching) will not have an impact on complex cave/karst systems in the near (e.g., 1-mile or less) vicinity of the project. If Atlantic cannot document and support why these systems will remain unaltered through all aspects of construction/operation, monitoring devices may need to be placed within the caves to gather microclimate data on changes that may occur.

Atlantic has reached out to the speleological societies and received available data. An analysis of those features in the Project area has been included in Section 5.4.2 of the BA.

The current route, Rev11, affects the upslope drainage of the federally listed threatened small whorled pogonia (Isotria medeoloides). We recommend Atlantic adjust the route to avoid and minimize impacts to this species. If that is not possible, we recommend that Atlantic, in coordination with the Service, develop appropriate compensation for impacts to this species.

Atlantic adopted a route adjustment in the Monongahela National Forest to minimize impacts on a population of small whorled pogonia identified during surveys near Project Milepost 80.5. See Section 5.13.3 of the BA for further discussion of impacts on the three populations of small whorled pogonia found during surveys. See Section 5.13.4 of the BA for conservation measures that would be implemented to avoid and minimize impacts on the small whorled pogonia. Atlantic will continue to coordinate with the FWS to mitigate for potential impacts on small whorled pogonia.

On January 11, 2017 the Service listed the rusty patched bumble bee (Bombus affinis) as endangered. The current route of the proposed project passes through Nelson County, VA, which

has historical occurrences of rusty patched bumble bee. The Service recommends that Atlantic implement voluntary conservation measures to reduce impacts to the rusty patched bumble bee including: avoid the use of herbicides and pesticides, plant native flowers to support pollinator habitat, and conduct surveys prior to project implementation.

Discussion of rusty patched bumble bee is included in Section 5.15 of the BA. Per an email from Virginia FWS, dated January 6, 2017, no surveys would be required for the species in Virginia. Information regarding the species was requested from the Pennsylvania, West Virginia, and North Carolina FWS field offices, and additional review and survey needs for the species is pending those responses.

Specific to the 7 watersheds in North Carolina and 5 areas in Virginia, the Service recommends the following be incorporated into the BA:

- *For locations where proposed pipeline placement occurs in watersheds with known occurrences of federally listed or petitioned species, the Service recommends third party inspectors. We will work with Atlantic to determine details.*

  The request for third party monitors for sensitive waterbodies has been acknowledged. Atlantic will continue to work with FWS regarding providing third party monitors.

- *Coordinate with the Service 60 calendar days prior to any instream work to determine the appropriate method of rock removal.*

  Atlantic and DTI discussed rock removal methods with the FWS at the November 29, 2016 meeting. Based on these discussions, Atlantic and DTI selected the least environmentally impactful method of rock removal, which was determined to be blasting (not mechanical rock removal). See Section 2.2.3 of the BA for a discussion of rock removal methods.

- *Alert the Service and the State agencies when work begins in these areas.*

  Atlantic and DTI will commit to notifying the FWS office, no less than 48 hours in advance, when work will begin in the sensitive waterbodies; sensitive waterbodies are defined in Table B-3 in Attachment B of the BA.

- *Water for drilling purposes or hydrostatic testing should not be withdrawn from or released into waterbodies that may have federally listed species. If this is not possible Atlantic should provide an alternatives analysis and include detailed minimization and mitigation measures to protect listed species and their associated habitats.*

  See Comment Response Number 2.

- *Provide more stringent erosion and sediment control measures.*

  See Comment Response Numbers 1, 2, 6, 37, and 64.

- *No ground disturbing activities within 50 feet of a waterbody from November 15 – April 1 of any year. Performing ground disturbing activities during the growing season would allow vegetation to sprout thus reducing the potential for erosion.*

  See Comment Response Number 1.

- *Locate temporary work spaces at least 300 feet from streams. If this is not possible, Atlantic should provide an alternatives analysis including detailed minimization and mitigation measures to protect species and their associated habitats.*

  See Comment Response Number 5.

Additional information regarding pipeline construction, access road improvement, and crossing of smaller streams/tributaries in these sensitive watersheds should be provided (e.g., what actives are proposed to improve the access roads and will Atlantic implement additional erosion and sediment control measures). Atlantic should detail how they will protect the streams/tributaries within these sensitive watersheds.

See Comment Response Numbers 6, 64, 73, and 74.

Atlantic should provide more detail regarding monitoring, notification procedures, and contingency planning within the "Horizontal Directional Drill Drilling Fluid Monitoring, Operations and Contingency Plan." Such details include: alerting the Service and State agencies when work begins in these watersheds; additional measures to protect the aquatic ecosystem while allowing cleanup to occur in these watersheds; having experts ready to salvage organisms; ways to maintain instream flow downstream of an area should an inadvertent return occur; and subsequent measures to return the system to its prior condition.

See Comment Response Numbers 105 through 119. The HDD Plan and additions included in Section 2.8.2.11 of the BA provide details regarding HDDs. Atlantic and DTI will commit to notifying the FWS office, no less than 48 hours in advance, when work will begin in the sensitive waterbodies; sensitive waterbodies are defined in Table B-3 in Attachment B of the BA. Individual drilling companies will develop site specific plans which will address in-water monitoring. This information will be provided once available.

The James spinymussel (Pleurobema collina), federally listed endangered, occurs in the Cowpasture River in Bath County, VA. This occurrence was omitted from the draft BA, Atlantic needs to include this occurrence and an affects analysis in their BA. All of the avoidance and minimization measures applied to the freshwater mussels such as: stream crossings methodology, hydrostatic water testing, and rock removal method should be applied to the James spinymussel in the Cowpasture River.

See Comment Response Numbers 59, 66, and 83.

Additionally, until the comments above are addressed, the Service does not concur with the may affect, not likely to adversely determinations in the draft BA for the federally listed endangered James spinymussel, Roanoke logperch (Percina rex), dwarf wedgemussel (Alasmidonta heterodon), and Tar River spinymussel (Elliptio steinstansana). Nor do we agree with your conclusion for the federally petitioned Atlantic pigtoe (Fusconaia masoni) and yellow lance (Elliptio lanceolata).

Updated impacts analyses and determinations of effect for the referenced species were provided in the BA based on changes to project activities and input from FWS.

We recommend Atlantic implement a time-of-year restriction for migratory songbirds that no trees be cleared between April 1 and August 31 of any year. Many raptors and owls begin nesting prior to April 1 and may be impacted by project activities conducted between January 1 and March 31. The Service recommends that surveys be conducted by a qualified biological monitor prior to tree clearing to identify raptor nests within 150 feet of either edge of the proposed project area. If raptor nests are found, implement a 100 foot buffer around the nest. Work should not occur within the buffer until chicks are no longer utilizing the nest.

The Migratory Bird Plan submitted January 27, 2017 included implementation of time of year restrictions for migratory songbirds based on prior consultation with the FWS field offices as follows:

Pennsylvania: April 1 – August 31
West Virginia: April 1 – August 31
Virginia: March 15 – August 15
North Carolina: April 15 – August 1

Atlantic has reached out to the Virginia FWS for clarification on changes to thetime of year restriction to April 1 through August 31 and where it would apply. For tree clearing activities occurring between January 1 and March 31, Atlantic and DTI will have a qualified biologist conduct pedestrian surveys for raptors within a 300 foot wide corridor of the project centerline. If any active raptor nests are identified, a 100-foot no-activity buffer will be implemented until the nest is no longer active.

A qualified biological monitor should accompany the clearing crews for work conducted in areas where golden eagles (Aquila chrysaetos) are present or likely to be present during the winter (December 1 - March 31). These areas include Pocahontas and Randolph Counties, WV and Augusta, Bath, Highland, and Nelson Counties, VA. Protocols provided in the ACP/SHP draft BA, section 5.2.2 for project areas in the George Washington National Forest or Monongahela National Forest should be followed for all areas where bald eagles (Haliaeetus leucocephalus) or golden eagles are likely to be present in the above counties.

Atlantic and DTI will conduct monitoring for golden eagles in the above listed counties, as described in Section 5.2.2 of the Migratory Bird Plan filed on January 27, 2017.

Atlantic and DTI believe that the draft BA on January 27, 2017 and responses to the comment matrix provides all of the information requested by FWS to initiate formal consultation. We look forward to continuing to work with you on the ACP and DTI. Please contact Richard B. Gangle at (804) 273-2814 or Richard.B.Gangle@dom.com, if there are questions regarding this report. Please direct written responses to:

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

Sincerely,

FOR RICHARD GANGLE

Robert M. Bisha
Technical Advisor, Atlantic Coast Pipeline and Supply Header Project

Cc: Cindy Schulz, Virginia Ecological Services
John Schmidt, West Virginia Ecological Services
John Ellis, North Carolina Ecological Services
Melinda Turner, Pennsylvania Ecological Services
Richard Gangle, Dominion

Enclosures: Comment Response Table

Comment # [a]	BA Page # [a]	Line # or Section, if applicable [a]	Field Office	FWS Comment	Atlantic and DTI Response; January 27, 2017 version of BA section and page references provided where applicable
1	7	2.2.2	NCFO	In the streams which contain T&E species and their tribs, no grubbing should occur within 50 ft of the stream from Nov 15-April 1. These 12 digit HUCs were provided to ACP on December 1, 2016 via email.	Included notes in section 2.2.2, page 11. Where bridging may be required during this timeframe, additional erosion and sediment control measures will be implemented as described. Tree felling would occur during this period and grubbing/grading would be necessary to facilitate installation of a bridge and crossing of the stream by clearing crews. Grubbing and grading would be limited to a width of 20 to 25 feet. through the riparian buffer. A list of waterbodies where this would occur is in Table B-3 of Attachment B.
2	14	2.2.6	NCFO	Water should not be withdrawn from or discharged to streams containing T&E species. If ACP continues to pursue this they should include an alternatives analysis showing this is the only option along with the stringent measures they will include to minimize impacts. Due to the difficulty to protect various life stages of some species, this may lead to a may affect determination.	Water withdrawals previously planned at sensitive waterbodies are now planned as municipal water sources at all but 3 waterbodies. For the James River, Appomattox River, and McElroy Creek analysis has been provided in Section 2.6 and conservation measures included in Section 5.11.3.
3	15	2.2.6	WVFO	There is still no explanation about what hydrostatic testing specifically is within this section. The fact that it will occur is clear, but beyond that, the reader is not provided with much information to understand the process. Specify how and why water is used in this process. Is it pressurized, Flushed through? Something else entirely?	Additional information included in Section 2.2.6.
4	15	2.2.6	VAFO	"There are no chemicals within the pipe that will present contamination concerns." What about the epoxy at the welding joints?	Coatings are outside welds and not in contact with pipe; therefore the epoxy is not in contact with the water used during hydrostatic testing.
5	17	2.3.1	NCFO	In sensitive watersheds, temporary workspaces should be a minimum of 300 feet from the waterbody. If this is not possible, then an alternative analysis showing this is the only option should be include along with the stringent measures that will be implemented to minimize impacts.	Atlantic and DTI typically set back workspaces at HDD's a minimum of 300 feet; however, to set back all workspaces from sensitive waterbodies 300 feet would require more time to construct at stream crossings. The stream would be open longer, there would be longer vehicle trips, an increased amount of equipment needed, and more disturbance for longer period of time at that stream. These setbacks are consistent with FERC requirements, and due to the increased environmental impact of a larger set back, FERC requirements will be adhered to for the ACP and SHP.
6	17	2.3.2	NCFO	To avoid impacts, ACP is using existing roads for 84% of their access roads. Additional information is needed regarding what upgrades will be needed and types of construction needed for new roads in sensitive watersheds. Extra precautions to protect aquatic organisms should be included in the plans for these areas.	Additional erosion and sediment control measures will be implemented at sensitive waterbodies. A list of waterbodies where this would occur is in Table B-3 of Attachment B. The majority of roads would only require regrading and gravel to make them safe for use with construction equipment.
7	20	2.4.2.1	NCFO	The last sentence states that the flume method provides for continued fish passage. This is a very tricky statement especially for upstream passage unless you have information re: water velocity within the flume and fish characteristics such as swimming speeds, if a particular species needs resting pools over the distance of the flume, etc.	Edited text in section 2.4.2.1, page 21.
8	22	2.4.5	NCFO	Water should not be withdrawn from or discharged to streams containing T&E species. If ACP continues to pursue this they should include an alternatives analysis showing this is the only option along with the stringent measures they will include to minimize impacts. Due to the difficulty to protect various life stages of some species, this may lead to a may affect determination.	See comment response #2.
9	22	2.4.5	NCFO	Will the electric grid guide wires be placed in the water?	Guidewires may be placed in or on the waterbody; however, they would not impact aquatic species.
10	22	2.4.5	NCFO	Will the two to three foot wide hand cleared path be maintained after installation or allowed to revegetate?	Added text that path would be allowed to revegetate in section 2.4.4, page 24.
11	22	2.4.5	NCFO	Comments regarding the Horizontal Directional Drill Fluid Monitoring, Operations and Contingency Plan will be provided later.	No response required.
12	25	2.4.5 paragraph 3, last sentence	WVFO	Note that temporary stabilization measures such as matting will be removed from wetlands during the restoration. Please clarify if other temporary measures will be removed throughout all areas on pipeline.	Yes, except for biodegradable materials, such as jute, all temporary stabilization measures will be removed from the right-of-way.
13	30	table 2.6.1	NCFO	see comments under 2.2.6	No response required.
14	31	table 2.6.2	NCFO	see comments under 2.2.6	No response required.
15	32	2.7	NCFO	Particular attention should be paid during surveys adjacent to sensitive areas. Problems which may lead to degradation of these areas should be addressed quickly. Landowners should be approached about restricting access should new ORV trails be detected in these areas.	Comment noted.
16	35	2.8.1.3	NCFO	See comments re: 2.3.1	No response required.
17	36	2.8.1.4	VAFO	We request a shapefile showing all the areas where surveys were not completed.	Shapefiles of remaining survey locations will be provided in February 2017.
18	36	2.8.1.4	NCFO	Second bullet - will all surveys be completed by the time this is submitted if not, then this should probably be reworded. Also in some areas the Service asked you to assume presence of a species. In general, until all surveys are completed, it will be difficult to move forward with the BA.	Bullet reworded and additional bullet added describing how surveys that will be completed in 2017 and positive results will be handled. Section 2.8.1.4, page 39.
19	36	2.8.2	NCFO	Here as in other places in the document, phrases like "where feasible" should be removed and replaced with a definitive yes/no phrase. If you aren't able to say definitively then explain why and what measures will be used to minimize and mitigate impacts to the habitat or species.	Adjusted text throughout document to reflect commitments which will be made.

Comment # [a]	BA Page # [a]	Line # or Section, if applicable [a]	Field Office	FWS Comment	Atlantic and DTI Response; January 27, 2017 version of BA section and page references provided where applicable
20	36	2.8.2.1	NCFO	Third party inspectors should be hired to monitor work in sensitive areas for RTE species. These inspectors should be knowledgeable of the species of interest and should be familiar with the avoidance, minimization and conservation measures described within the BA and its associated work plans. These monitors will report directly to FWS. Each office has provide the areas of interest where we want these monitors.	Comment noted.
21	37	2.8.2.2	NCFO	In the streams which contain T&E species and their tribs, no grubbing should occur within 50 ft of the stream from Nov 15-April 1. Also equipment refueling and lubricating should not occur within 300 ft of waterbodies in sensitive areas.	See comment response #1.
22	37	2.8.2.2	VAFO	Fuel, oil, and hydraulic fluids will not be stored within 100 ft of any waterbody or wetland. Refueling of mobile equipment/vehicles will not occur within 100 ft of any waterbody or wetland. If these distances cannot be complied with due to site constraints, on-site personnel will use best management practices, secondary containment measures, or other standard spill prevention and countermeasures to manage the activity to prevent these fluids from entering	Comment noted.
23	37	2.8.2.3	VAFO	Stabilize areas with erosion control matting if weather prevents vegetation establishment. Any water needed for seed germination or survival of plantings may not be obtained from waterbodies containing federally listed species.	No water from sensitive waterbodies will be used for restoration. Updated text provided in section 2.8.2.5, page 43.
24	37	2.8.2.3	NCFO		No response required.
25	38	2.8.2.4	VAFO	Do not operate vehicles or construction equipment below OHW in any waters containing federally listed species except within cofferdams. Temporary crossings are still considered an adverse impact to federally listed aquatic species if their is equipment placed on the streambed.	Atlantic and DTI will not utilize the one time pass as allowed by FERC in sensitive streams. Updated text included in section 2.8.2.4, page 42.
26	39	2.8.2.5	VAFO	Need more info on algae inhibitor - provide product and information on toxicity. is it toxic to aquatic species	If algae inhibitors are used, they will be determined safe for aquatic species, as described by the manufacturer. See updated information in section 2.6, page 33.
27	39	2.8.2.4	NCFO	In the second to last bullet include "Mitigate for any impacts associated with HDD should there be a spill."	Updated text provided in section 2.8.2.11, page 59.
28	39	2.8.2.5	NCFO	See comments on 2.4.5	No response required.
29	39	2.8.2.5	NCFO	Provide additional information regarding the algae inhibitor and toxicity to aquatic organisms, including but not limited to amphibians, insects and mussels.	See comment response #26.
30	40	2.8.2.7	NCFO	Use native seed mixes to the maximum extent possible	Atlantic has consulted with native seed experts to determine appropriate seed mixes in certain areas, see additional text in rusty patched bumble bee section 5.15.4, page 231-
31	41	2.8.2.9, third bullet	WVFO	"…will be avoided, if possible, or minimized." Stronger language should be used; "if possible" is ambiguous and does note denote whether something will or won't be happening. Detail what will or will not be done and how it will be accomplished.	See comment response #19.
32	41	2.8.2.9, third bullet, 1st sub-bullet	VAFO	Clarify the sinkhole inspectors will be someone mutual agreed upon. Need to develop a process about who and how we decide what is the appropriate action if a new open throated sinkhole forms.	Two of the three FWS approved karst specialists will be on site during construction as described in the Karst Terrain Assessment, Construction, Monitoring, and Mitigation Plan included in Attachment F of the BA.
33	43	2.8.2.9	WVFO	If a spill occurs, the USFWS office in that state should be contacted along with the appropriate state wildlife agency	Notification requirements will be provided in the SWPPPs for the Projects. Updated text included in section 2.8.2.11, page 58.
34	52	4	VAFO	Need to move rusty patched bumble bee out of this section - need to consider effects in the BA	Discussion of rusty patched bumble bee included in section 5.15.
35	67	5.3.1	NCFO	The listing decision and 12 month finding will be on or before September 30,2017 if it is listed.	Correction made for Neuse River waterdog, section 5.3.1, page 83.
36	68	5.3.3	NCFO	See comments on 2.4.5	See responses for HDD Plan comments below.
37	71	5.3.5	NCFO	At this time, a decision regarding if the species should be listed has not been made. If the species is listed, and ACP continues to pursue withdrawing water from streams where the species occurs it may affect the species. Additional conservation measures are needed for waterbodies with in-stream crossings to minimize erosion and sedimentation.	Additional erosion and sediment control measures will be implemented at sensitive waterbodies. A list of waterbodies where this would occur is in Table B-3 of Attachment B.
38	71	5.3.4	NCFO	Stringent measures to be used at waterbodies that will be crossed using in-stream methods which will minimize and mitigate for any impacts associated with the crossing.	Text included in species sections where in-stream crossing methods may impact federally listed or under review species, see sections 5.3.4, 5.8.4, 5.9.4, 5.10.4, 5.11.3, and 5.14.4.
39	74	5.4.2	VAFO	There are 3 Indiana bat hibernacula within 5 miles of the pipeline route. We recommend a TOYR (4/1 - 11/15) for tree clearing.	ERM contacted VA FWS regarding these locations, and a response was provided in email on January 6, 2017. That information was incorporated into the BA.
40	80	Potential Roost Tree	WVFO	The buffer around known roost trees is 2½ miles not 5 miles	Corrected; section 5.4.2, page 100.
41	81	Table 5.4.2-3	WVFO	VBEB calls and Gray bat calls are noted here; I know we have had discussions about the manual vetting of these calls and whether or not they checked out to be true or not. Include text in the applicable species section referencing this table with note on the manual vetting results.	Footnote included in table 5.4.2-3 on page 101-102, and text included in section 5.6.2, page 141 (Virginia big-eared bat) and section 5.7.2, page 146 (gray bat).
42	88	Direct Effects	WVFO	"…acres of occupied Indiana bat habitat may be cleared outside of the FWS recommended winter clearing windows to avoid take…" As written, sounds like clearing is occurring outside of recommendations in order to avoid take. Clarify the sentence to note that clearing occurring outside of the recommended TOYR will result in take.	Updated text provided in section 5.4.3 and 5.4.4; no clearing will occur during the recommended restriction period for Indiana bats in occupied habitat.
43	89	Indirect Effects	VAFO	We may need more details of the blasting plan prior to doing the effects analysis in the BO	Blasting Plan and Sample Site Specific Blasting Plan is provided in Attachment C.
44	90	Table 5.4.3-1	WVFO	As the maps appear, known-use habitat for Indiana bats will be cleared within the Wetzel County summer-use buffer zone. The footnote should be omitted/revised appropriately. Additionally, Randolph County is not listed in the table, but the maps on previous pages show that the line traverses known-use habitats for Indiana bats in Randolph and Pocahontas Counties. Please revise.	Updated tables and figures have been included.

Comment # [a]	BA Page # [a]	Line # or Section, if applicable [a]	Field Office	FWS Comment	Atlantic and DTI Response; January 27, 2017 version of BA section and page references provided where applicable
45	93	Cum. Effects, paragraph 2	WVFO	Cannot state that no cumulative effects will occur to hibernating bats until hibernacula surveys have been completed for the project.	See comment response #18.
46	93	5.4.4	WVFO	"Potential Conservation Measures" should be revised to be "Proposed Conservation Measures" or "Conservation Measures". If they are potential, then they may or may not happen. Stronger wording advised. This needs to be corrected throughout the document.	Changed to Conservation Measures throughout document.
47	98	text below tables	WVFO	Collocation is noted here. What percentage of the project was collocated? Is there a number?	Mileage and percent collocation is included in section 2.8.1.2, page 38 and mileage is included in section 5.2.4, page 110.
48	99	third paragraph	WVFO	"Where possible…" Stronger language should be used. The action either will or will not occur.; state with certainty and describe the action.	See comment response #19.
49	99	2nd bullet under Virginia	VAFO	Winter tree clearing within 5 miles of a hibernacula is November 16-March 31, NOT November 2.	Corrected, see section 5.4.4, page 111.
50	100	Multiple bullets	WVFO	Cite scientific reasoning for selection of the chosen distances (50, 500, and 300 feet) for various buffers.	Distances are based on existing guidance for bats or BMPs for pipeline construction. References included where appropriate.
51	100	3rd bullet	WVFO	Burning activities should not occur within 500' of hibernacula at any time. During the warmer months, smoke entering a hibernacula could harm cave-obligate bats using them as summer roosts and burning during the winter months could harm wintering bats. This will need to be clarified in other bat sections throughout the BA.	Updates made to text in sections 5.4.4, 5.6.4, and 5.7.4. Burning will not occur within 500 feet at any time of year.
52	113	Potential Roost Tree Surveys	WVFO	These numbers appear to be the same as Indiana bats; requirements for 1° and 2° trees for NLEB are different, and thus the numbers are often quite different. Clarify why the numbers are the same or correct them.	Mitigation for potential roost trees is no longer required for northern long-eared bat per conversation with WV FWS; therefore, additional analysis on potential roost trees was not conducted.
53	117	5.5.4, second paragraph	WVFO	"Where possible…" Stronger language should be used. The action either will or will not occur.; state with certainty and describe the action.	See comment response #19.
54	132	5.9.1	NCFO	See comments on 5.3.1	No response required.
55	132	5.9.2	NCFO	All surveys need to be completed. Until they are ACP could assume presence as they prepare their documents.	See comment response #18. Conservation measures were provided if species were identified in future surveys, in order to assist with FWS's analysis of impacts and
56	136	5.9.4	NCFO	See comments on 5.3.4	No response required.
57	136	5.9.5	NCFO	See comments on 5.3.5	No response required.
58	138	5.10.1	NCFO	Add "as presence will be assumed," after "North Carolina" in the second to the last sentence in the last paragraph.	Correction made in section 5.11.1, page 165.
59	142	TABLE 5.10.1-1	VAFO	Cowpasture stream crossing in Bath County missing - James spinymussel occurrence here	Correction to the county Cowpasture River occurs in has been made in table 5.11.1-1.
60	142	5.10.1	NCFO	If moderately suitable habitat occurs at the Rocky Swamp crossing it will be very difficult/impossible to conclude no individual mussels will be impacted by in-stream construction unless very stringent conservation measures are implemented. As of yet, none are to that extent.	Presence is assumed for dwarf wedgemussel in Rocky Swamp; however, no mussels (state, federal, or not listed) were identified during survey. See sections 5.11.1.2, 5.11.2, and 5.11.3 for details.
61	147	5.10.1.6	NCFO	The 12 month finding will be published simultaneously with the proposed listing if they are listed. Please correct the BA.	Correction made, see section 5.11.1.6, page 174-175.
62	147	5.10.1.7	NCFO	See 5.10.1.6	Correction made, see section 5.11.1.7, page 175.
63	148	Potential Conservation Measures	VAFO	Need to be clear on what measures will be implemented and what will not.	Section 5.11.3 updated, summary conservation measures table provide in Table B-2 in Attachment B, and summary of conservation measures for sensitive waterbodies included in Table B-3 in Attachment B.
64	148	5.10.2	NCFO	More information is needed regarding impacts of access roads and stream crossings in the 12 digit HUCs which contain RTE species. More stringent conservation measures should be developed to minimize and mitigate for these impacts.	A summary of conservation measures for sensitive waterbodies is included in Table B-3 in Attachment B. See included information on erosion control devices (Comment 64 attachment).
65	149	5.10.3	NCFO	See comments on 2.3.1 regarding distance from streams	See comment response #5.
66	150	TABLE 5.10.3-1	VAFO	Cowpasture stream crossing in Bath County missing - James spinymussel occurrence here	Table 5.10.3-1 has been modified and is now included as Table B-3 in Attachment B. Correct county has been included for Cowpasture River.
67	150	5.10.3	NCFO	See comments on 2.2.2 regarding time of year for grubbing	See comment response #1.
68	150	5.10.3	NCFO	See comments on 5.10.2 regarding access roads and stream crossings	See comment response #64.
69	151	table 5.10.3.1	NCFO	Table should be updates regarding conservation measures for crossings in 12 digit HUCs.	Table 5.10.3-1 has been modified and is now included as Table B-3 in Attachment B.
70	153	5.10.3	NCFO	See comments on 2.4.5 regarding water withdrawals.	See comment response #2.
71	153	5.10.3	NCFO	Is there an updated mussel and fish relocation plan for NC?	An updated plan was filed with FERC on January 10, 2017.
72	153	5.10.3	NCFO	ACP should develop and include in the BA conservation measures for streams where rock removal MAY be needed in the 12 digit HUCs which may contain RTE species.	Sensitive waterbodies which may have blasting are included in Table B-3 in Attachment B. A description of blasting, and how it is the least environmentally impactful method to remove rock is included in section 2.2.3, page 13-14.
73	154	5.10.4	WVFO	The clubshell is known in Hackers Creek which the project's access roads come in close proximity to. Due to the access roads along Hackers Creek and the need for advanced E&S controls for these areas, the determination for clubshell should be NLAA.	Correction made, section 5.11.4, page 182; however, a determination of LAA was determined appropriate due to water withdrawals in McElroy Creek.
74	154	5.10.4	NCFO	At this time we can not concur with a may affect, not likely to adversely affect determination for dwarf wedgemussel or Tar River spinymussel. Concerns have been raised regarding crossings, access roads and water withdrawals in the sensitive 12 digit HUCs. Also the HDD plan will need to include a more detailed contingency plan should there be an inadvertent release.	Due to municipal water sources now being used for water withdrawals, additional erosion and sediment control measures being implemented, and these species not being found at waterbody crossing locations, a determination of NLAA was now determined appropriate. Notification of and coordination with the FWS for inadvertent returns during HDD has been included in section 2.8.2.10, page 59.

Comment # [a]	BA Page # [a]	Line # or Section, if applicable [a]	Field Office	FWS Comment	Atlantic and DTI Response; January 27, 2017 version of BA section and page references provided where applicable
75	154	5.10.4	NCFO	The same issues listed above for Tar River spinymussel and dwarf wedgemussel should be addressed before a determination can be made for Atlantic pigtoe and yellow lance.	Updated impact analysis and conservation measures have been included for these species due to changes in project plans and implementation of additional conservation measures. See section 5.11.
76	155	5.11.2	VAFO	The pipeline crosses approximately 25 miles of Madison Cave isopod (MCI) potential habitat. Centerline is 2.3miles from Stegar's fissure/cave hill area, and 0.6miles from edge of the DCR conservation site, Barterbrooke Blue. Steger's fissure is the top ranked location for the MCI. ACP should assume presence in the potential MCI habitat. At this time, surveys for individuals are not recommended due to the limited information about the species, survey protocol standards, and the physical inability to survey for individuals in many cases.	Presence is assumed at features with potential connectivity to MCI habitat (see table 5.12.2-1), impacts have been analyzed, and conservation measures presented in section 5.12. An updated Karst Terrain Assessment, Construction, Monitoring, and Mitigation Plan has been included in Attachment F. Stegar's fissure and Barterbrooke Blue conservation area have been discussed in section 5.12.2.
77	155	5.11.2	VAFO	Waiting for the results of the ERI testing of the sinkholes near Cochran's Cave.	The ERI report was provided to the Virginia and West Virginia FWS on February 2, 2017.
78	155	5.11.2	VAFO	Recommend a hydrological delineation for karst features in the MCI potential habitat, therefore, if there's a spill, discharge, etc. will know which direction the spill is headed.	Atlantic assumes karst features are interconnected and connected to the groundwater. As such, a Karst Terrain Assessment, Construction, Monitoring and Mitigation Plan (Karst Mitigation Plan) was developed to protect karst features and area receptors from impact. Atlantic's karst plan details the measures which will be implemented to prevent contamination (e.g. sediment, spills) from entering wells, springs, and recharge areas. The Karst Survey Report has been updated and filed in February 2017 and provides information on the location (surveyed in the field) of karst features in relation to the right-of-way. The detailed mapping coupled with the Karst Mitigation Plan will protect the wells, springs, and recharge areas.
79	157	5.11.3	VAFO	The project will go through ~25 miles of MCI potential habitat. Even if the sinkholes identified in the workspace are not connected to Cochran's Cave, we anticipate construction activities may result in the temporary or permanent loss or degradation of MCI habitat due to increase turbidity or by altering the hydrologic connection between sites, which would alter their movement.	Updated conservation measures have been provided in section 5.12.4 and an updated Karst Terrain Assessment, Construction, Monitoring, and Mitigation Plan has been included in Attachment F.
80	157	5.11.5	VAFO	Based on the amount of potential MCI habitat crossed, and the need to assume presence the project is likely to adversely affect the MCI.	Change made to section 5.12.5, page 193.
81	158	5.12	NCFO	In general, it does not seem like as much detail is provided regarding plants as animals.	Additional information has been provided in section 5.13.
82	189	6.8	VAFO	Roanoke logperch determination is may affect, is likely to adversely affect due to unavoidable instream work and water withdrawal	Correction made to section 5.8.5, page 155; however please note that water withdrawals are no longer planned in those waterbodies. LAA determination is based on in-stream and relocation activities.
83	189	6.9	VAFO	James spinymussel determination is may affect, is likely to adversely affect due to occupied habitat - Cowpasture River instream work and hydrostatic water withdrawal	See section 5.11.4, page 182. However, due to municipal water sources now being used for water withdrawals, additional erosion and sediment control measures being implemented, and these species not being found at waterbody crossing locations, a determination of NLAA was now determined appropriate.
84	189	6.11	VAFO	Small whorled pogonia determination is may affect, is likely to adversely affect due to soil disturbance in the upslope drainage	Updated text in section 5.13.5, page 227.
85	189	6.12	VAFO	Add rusty patched bumble bee (proposed endangered) to the BA	See comment response #34.
86	190	6.9	NCFO	Roanoke logperch is not a mussel. Also, see comments on 5.10.4.	Correction made in section 6.8, page 239.
87	190	6.12	NCFO	The same issues listed above for Tar River spinymussel and dwarf wedgemussel should be addressed before a determination can be made for Atlantic pigtoe, yellow lance, Carolina madtom and Neuse River waterdog.	No change made to determination of effect language; used language for proposed species since these are currently under review. Change to impacts does not change determination of effect for these species.
88	13 and 152	2.2.3	VAFO	When trenching - determine and use the least damaging method (mechanical rock removal vs blasting)	See comment response #72.
89	Appendix B	Seed mixes for NC	NCFO	It appears there are many non-native species listed on the tables for mixtures. Please work with local botanist/district conservationists to provide replacement species that are native to NC.	Comment noted.
90	Attachment D	4.0-C	NCFO	Third party inspectors should be hired to monitor work in sensitive areas for RTE species. These inspectors should be knowledgeable of the species of interest and should be familiar with the avoidance, minimization and conservation measures described within the BA and its associated work plans. These monitors will report directly to FWS. Each office has provided the areas of interest where we want these monitors. Any spills should be immediately reported to the appropriate USFWS office.	Comment noted.
91	Attachment D	6	NCFO	Add FWS and species experts should be contacted and measures taken to do what is best for species.	Included in section 2.8.2.11.
92	Attachment D	8.0-B	NCFO	Any spills into water or on adjacent uplands that may make their way to waters that drain to sensitive species should be reported to FWS and species experts immediately to evaluate the situation.	Included in section 2.8.2.11.
93	Attachment D	8.0-C	NCFO	In the 12 digit HUCs which contain sensitive species we request ACP follow the same precautions that are listed for karst areas. This would greatly reduce the likelihood of any spill impacting these species.	See comment response #64.
94	Attachment D	General	NCFO	If a spill results in the unauthorized take of any species, an enforcement action with USFWS Law Enforcement may be initiated.	Comment noted.

Comment # [a]	BA Page # [a]	Line # or Section, if applicable [a]	Field Office	FWS Comment	Atlantic and DTI Response; January 27, 2017 version of BA section and page references provided where applicable
95	Attachment D, SPCCP	4.0, Bullet C	VAFO	Define who are the Environmental Inspectors and their credentials. At a minimum, they should have a background in Natural Resource Sciences.	Comment noted.
96	Attachment D, SPCCP	6.0, Bullet A, No. 6	VAFO	Provide a list of Emergency Response Contractors you intend on using. Also, you will need a Wildlife Response Contractor for large spills. Please provide a list of Wildlife Response Contractors you intend on using.	Coordination with emergency response agencies is schedule to begin in April 2017. Following these meetings Atlantic will determine the emergency response needs and select contractors. A list of emergency response contractors will be provided once available. Atlantic will continue to coordinate with FWS regarding the need for a wildlife response contractor.
97	Attachment D, SPCCP	7.0, Bullet A	VAFO	Clarify who is the person responsible for reporting the spill.	As described in section 4.0 of the SPCC Plan: "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), 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."
98	Attachment D, SPCCP	7.0, Bullet B	VAFO	Clarify the timeframe in which the spill will be reported. We recommend as soon as possible, NLT 24hrs from time of spill.	SPCC Plan does not provide a timeline for reporting to appropriate agencies, however, text clarifying that spills which may affect federally listed species will be reported to FWS within 24 hours has been added to section 2.8.2.11, page 58.
99	Attachment D, SPCCP	8.0, Bullet A, No. 4	VAFO	The information also needs to be reported to the appropriate regulatory agencies at the same time it is provided to the EI and Atlantic and DTI	Information is included in the SPCC Plan.
100	Attachment D, SPCCP	8.0, Bullet B., No. 2	VAFO	Clarify who is the spill coordinator	Information is included in the SPCC Plan.
101	Attachment D, SPCCP		VAFO	Recommend post-construction monitoring of karst features in the MCI potential habitat area 1-3 years to ensure karst features are stable.	Post-construction monitoring will be conducted as described in the Karst Terrain Assessment, Construction, Monitoring, and Mitigation Plan in Attachment F, see item c. page 14; item d. page 15; item e. page 15.
102	Attachment E	5.8.1	NCFO	Lime and Fertilizer should not be applied within 300 feet of wetlands or waterbodies in the sensitive 12 digit HUCs.	Measures are summarized in Table 2.8.2-1 and are part of the Restoration and Rehabilitation Plan, entire plan is included in Attachment E.
103	Attachment E	9.1	NCFO	Environmental Inspectors-last bullet "Identifying areas that will require special attention to ensure stabilization and restoration success." This should include areas that may become attractive to ORV users, especially in waters draining to sensitive areas or habitat for sensitive species. FWS should be notified if areas are found in these sensitive areas and the Environmental Inspector/ACP should provide remedial action.	Included in section 2.8.2.11, page 58.
104	Attachment F	General	NCFO	Measures to Avoid Impact to the Karst Aquifer and Environment numbers 1, 2, 3, 6, 7, 8, 9 (if avoidance cannot be done by hauling water) and 10 could be included as measures for waterbodies in the sensitive 12 digit HUCs. These could be considered minimization measures when impacts are unavoidable.	Comment noted.
105	Attachment G	General	NCFO	It may help us better understand if ACP could provide information regarding how often IRs occur, if they have happened in sensitive aquatic waterbodies and how were they were handled if so? This could be provided outside of the BA process.	See Comment 105 attachment.
106	Attachment G	2	NCFO	The customized HDD plan should include FWS contacts as well as species experts. A third party inspector should be hired to monitor HDD as discussed in the BA comments.	Comment noted.
107	Attachment G	Table 4.1	NCFO	Condition 2 - notify appropriate USFWS contact, State contact and species expert. What is considered a "loss or significant reduction of fluid circulation"?	Included notifications in section 2.8.2.11. A loss or significant reduction of drilling fluid circulation is typically identified as the point at which the HDD contractor has difficulty maintaining the fluid level in the mud tank, requiring a significant addition of make-up water and drilling fluid viscosifier to continue HDD operations. It should be noted that there will be a need for some amount of make-up water and viscosifier even with full circulation as drilling fluid is lost to both hole enlargement and over the shakers along with the drilled spoil. An experienced inspector can identify the difference between expected fluid losses and a significant reduction of drilling fluid circulation.
108	Attachment G	Table 4.1	NCFO	Condition 3 - Notify appropriate USFWS contact, State contact and species expert. Assess potential impacts to species and how to proceed.	Included in section 2.8.2.11.
109	Attachment G	5	NCFO	The pumps should be capable of passing stream flows at the individual sites. In sensitive areas, species experts should be consulted to determine if additional materials are needed at each individual site.	Included in section 2.8.2.11, page 59.
110	Attachment G	6.1	NCFO	The third party inspector should also have access to the instruments and readings.	Comment noted.
111	Attachment G	7.1	NCFO	Also alert the USFWS contact, State contact, and the species expert.	Included in section 2.8.2.11.
112	Attachment G	7.1	NCFO	Please provide information regarding focused monitoring. How it is done in shallow areas and how in deep water areas? Also how does it vary with differing water velocities? How often will areas be covered?	See section 6.2 of HDD Plan in Attachment G. Individual drilling companies will develop site specific plans which will address in-water monitoring. This information will be provided once available.
113	Attachment G	8.1	NCFO	Bullet 1 - Also alert USFWS, State and species expert.	Included in section 2.8.2.11.
114	Attachment G	8.1	NCFO	Bullet 5 - Agency concurrence will be needed before drilling resumes in sensitive watersheds.	Included in section 2.8.2.11, page 59.

Comment # [a]	BA Page # [a]	Line # or Section, if applicable [a]	Field Office	FWS Comment	Atlantic and DTI Response; January 27, 2017 version of BA section and page references provided where applicable
115	Attachment G	8.1	NCFO	Bullet 7 - ACP in coordination with agencies and species expert will determine the best way to contain and collect the return. Agency concurrence will be needed before drilling resumes in sensitive watersheds.	Included in section 2.8.2.11, page 59.
116	Attachment G	8.1	NCFO	Bullet 8 - USFWS will determine if ACP and FERC should reinitiate Section 7 consultation at this time before drilling resumes. This will also occur in subsequent steps.	Comment noted.
117	Attachment G	9	NCFO	For sensitive waterbodies, a general restoration plan should be prepared and included in the attachment describing what will take place to reduce the amount of "Take" which will occur. Prior to commencing HDD at a particular waterbody a more site specific plan should be developed. This plan does not authorize take but instead serves as advance planning should a response be needed. The plan should include both short term measures as well as longer term measures which may occur over future years.	Additional information provide in section 2.4.4. Also see link to HDD Site-Specific Crossing Plans in Comment 105 Attachment.
118	Attachment G	10	NCFO	USFWS will determine if ACP and FERC should reinitiate Section 7 consultation regarding the contingency plan.	Comment noted.
119	Attachment G	11	NCFO	As listed in comments above on section 9, a site-specific contingency plan should be prepared for HDD of sensitive waterbodies.	See comment response #s 105 to 118.
120	General	Multiple	WVFO	When making reference to tables in parentheses throughout the document, it would also be helpful to note the page that the table is on.	Comment noted.
121	General	Multiple	WVFO	As the document and survey results currently present, the Service cannot complete an effects analysis on impacts to winter habitat for Indiana and northern long-eared bats at this time. While discussions with you at our November 29, 2016, meeting suggest that multiple avoidance measures have been implemented during the evolution of the proposed ROW, that is poorly documented within the current BA. As well, as documents currently read, additional concerns are as follows: • The karst plan, survey report, and the BA do not boast any avoidance measures. Remediation of features found in the field is noted, but no effort to avoid such features is stated. • The results of current surveys have found new hibernacula for NLEB in WV. Additionally, the project's proposed ROW bisects a karst-rich area of the state that has multiple known hibernacula for both Indiana and NLEBs north and south of the proposed line. In the center of this sensitive known-use area, surveys for potential hibernacula along the line have not been able to be completed due to land access issues. Without data representing that no cave passages cross underneath the proposed ROW through this section, the Service cannot conclude that the project will not adversely impact winter habitat for listed bats. • The plan and survey report have conflicting numbers regarding miles of karst crossed by the project (32.5 vs. 71.3 miles); this should be clarified and corrected. The WVFO recommends reaching out to the West Virginia Speleological Society to inquire about any data they may have on cave mapping in the vicinity of the unsurveyed area for the ACP project. Data showing mapped passages and where they exist in relation to the project will help demonstrate how the project may or may not impact them. It is also recommended once these data have been gathered that the project discuss why proposed actions involved with construction and operation of the project (blasting in particular) will not have an impact on complex cave systems in the near (1-mile or less) vicinity of the project. If the project cannot support why these systems will remain unaltered through all aspects of construction/operation, monitoring devices may need to be placed within the caves to gather microclimate data on potential changes that may occur. Additionally, the project should propose a contingency plan for changes that would be an adverse effect to listed bats occur within these systems as a result of construction or operation of the project.	Additional information was used to analyze impacts on federally listed bat species, including speleological data. Conservation measures were proposed if species were identified in subsequent surveys in order to facilitate FWS review of impacts and determinations of effects for species. An updated Karst Terrain Assessment, Construction, Monitoring, and Mitigation Plan is included in Attachment F, which includes measures to avoid and minimize impacts on karst features, and avoidance and minimization measures for specific karst features were addressed in the Madison Cave isopod section (5.12). Two known cave systems (Canis Majoris and Simmons-Mingo Caves) were identified in the project area, based on speleological society data, and have been addressed in section 5.4.2, page 92). Updated karst information has been included in section 5.12.
122	General	Multiple	WVFO	As a whole, the document is lacking better "story telling" to accurately capture the level of avoidance and minimization that has occurred as a result of project planning and survey efforts. The BA needs to be very straight forward and logical in explaining each step of the construction process along with explaining survey efforts, results from surveys, and further avoidance and minimization measures that will be implemented as a result of the survey results. Often, I tell folks that if a 7th grade science class can understand the document, then it is well done.	A summary table of Conservation Measures is included in Table B-2 in Attachment B. Overall, BA text was updated to better reflect and capture the project's process of species analysis review, and avoidance and minimization measures developed throughout the consultation process.

[a] Page and section numbers refer to Biological Assessment provided to FWS in October 2016.

Comment 64 Attachment

COMPOST FILTER SOCK - **Sediment Removal Efficiency: HIGH. This device is an ABACT for HQ and EV watersheds.** Compost filter socks are a type of contained compost filter berm. They consist of a biodegradable or photodegradable mesh tube filled, typically using a pneumatic blower, with a coarse compost filter media that meets certain performance criteria (e.g. hydraulic flow through rate, total solids removal efficiency, total suspended solids removal efficiency, turbidity reduction, nutrient removal efficiency, metals removal efficiency, and motor oil removal efficiency).

York County Conservation District

Compost filter socks are flexible and can be filled in place or in some cases filled and moved into position. They are especially useful on steep slopes. Heavy vegetation should be removed prior to installing the sock. Compost socks can also be used on rocky slopes if sufficient preparation is made to ensure good contact of the sock with the underlying soil along its entire length. They may also be used on pavement as a perimeter control. Socks used in this manner range in diameter from 8" to 32". **Note: The flat dimension of the sock should be at least 1.5 times the nominal diameter. Also, some settlement of the tube typically occurs after installation.** The nominal diameter of the tube is the dimension to be used for design purposes (i.e. Figure 4.2). Socks with diameters less than 12" should only be used for residential housing lots of ¼ acre or less that are tributary to a sediment basin or sediment trap.

As with other sediment barriers, filter socks should be placed parallel to contour with both ends of the sock extended upslope at a 45 degree angle to the rest of the sock to prevent end-arounds (Figure 4.1). Socks placed on earthen slopes should be anchored with stakes driven through the center of the sock (Standard Construction Detail #4-1) or immediately downslope of the sock at intervals recommended by the manufacturer. Where socks are placed on paved surfaces, concrete blocks should be used immediately downslope of the socks (at the same intervals recommended for the stakes) to help hold the sock in place.

The maximum slope length above a compost filter sock should not exceed those shown in Figure 4.2. **NOTE: Slope length is not addressed by use of multiple rows of compost socks.** The anticipated functional life of a biodegradable filter sock should be 6 months; for photodegradable socks it is 1 year. Some other types may last longer. Projects with disturbances anticipated to last longer than the functional life of a sock should plan to replace the socks periodically or use another type of BMP.

Upon stabilization of the tributary area, the filter sock may be left in place and vegetated or removed. In the latter case, the mesh is typically cut open and the mulch spread as a soil supplement. In either case, the stakes should be removed.

Filter socks using other fillers may be approved on a case-by-case basis if sufficient supporting information (including manufacturer's specs and independent test data) is provided. However, they might not qualify as ABACTs. Wherever compost socks are used, Table 4.1 should be placed on a detail sheet.

TABLE 4.1
Compost Sock Fabric Minimum Specifications

Material Type	3 mil HDPE	5 mil HDPE	5 mil HDPE	Multi-Filament Polypropylene (MFPP)	Heavy Duty Multi-Filament Polypropylene (HDMFPP)
Material Characteristics	Photo-degradable	Photo-degradable	Bio-degradable	Photo-degradable	Photo-degradable
Sock Diameters	12" 18"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"
Mesh Opening	3/8"	3/8"	3/8"	3/8"	1/8"
Tensile Strength		26 psi	26 psi	44 psi	202 psi
Ultraviolet Stability % Original Strength (ASTM G-155)	23% at 1000 hr.	23% at 1000 hr.		100% at 1000 hr.	100% at 1000 hr.
Minimum Functional Longevity	6 months	9 months	6 months	1 year	2 years
Two-ply systems					
Inner Containment Netting			**HDPE biaxial net** **Continuously wound** **Fusion-welded junctures** **3/4" X 3/4" Max. aperture size**		
Outer Filtration Mesh			**Composite Polypropylene Fabric (Woven layer and non-woven fleece mechanically fused via needle punch)** **3/16" Max. aperture size**		
Sock fabrics composed of burlap may be used on projects lasting 6 months or less.					

Filtrexx & JMD

Compost should be a well decomposed, weed-free organic matter derived from agriculture, food, stump grindings, and yard or wood/bark organic matter sources. The compost should be aerobically composted. The compost should possess no objectionable odors and should be reasonably free (<1%

by dry weight) of man-made foreign matter. The compost product should not resemble the raw material from which it was derived. Wood and bark chips, ground construction debris or reprocessed wood products are not acceptable as the organic component of the mix.

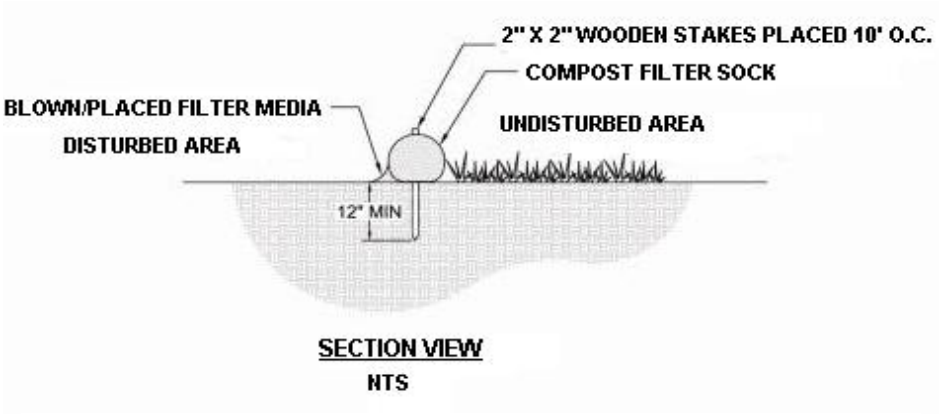
The physical parameters of the compost should comply with the standards in Table 4.2. The standards contained in the PennDOT Publication 408 are an acceptable alternative.

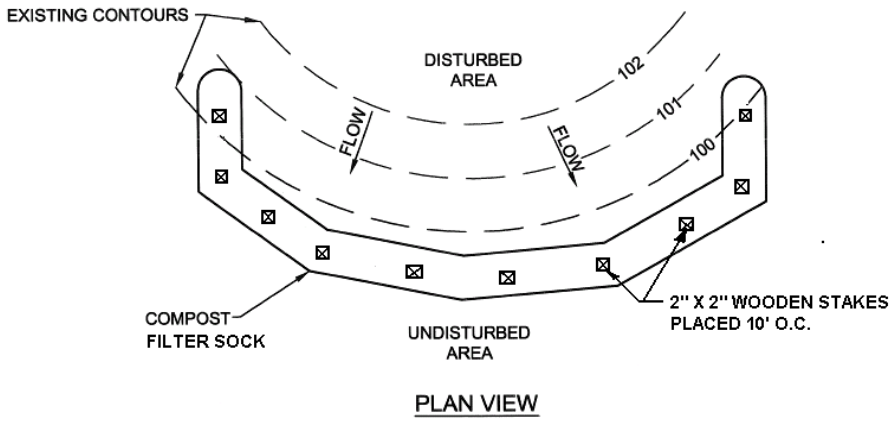
TABLE 4.2
Compost Standards

Organic Matter Content	80% - 100% (dry weight basis)
Organic Portion	Fibrous and elongated
pH	5.5 - 8.0
Moisture Content	35% - 55%
Particle Size	98% pass through 1” screen
Soluble Salt Concentration	5.0 dS/m (mmhos/cm) Maximum

Filtrexx

STANDARD CONSTRUCTION DETAIL #4-1
COMPOST FILTER SOCK





Filtrexx **NTS**

Sock fabric shall meet standards of Table 4.1. Compost shall meet the standards of Table 4.2.

Compost filter sock shall be placed at existing level grade. Both ends of the sock shall be extended at least 8 feet up slope at 45 degrees to the main sock alignment (Figure 4.1). Maximum slope length above any sock shall not exceed that shown on Figure 4.2. Stakes may be installed immediately downslope of the sock if so specified by the manufacturer.

Traffic shall not be permitted to cross filter socks.

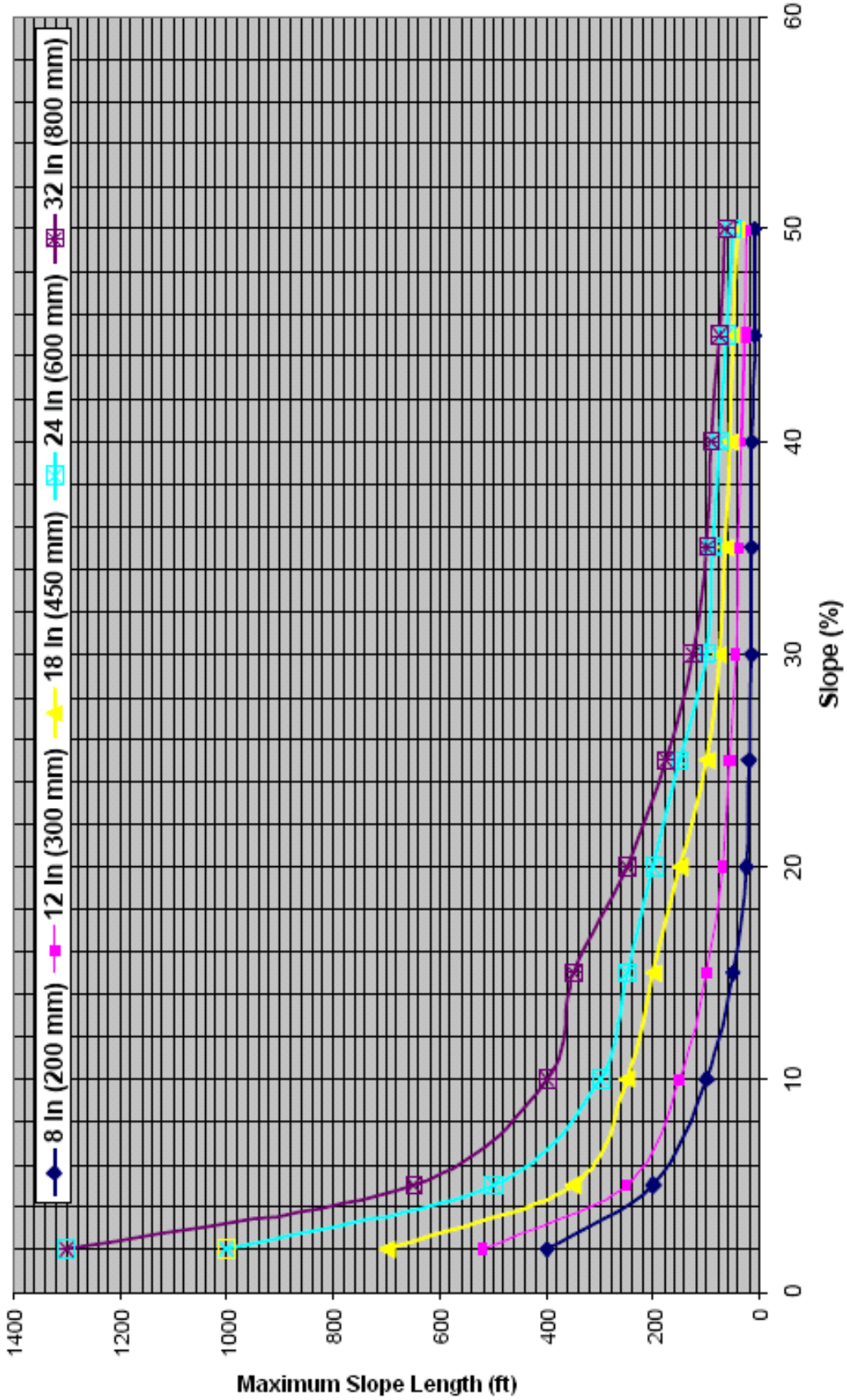
Accumulated sediment shall be removed when it reaches half the aboveground height of the sock and disposed in the manner described elsewhere in the plan.

Socks shall be inspected weekly and after each runoff event. Damaged socks shall be repaired according to manufacturer's specifications or replaced within 24 hours of inspection.

Biodegradable filter socks shall be replaced after 6 months; photodegradable socks after 1 year. Polypropylene socks shall be replaced according to manufacturer's recommendations.

Upon stabilization of the area tributary to the sock, stakes shall be removed. The sock may be left in place and vegetated or removed. In the latter case, the mesh shall be cut open and the mulch spread as a soil supplement.

FIGURE 4.2
MAXIMUM PERMISSIBLE SLOPE LENGTH ABOVE COMPOST FILTER SOCKS



NOTE: 8" diameter socks should only be used to control small (≤ ¼ acre) disturbed areas on individual house lots).

Adapted from Filtrexx

Comment 105 Attachment

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Site-specific crossing plans for HDD crossings can be found at Dominion's Project website (https://www.dom.com/about-us/news-center/natural-gas-projects-and-initiatives/atlantic-coast-pipeline/ferc-filings-and-information) under the October 17, 2016 – Supplemental Filing - Site-Specific Crossing Plans for HDD heading.

A summary of the risk of inadvertent return at each HDD crossing is found below.

Crossing	Pipe Diameter (inches)	Horizontal length	Risk of Hydrofracture
Blue Ridge Parkway	42	4,639 feet	Low
James River	42	2,965 feet	Low
Roanoke River	36	1,559 feet	Low
Fishing Creek	36	1,822 feet	Low
Swift Creek	36	1,629 feet	Low
Tar River	36	1,516 feet	Low
Contentnea Creek	36	1,327 feet	Unknown
Little River	36	1,446 feet	Low
Cape Fear River	36	1,654 feet	Low
Nottoway River	20	1,678 feet	Low
Blackwater River	20	2,234 feet	Moderate
Lake Prince	20	1,952 feet	Low
Western Branch Reservoir	20	1,464 feet	Low-Moderate
Nansemond River Tributary	20	3,435 feet	High
Nansemond River	20	4,127 feet	Moderate-High
Interstate 64	20	2,039 feet	Low
Route 17	20	2,951 feet	Moderate-High
Elizabeth River	20	1,730 feet	Low