WEST VIRGINIA RIVERS

September 4, 2017

Glen Casamassa, Associate Deputy Chief
USDA Forest Service
1400 Independence Ave SW, Mailstop #1104
Washington, DC 20250

Attn: Administrative Reviews

Re: Atlantic Coast Pipeline Decision Objection

Dear Associate Deputy Chief Casamassa,

West Virginia Rivers Coalition, along with the following organizations listed below, (collectively "WV Rivers") respectfully object to the Forest Service's Draft Record of Decision (ROD) for the Atlantic Coast Pipeline. The lead objector is WV Rivers Coalition pursuant to 36 C.F.R. § 218.8(d)(3).

WV Rivers requests that you, as the Reviewing Officer, convene a meeting to discuss issues raised in this objection, in accordance with 36 C.F.R. § 218.11(a).

The Responsible Officials for the draft ROD are:

Tony Tooke, Regional Forester Southern Region,
1720 Peachtree Road NW
Atlanta, GA 30309

Mary Beth Borst, Acting Regional Forester, Eastern Region,
626 East Wisconsin Avenue
Milwaukee, WI 53202

The Atlantic Coast Pipeline is proposed to be located within the Monongahela National Forest in West Virginia and the George Washington National Forest in Virginia.

The West Virginia Rivers Coalition (WV Rivers) is a 501(c)(3) nonprofit organization founded in 1990 by paddlers and whitewater enthusiasts who care deeply about restoring and caring for the Mountain State's renowned free-flowing waters and scenic beauty. Today, the WV Rivers is the statewide voice for water-based recreation and clean, drinkable, swimmable, and fishable rivers and streams--from the headwaters to wherever water flows in West Virginia. Our mission is to conserve and restore West Virginia's exceptional rivers and streams. We believe that clean water is the foundation of life, and that all people should respect and be able to enjoy clean West Virginia rivers and streams.

Each of the signed organizations and WV Rivers have important interests in the Monongahela National Forest lands that are affected by this action. These interests include past and ongoing uses of these public lands for recreational, scientific, and educational activities. The parties have all been actively involved in the NEPA review addressing the ACP proposal and filed comments on the DEIS. We incorporate by-reference the following documents that were "previously provided to the Forest Service by the objector during public involvement opportunities for the proposed project where written comments were requested by the responsible official" as allowed at 36 C.F.R. § 218.8(b)(4): FERC Accession Number 20170406-5620, WV Rivers comments on DEIS, April 6, 2017; FERC Accession Number 20160610-5150, WV Rivers scoping comments on GWNF-6 Route Alternative, June 10, 2016 (attached).

The ROD is legally deficient for the following reasons:

- The United States Forest Service ("Forest Service") may not adopt the Environmental Impact Statement ("EIS") issued for this project by the Federal Energy Regulatory Commission ("FERC") and must take necessary actions to meet all requirements of the National Environmental Policy Act ("NEPA") independently of FERC's action.
- The environmental analyses, and the record on which the draft ROD is based, fail to provide adequate support for ROD. The record omits vital analyses and fails to meet the needs the Forest Service has described throughout its review process for this project.

Failure to Satisfy NEPA Requirements

A. Inadequate DEIS Violates NEPA; Deprives Public of Right to Make Informed Comments

The Federal Energy Regulatory Commission ("FERC") published a Draft Environmental Impact Statement ("DEIS") and a notice requesting public comments on the DEIS on December 30, 2016. That DEIS was grossly deficient and, therefore, the Forest Service may not rely on the NEPA process to approve Forest Plan amendments. The legal standard for a DEIS is expressed in federal regulations which command that a DEIS must fulfill and satisfy to the fullest extent possible the requirements established for final statements in section 102(2)(C) of the Act. If a draft statement is so inadequate as to preclude meaningful analysis, the agency shall prepare and circulate a revised draft of the appropriate portion. The agency shall make every effort to disclose and discuss at appropriate points in the draft statement all major points of view on the environmental impacts of the alternatives including the proposed action. 40 C.F.R. § 1502.9(a).

As WV Rivers has stated in a previous submittal, "We found the DEIS lacking of the critical information needed to fully analyze the significant impacts of the project. Due to the lack of adequate information, we are unable to provide a comprehensive analysis of the DEIS. Because of this deficiency, we request a revised DEIS to be issued for the proposed project with all the necessary information to meet the requirements of the National Environmental Policy Act (NEPA). Specifically, the regulation explains that "NEPA procedures must ensure that environmental information is available to public officials and citizens before decisions are made and before actions are taken. The information must be of high quality. Accurate scientific analysis, expert agency comments, and public scrutiny are essential to

implementing NEPA." The ACP DEIS released fails to meet NEPA requirements and a revised DEIS must be issued. A complete DEIS is necessary to provide the planning and analysis required so that agency decision-makers can mitigate or avoid impacts, and can correctly identify the least-impacting alternative." Accession Number 20170406-5620, attachment, letter dated April 6, 2017.

Under NEPA, the EIS must be "a detailed statement," describing environmental impacts and alternatives. 42 U.S.C § 4332(C) [section 102(2)(C)]. The DEIS for the ACP fails to meet the regulatory mandate in many respects, as described in previous comments WV Rivers submitted to FERC. Comments from the Environmental Protection Agency ("EPA") support WV Rivers' arguments. Likewise, as evidenced by comments submitted by the Forest Service's expert staff, even the Forest Service insisted that the DEIS failed to provide a basis for meaningful analysis.

B. Inappropriate Definition of Project Purpose and Need

An appropriate definition of the purpose for a proposed project is vital. A statement of purpose that is too narrow will drive the entire NEPA process to conclusions that are designed merely to support the interests of the project proponent instead of the wider range of public interests that are to be served by final agency decisions. This is exactly the fault that is presented by FERC's DEIS for the ACP proposal and is one basis on which the Forest Service must reject FERC's NEPA process.

Section 1.1 (Project Purpose and Need) of the FEIS describes the purpose of the project is to serve the growing energy needs of multiple public utilities and local distribution companies in Virginia and North Carolina. But if the project is to be assessed in light of the public interest and not just the interest of the profit-making corporations promoting it, a more appropriate statement would cite energy needs for populations in Virginia and North Carolina and the goals of meeting those needs in an efficient and environmentally protective manner. Such a purpose would require consideration of a range of solutions that could meet energy needs, including renewable sources, and would dictate that this project be considered in context with the multitude of proposed natural gas pipelines currently in place or under review that can help meet the same purpose.

The Forest Service may not adopt a lead agency's statement of purpose unless that purpose reflects its agency obligations for preservation and enhancement of public lands. While the Forest Service can approve energy projects, such as natural gas pipelines, that will have negative impacts on the environment, the Service may not do so without thoroughly assessing whether such actions are consistent with the basic purposes for which National Forests are created: 1) improve and protect the forest within the boundaries, 2) secure favorable conditions of water flows, and 3) furnish a continuous supply of timber for the use and necessities of citizens of the United States. 16 U.S.C. § 475. The narrow purpose adopted by FERC in the EIS cannot meet the Forest Service's NEPA obligations or provide a valid basis for a decision on plan amendments.

The scope and scale of impacts to which this proposed project will contribute are huge and have far-reaching consequences for the public interest and, more specifically for the National Forest. The pipeline is directly and inextricably tied to the fracking operations that produce the gas and the consumers at the receiving end. To build the pipeline is to facilitate both "upstream" and "downstream" activities and is

dependent on them, so the purpose must be defined in a way that recognizes these connections and causal links. However, FERC has refused to incorporate any consideration of these associated activities and their environmental impacts into this NEPA review. This narrow focus was pre-ordained, because the purpose was so narrowly defined as to be essentially meaningless.

As WV Rivers stated in the DEIS comments submitted to FERC, "The only evidence of need for the pipeline is that ACP is contracting with its own affiliates. There does not appear to be any independent analysis of existing pipeline capacity. This leads to expensive overbuilding and needless environmental impacts. Former Commission Chairman Norman Bay said the commission should also consider whether capacity is needed to ensure deliverability to power generators, reliability benefits and concerns 'that anticipated markets may fail to materialize.' This issue must be fully analyzed in a revised DEIS." Accession Number 20170406-5620, attachment, letter dated April 6, 2017.

C. Inappropriate Climate Change Analysis

FERC failed to make any credible analysis of the relationships between this proposal and the occurrence or consequences of climate change. Two aspects of this issue must be addressed by the Forest Service before it may comply with NEPA. First, the Forest Service must describe the project's incremental impacts on climate change while including both carbon dioxide and methane emissions from all parts of the system to which the pipeline would be tied. This would include the fracking operations, the pipeline and all associated facilities, and the end users of the gas. As stated above, fracking operations cannot be divorced from the pipeline. It is widely recognized that this and other proposed pipelines would not be built without the fracking boom occurring in West Virginia and nearby states and, conversely, the future of fracking in those areas is largely dependent on the availability of pipelines to transport the gas to U.S. and foreign markets.

Second, the forests and mountains of West Virginia are particularly sensitive to warming trends and the associated ecological impacts. For a number of plant and animal species that are native to the areas to be affected by ACP, this area is at the extreme southern end of their ranges. The maintenance of cooler temperatures in these habitats, especially in higher elevations, will determine whether some of these species can survive in this region. Therefore, the impacts this project would cause to habitats and species that are sensitive to warming must be addressed in detail in the NEPA review and any possible mitigation measures to buffer these species from continuing and increasing warming must be discussed. Without question, the removal of forested tracts and of shading of waterbodies, among other effects, must be assessed and Forest Service must analyze whether actions can or must be implemented to ameliorate those effects.

As WV Rivers stated in the DEIS comments submitted to FERC, "While this DEIS does provide some information on greenhouse gases, it does not include a detailed analysis of methane emissions. Additionally, it does not address the basic question of whether cumulative emissions will increase or decrease, whether the CO2 emissions of end users of the gas from the ACP pipeline displace, or add to, emissions from existing coal-fired power plants, or the impacts of 'upstream' emissions from additional gas drilling, pipelines and compressor stations. Former Commission Chairman Norman Bay called on the

commission to 'analyze the environmental effects of increased regional gas production from the Marcellus and Utica' and consider 'the downstream impacts of the use of natural gas and … a life-cycle greenhouse gas emissions study.' The revised DEIS must address these issues." Accession Number 20170406-5620, attachment, WV Rivers letter dated April 6, 2017.

Environmental Impacts Analyses Do Not Support Forest Service ROD or Justify Plan Amendments

ACP construction will affect previously undisturbed or minimally disturbed National Forest; previously unbroken interior forest; steep, erodible forested mountain slopes; erodible remote mountain ridge tops; ephemeral and perennial streams and wetlands; and recreational use. EPA and the Forest Service in addition to WV Rivers commented on the inadequate information concerning these issues in the DEIS.

EPA stated in their comments on the DEIS, "Given that blasting, in combination with steep slopes, sensitive karst topography and active or abandoned mines and quarries, has the potential to result in adverse impacts, we recommend efforts be made to complete relevant ground reconnaissance surveys prior to release of the final EIS. EPA also recommends evaluating the potential effects of these geologic hazards, including mining-related subsidence, landslides and flash flooding, on pipeline construction and operation." Accession Number 20170411-0262, attachment, EPA letter dated April 6, 2017.

Additionally, the Forest Service submitted comments on the DEIS, Accession Number 20170406-5532, and the Construction, Operation, and Maintenance (COM) Plan, Accession Number 20170411-5440, pointing out 69 pages of discrepancies in the DEIS and 65 pages of needed corrections in the COM Plan. In reviewing the FEIS, these issues and concerns raised by the Forest Service were not all addressed.

A. Inadequate Information on Steep Slopes

WV Rivers comments on the DEIS stated, "The DEIS fails to adequately address slope hazards. The DEIS states **'**Atlantic and DTI have not yet completed the Phase 2 analysis and field surveys at all evaluation sites, and final measures related to slope hazards have not yet been completed for ACP and SHP.' Mitigation designs for steep slopes is critical in evaluating the hazards posed by construction on slip prone areas. The public must be provided access to this information in a revised DEIS. The failure to include complete information on this issue in the DEIS implies that information on steep slopes is not particularly important to decision-making, a conclusion contradicted by both science and common sense, as slope hazards can lead to catastrophic failure of the pipeline. Such a failure could lead to substantial damage to the natural environment, private and public property, and loss of human life, which, according to 40-CFR-1508.27, clearly would be defined as a significant impact, and which therefore, must be addressed in a revised DEIS." Accession Number 20170406-5620, attachment, WV Rivers letter dated April 6, 2017.

In Section 8.0 UPLAND EROSION CONTROL PLAN of the Construction, Operation, and Maintenance Plan reference is made to several Attachments, but the Attachments are not included within the DEIS:

Attachment A – Construction ROW diagrams
Attachment B – Alignment sheets
Attachment C – Dominion's Slope Stability Policy and Procedure.
Attachment G – Soil Survey Report

In 8.7.2.1 Steep Slopes, Attachment A is erroneously referred to as "construction alignment sheets, and Attachment G is erroneously referred to as "site specific designs."

A selection of the Forest Service comments related to the inadequate information and concerns around slope stability in the COM Plan are captured below (Accession Number 20170411-5440):

- Typical right-of-way configurations provided in Attachment A are inadequate for a COM Plan on NFS lands. The first configuration ("Atlantic Coast Pipeline AP-1 (Federal Lands Only) Typical Construction Right-of-Way Non-Agricultural Areas") is a profile (cross-section) with dimensions (feet) but is for flat ground where the only excavation is for the trench. The second configuration ("Atlantic Coast Pipeline and Supply Header Projects Cut and Fill Construction") is a profile (cross-section) for side hill construction but with unknown dimensions ("Additional ROW As Required") and vertical and/or horizontal distortion of configuration. The Cut and Fill Construction configuration has unrealistic and unstable cut-and-fill slope angles. Neither of these two configurations is representative of most of the proposed pipeline ROW construction on NFS lands.
- Because the configurations in Attachment A are not representative of most of the proposed pipeline ROW construction on NFS lands, and because the Cut and Fill Construction configuration has unrealistic and unstable cut-and-fill slope angles, we have concerns about the basis for ACP's determination of the "exact dimensions of the proposed construction right-of-way widths on NFS lands" in the alignment sheets. Attachment A includes very general typical drawings, not specific to USFS. They do not include the correct buffers around streams as required by Forest Plans.
- In order to verify land requirements for ATWS, typical cross-sections with dimensions (feet) and stable angles for cut and fill slopes are needed where ATWS would have cuts or fills including log landings or storage of temporary spoils. See the comments on TOC on the need for several typical drawings in an Excavation and Embankment (Cut and Fill) Plan in order to verify land requirements ATWS. Equally important is that the ATWS for stream crossings in the mountains narrow valleys would be excavated into steep slopes at the base of or on the lower slopes of the mountainside. Stream down cutting and incision in narrow mountain valleys makes these lower slopes near streams susceptible to stream or storm-induced landslides as well as excavation-induced slope failures, such as by a road or pipeline construction.
- Timber harvesting on steep slopes (40% or greater) would need to be done in a manner that ensures slope stability and complies with LRMP SW07 from the time the timber is harvested until pipeline construction begins. Winter logging must meet LRMP SW09 as well as all other erosion control plans and LRMP standards. Timber harvesting by use of skid trails and landings must comply with SW40.

- The identified seasonal restrictions on timber removal operations may also conflict with current Forest Plan standards addressing slope stability concerns when working in areas with steep slopes, as well as other aquatic T&E and sensitive species concerns of soil movement and stream crossings that restrict timber removal activities during winter months. Conflicting seasonal restrictions concerning T&E and Migratory Bird species have been brought to the attention of the FWS.

With 65 pages of comments and concerns on the COM Plan, the Forest Service then issued their ROD simply amending the Land and Resource Management Plan to exempt the ACP from complying with the standards within the LRMP. For example, "Standard SW07: Use of wheeled and/or tracked motorized equipment may be limited on soil types that include the following soil/site conditions with the exception of the construction of Atlantic Coast Pipeline, where the applicable mitigation measures identified in the COM Plan and SUP must be implemented." However, relying on the COM Plan and SUP will be ineffective in protecting the resources on public lands due to the inadequacies of the COM Plan that the Forest Service has identified.

B. Inadequate Information of Geology on Federal Lands

WV Rivers comments on the DEIS states, "The DEIS fails to satisfy the NEPA requirements for construction on public lands. The DEIS states, 'Atlantic has not provided the information requested by the FS to access potential project-induced landslide hazards and also the effectiveness of proposed mitigation measures for restoration of steep slopes on MNF lands.' This statement appears to have a typo; 'access' should be corrected to say 'assess'. The United States Forest Service (USFS) must have detailed information to assess the project's impacts on public lands. If the USFS has requested this information to adequately assess the impacts and ACP has not provided it, then the DEIS was issued prematurely. The USFS must have all the information requested to make their determination. Failure to provide this information violates NEPA requirements. FERC must issue a revised DEIS with the information requested by the USFS."

Regarding the statement in the DEIS that impacts on Karst terrain and steep slopes would be minimized, the Forest Service concluded that "The Forest Service cannot concur with this conclusion for National Forest land until all erosion control, steep slope procedures, etc. are available for review and a FS decision on NFS lands has been made," Accession Number 20170406-5532.

However, the Forest Service has not yet received all the information requested in their comments on the DEIS and COM Plan. Additionally, some of the recommendations FERC listed in the FEIS is to provide this information to the agency prior to construction. The Forest Service cannot legally release their ROD without a thorough review of the information that was requested during the NEPA process.

C. Inadequate Information Concerning Landslides

WV Rivers comments on the DEIS related to landslides included the following statement, "The DEIS does not provide adequate information to determine that impacts from landslides will be minimal. The DEIS states 'However, Atlantic and DTI are currently working to provide documentation of the likelihood

that their proposed design features and mitigation measures would minimize the risk of landslides in the project area.' Without this information FERC cannot conclude that ACP has minimized the risk of landslides in the project area. A revised DEIS must be issued which includes the deficient information. NEPA specifically requires agencies to 'Take a Hard Look' at the impacts of the proposed action, and to allow public review of that information, before making a decision. Asking the public to comment on incomplete information, and assuming that any subsequent documentation filed by ACP will mitigate all hazards, clearly cannot be construed as an objective analysis of impacts."

Additionally, when commenting on the fact that Phase 2 analysis had not been completed, the Forest Service stated that "This information will be critical to inform the site-specific designs on MNF lands as well as the effects analysis of the FEIS. The Forest Service will need to review this data once it becomes available. The results will need to be incorporated into the Best in Class site specific designs."

However, the FEIS states that "Because analysis, field surveys, and final measures related to slope hazards have not yet been completed for ACP and SHP, we recommend that Atlantic and DETI file the results of its geotechnical studies and geohazard analysis field reconnaissance, and identify mitigation that would be implemented in slope hazard areas during construction and operation of the projects."

Because this necessary information is not available for the Forest Service to base their decision, the NEPA process cannot be deemed sufficient and any decision by the Forest Service cannot be adequately supported. The final approval by the Forest Service may be premature and may give license for the Applicant to cause grave damages to public resources if the agency relies only on the documents submitted and assessed prior to the publication of the FEIS. On the other hand, if the Forest Service relies on these documents now, the Service will have violated the dictates of NEPA by seeking to base its decisions on information that was not provided in the open process.

D. Inadequate Information on Springs and Groundwater Impacts

WV Rivers comments on the DEIS state, "The DEIS does not supply sufficient information on water supply wells and springs**.** The DEIS states 'Atlantic should 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.' This information is critical in determining the impacts of construction on private drinking water sources. The results of the completed field surveys must be included in a revised DEIS."

Likewise, the Forest Service comments on the DEIS concur, "It is unclear and unsubstantiated how an effects determination can be made if the number and location of wells and springs is unknown."

Paradoxically, FERC recommends in the FEIS, "Prior to construction, Atlantic and DETI should 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.

However, this issue now seems to be inconsequential with the ROD stating that, "Implementation of construction, mitigation, and monitoring procedures listed above would avoid or minimize groundwater impacts on the MNF and GWNF." The Forest Service statements in the comments on the DEIS and ROD are contradictory.

E. Water Quality Impacts Are Not Fully Defined

Any action approved by the Forest Service must insure that all applicable water quality. Nearly all of the waters on the Forest qualify as "high quality waters" under state antidegradation requirements and, as such, must be maintained in these high quality conditions without measurable impairments or lessening of quality.

WV Rivers comments on the DEIS stated, "The DEIS does not adequately address Tier 3 stream impacts. The DEIS states, "Use of this existing access road would not likely impact the stream. We acknowledge that various tributaries that flow into Tier 3 streams would be crossed by the projects, some of which may contain trout and cross public lands. By implementing the construction measures discussed below in section 4.3.2.6, impact on these streams and stream biota would be effectively minimized." The FERC cannot conclude that construction would not 'likely' impact Tier 3 streams without an antidegradation review as required by WV State Code *§22-11-7b. Water quality standards; implementation of antidegradation procedures; procedure to determine compliance with the biologic component of the narrative water quality standard.* An antidegradation review must be performed on any Tier 3 streams potentially impacted by ACP."

Additionally, Forest Service comments on the DEIS point to another Tier 3 stream potentially impacted, "ACP crosses an unnamed tributary of Shock Run (Reach Code = 05050003002200) that is on the MNF but currently it is not identified as a Tier 3 stream. However, there is more than a reasonable chance that this tributary is utilized by a component of the wild brook trout population known to inhabit the Shock Run watershed. If so, this tributary would in fact be a Tier 3 stream by definition even though it is not currently identified as such. Conducting a fish population survey in this tributary could determine the validity of this professional conjecture."

None of the analyses of potential water quality impacts, by FERC, the Applicant, or by state governments includes discussion of antidegradation requirements, including the absolute requirement in the Clean Water Act that "existing uses" be fully protected and maintained. Antidegradation is particularly important for many of the streams on National Forest land, because intact forests and careful management has prevented water quality impairments found in other waterbodies.

The analyses of potential impacts to water quality almost uniformly refer to a goal of minimizing or lessening potential pollution impacts, however, this is not the level of protection that is mandated by state standards or the Clean Water Act. The Forest Service must assure that conditions are in place to uphold all designated uses, meet all numeric and narrative criteria, and comply with antidegradation policies and analyses sufficient to provide these assurances have not been completed. Therefore, it falls to the Forest Service to insist that these analyses be completed and to deny the Right of Way (ROW) grant unless and until all proper assurances can be made.

F. Water Resource Impacts are Incomplete

WV Rivers stated in our comments, "The DEIS does not identify water sources for dust control. The DEIS states, "Water sources for dust control are still being evaluated by Atlantic and DTI." Atlantic will use approximately 38.2 million gallons of water for dust control during the driest times and when streams are at their lowest flow. The DEIS must identify the sources of water for dust control and the approximate amount of the withdrawal from each water source. Without this information the DEIS does not satisfy NEPA requirements and a revised DEIS must be issued which contains the deficient information.

The Forest service expressed similar concerns, "it is possible that water withdrawals and discharges off NFS lands may affect aquatic habitats and biota on NFS lands (for example, withdrawal from Big Spring Fork in West Virginia could impact the Elk River where it flows across NFS lands). Therefore, such potential impacts need to be considered and disclosed in the analysis." Accession Number 20170406-5532.

Even EPA recommended providing the proposed or potential sources of water used for dust control and anticipated quantities and practicable measures that could be implemented to ensure water sources and aquatic biota are not adversely affected. Accession Number 20170411-0262.

However, the FEIS has yet to provide information on sources of water for dust control stating, "Atlantic and DETI should file with the Secretary, for review and written approval by the Director of OEP, proposed or potential sources of water used for dust control, anticipated quantities of water to be appropriated from each source, and the measures that would be implemented to ensure water sources and any related aquatic biota are not adversely affected by the appropriation activity."

In the ROD, the Forest Service cannot address impacts of water withdrawals for dust control if those sources have yet to be identified.

G. Cumulative Impacts Analysis on Water Resources Are Not Provided

The watershed size that FERC used in its cumulative impacts analyses for water quality is totally inappropriate and provides no useful information about the combinations of effects that will result in watersheds, particularly in some of the small, sensitive headwater stream systems on the National Forest.

WV Rivers comments include, "The DEIS fails to address cumulative impacts on headwater streams. First-order or headwater streams are vitally important to the health of the watershed. The overall health of a watershed is dependent on its network of tributaries. Further analysis is needed to understand the impacts to headwater streams. A project of this magnitude that impacts multiple watersheds must be assessed at a regional scale. The DEIS must contain an analysis on the projects total impacts within each watershed to determine the overall impacts of the project. ACP must provide an analysis for each watershed including information on the number of headwater stream crossings by watershed and the number of stream crossings on each stream if waterbodies are crossed multiple times. At the landscape

level, impacts from the ROW are exacerbated by the cumulative impacts of the proposed access roads. There is a negative correlation between road miles within a watershed and water quality. An analysis of the pre-construction vs. post-construction ratio of roads within a basin must be included in the DEIS to adequately assess the impacts from the proposed project."

Additionally, EPA comments on the DEIS state, "EPA recommends that additional analysis of cumulative impacts be provided in the FEIS," and goes on to provide an example of a methodology used to assess cumulative impacts. Accession Number 20170411-0262.

However, FERC fails to take EPA's recommendation into consideration in the FEIS. Likewise, the Forest Service ROD fails to mention cumulative impacts on water resources.

H. Habitat Fragmentation and Edge Effects

One of the few environmental impacts FERC acknowledged would be significant was the removal of intact forests and associated changes in ecosystems and natural processes. Thus, a proper analysis of these types of impacts is particularly important and must be paramount in the Forest Service's deliberations to protect National Forest lands. Despite very detailed and well-documented concerns about the methods used to assess forest fragmentation and loss of core forest values submitted by state agencies, FERC relied on incomplete and professionally incompetent reports and analyses from the Applicant for completion of the FEIS.

In our comments on the DEIS regarding this issue, WV Rivers stated "The DEIS analysis on forest fragmentation is incomplete. The DEIS states 'Several agencies, including the FS and WVDNR, have expressed concerns regarding forest fragmentation and the impacts on interior forest and their associated wildlife species.' FERC recommends several additional items be submitted prior to the close of the DEIS comment period to address the deficiency. The additional information should have been included in the DEIS. A revised DEIS must be issued containing this critical information."

The Forest Service agreed that the information on fragmentation was inadequate stating, "More supporting documentation of effects statements in this section is needed from the scientific literature. Fragmentation is a well-studied issue." Accession Number 20170406-5532.

While forest fragmentation has been classified as a significant impact, the ROD does not address long term impacts on national forest lands and instead states, "The greatest potential for impact will be during the estimated 18-month construction phase, with impacts diminishing as reclamation is completed. Because of the adverse environmental impacts, we are requiring a broad spectrum of mitigation measures for the ACP Project. Therefore through application of mitigation and the limited extent of the project, long-term productivity of NFS lands would be maintained." However, creation of additional forest edge habitat through fragmentation will be a lasting impact which reclamation and mitigation will not solve creating reductions in the long-term productivity of NFS land.

I. Information on Impacts to Freshwater Mussels is Incomplete

WV Rivers comments on the DEIS state, "Conservation measures to avoid or mitigate impacts to threatened and endangered mussel species have not been identified. The DEIS states 'FERC and FWS will re-evaluate this determination upon receipt of pending survey results and proposed conservation measures.' If FERC and FWS have not made a final determination on the impacts to threatened and endangered mussel species than the DEIS was released prematurely. A revised DEIS must be issued when the determination of impacts has been made."

Furthermore, in comments on the DEIS, the Forest Service stated, "Effects cannot be analyzed without completed surveys, or assumed presence. Sediment analysis has not been incorporated which would inform on downstream effects."

The FEIS states, "Atlantic and DETI should file with the Secretary, for review and written approval by the Director of OEP, an aquatic invasive species protocol for West Virginia mussel relocation efforts on both ACP and SHP." Since this information has not yet been submitted to the Forest Service, the ROD is based on insufficient information regarding potential impacts to freshwater mussels.

J. Impacts on Wetlands Inconsistent

As WV Rivers stated in comments in the DEIS, "The DEIS prematurely concludes that the project would not significantly impact wetlands. The DEIS states **'**Based on Atlantic's and DTI's measures to avoid, minimize, and mitigate wetlands, along with adherence to their construction and restoration plans; the FERC *Procedures*; and federal, state, and local permit requirements, we have determined that ACP and SHP would not significantly impact wetlands.' The mitigation plan has not been completed and the wetland permits have not been issued; therefor, FERC is premature in concluding that the project will not significantly impact wetlands. FERC must have all the pertinent information before drawing that conclusion."

The Forest Service pointed out several issues regarding wetlands in the COM Plan, Accession Number 20170406-5440. A few of those issues are included below:

- Document states: "Wetland boundaries and other environmentally sensitive areas will also be marked at this time." Wetlands and environmentally sensitive areas should have already been identified and marked by qualified individuals. Please describe what is meant by environmentally sensitive areas and how the surveyors will know if they are in them.
- 4th paragraph in this section (Section 2.1.9.1) states that AWTS will be located at least 100' from water's edge at each waterbody on USFS land. However, Attachment A (Right-Of-Way Configurations) shows only a 50' distance on multiple sheets. All of these sheets in Attachment A need to be changed.
- Two wetlands are proposed to be crossed by 2 roads on the GWNF. The total area affected by these two roads combined is 0.6 acres, shown in Table 2.1.1-1 on page 6, and here the total area of wetland crossed is 0.1 acres. Please clarify whether all possible reasonable alternatives to the construction of these two roads have been fully explored. We recall 3 locations on the GWNF; the MP 99.3 location is missing. Please also discuss locations and construction methods for all the wetlands crossed by access roads or ATWS.

- Forest plan standards require a 100ft buffer for perennial waterbodies and thus wetlands. "Site-specific justifications for extra work areas that would be closer than 50 feet from a waterbody or wetland;" are not acceptable to the Forest Service.
- The FS has not seen the erosion and sediment control requirement plans for construction which include the placement of E&S controls and BMP control locations along the pipeline route on NFS Lands. These plans should include identification of areas that are > 40% slope, wetlands, streams, riparian areas, mileposts, environmentally sensitive areas, construction entrances, sensitive species locations and buffers, and all E&S controls and BMP controls (i.e., trench plug locations, timber mats, ATWS, temporary workspaces, permanent workspaces, filter socks, slope breakers, bleeder drain outlets, etc.) drawn to scale.
- "Additional temporary workspace (ATWS) is proposed at certain locations, such as road crossings, and where additional spoil storage, log landings or equipment staging is needed." This statement is inadequate in describing the scope and magnitude of additional temporary workspace (ATWS) on NFS lands. Section 8.3.2 states, "ATWS measuring 50 by 150 feet will typically be required on both sides of the corridor and both sides of the crossing at wetlands, waterbodies measuring greater than 10 feet in width, two lane roads, and railroads. ATWS measuring 25 by 100 feet will typically be required on both sides of the corridor and both sides of the crossing at waterbodies measuring less than 10 feet in width and single lane roads." Where ATWS adds 50 feet on each side of the 125-feet-wide temporary construction ROW, the results is a 225-feet-wide temporary construction ROW. Where ATWS adds 25 feet on each side of the 125-feet-wide temporary construction ROW, the results is a 175-feet-wide temporary construction ROW. The ATWSs 40 to 80% increase in width is a major increase in temporary construction. So far, more than 80 ATWS are identified on the GWNF, and at least 11 ATWS on the MNF. 80 ATWS would mean about 40 sections where the temporary construction ROW would be 175-feet-wide or 225-feet-wide rather than 125-feet-wide.
- In order to verify land requirements for ATWS, typical cross-sections with dimensions (feet) and stable angles for cut and fill slopes are needed where ATWS would have cuts or fills including log landings or storage of temporary spoils. See the comments on TOC on the need for several typical drawings in an Excavation and Embankment (Cut and Fill) Plan in order to verify land requirements ATWS.

However, the ROD states "We estimate about 0.4 acre of wetlands may be impacted by the ACP project on NFS lands. The required mitigation measures in the COM Plan to protect wetlands and minimize compaction include: limiting the construction right-of-way width to 75 feet or less through wetlands ; placing equipment on mats; using low-pressure ground equipment; limiting equipment operation and construction traffic along the right-of-way; locating ATWS at least 100 feet away from wetland boundaries (unless approved by the FS); cutting vegetation at ground level; limiting stump removal to the trench; segregating the top 12 inches of soil, or to the depth of the topsoil horizon; using "push-pull" techniques in saturated wetlands; limiting the amount of time that the trench is open by not trenching until the pipe is assembled and ready for installation; not using imported rock and soils for backfill; and not using fertilizer, lime, or mulch during restoration in wetlands. ACP must

also follow U.S. Army Corps of Engineer permit terms and conditions and the FERC Waterbody and Wetland Construction and Mitigation Procedures. The Forest Service will continue to work with Atlantic to ensure appropriate erosion control and restoration measures are incorporated into the COM plan to further reduce potential impacts to wetlands on NFS lands."

Yet, the Forest Service pointed out numerous inconsistencies within the COM Plan. It is irresponsible for the Forest Service to rely on ACP's COM Plan to mitigate wetland impacts when the Forest Service's own staff has identified multiple failures within the COM plan to adequately protect wetland resources on public lands.

Relief Requested

WV Rivers asks that the Reviewing Officer issue a Record of Decision that rejects the application for amendments to the Monongahela National Forest Land and Resource Management Plan for the ACP, based on the insufficiency of information in the record and on the evidence of unacceptable environmental impacts that would occur if the proposal were to proceed.

Respectfully Submitted,

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WEST VIRGINIA RIVERS

April 6, 2017

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

Re: Draft Environmental Impact Statement, Docket No. CP15-554

Dear Deputy Secretary Davis,

West Virginia Rivers Coalition, along with the organizations signed below, respectfully submit the following comments on the Draft Environmental Impact Statement (DEIS) for the Atlantic Coast Pipeline (ACP), Docket No. CP15-554.

We found the DEIS lacking of the critical information needed to fully analyze the significant impacts of the project. Due to the lack of adequate information, we are unable to provide a comprehensive analysis of the DEIS. Because of this deficiency, we request a revised DEIS to be issued for the proposed project with all the necessary information to meet the requirements of the National Environmental Policy Act (NEPA). Specifically, the regulation explains that "NEPA procedures must ensure that environmental information is available to public officials and citizens before decisions are made and before actions are taken. The information must be of high quality. Accurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA." The ACP DEIS released fails to meet NEPA requirements and a revised DEIS must be issued. A complete DEIS is necessary to provide the planning and analysis required so that agency decision-makers can mitigate or avoid impacts, and can correctly identify the least-impacting alternative.

The gas industry in general, and ACP in particular, consistently display an attitude of arrogance and constantly violate environmental rules and requirements. Even those conditions agreed to by industry go by the wayside when economic conditions encourage, or lax monitoring allow, the company to ignore those requirements. As such, FERC must assume a worst-case scenario as the most probable outcome for any impacts not fully mitigated by enforceable requirements.

Additionally, we request the following to be addressed in the revised DEIS:

<u>1.1 Project Purpose and Need</u>

Page 1-2: The DEIS does not adequately address the need of the project. The only evidence of need for the pipeline is that ACP is contracting with its own affiliates. There does not appear to be any independent analysis of existing pipeline capacity. This leads to expensive overbuilding and needless

environmental impacts. Former Commission Chairman Norman Bay said the commission should also consider whether capacity is needed to ensure deliverability to power generators, reliability benefits and concerns "that anticipated markets may fail to materialize." This issue must be fully analyzed in a revised DEIS.

4.1.4.2 Slope Stability

Steep Slopes, page 4-28: The DEIS fails to adequately address slope hazards. The DEIS states **"**Atlantic and DTI have not yet completed the Phase 2 analysis and field surveys at all evaluation sites, and final measures related to slope hazards have not yet been completed for ACP and SHP." Mitigation designs for steep slopes is critical in evaluating the hazards posed by construction on slip prone areas. The public must be provided access to this information in a revised DEIS. The failure to include complete information on this issue in the DEIS implies that information on steep slopes is not particularly important to decision-making, a conclusion contradicted by both science and common sense, as slope hazards can lead to catastrophic failure of the pipeline. Such a failure could lead to substantial damage to the natural environment, private and public property, and loss of human life, which, according to 40-CFR-1508.27, clearly would be defined as a significant impact, and which therefore, must be addressed in a revised DEIS.

4.1.4.5 Mine Subsidence

Page 4-33: The DEIS fails to address potential impacts associated with underground mines. The DEIS states, **"**Atlantic and DTI are in the process of evaluating the potential for underground mines to affect the proposed ACP and SHP; however, these evaluations are not yet complete." ACP would cross 15 abandoned underground coal mines; however, a Mining Area Construction Plan has not been submitted. Construction over underground mines creates a potential safety hazard and threatens the integrity of the pipeline. This issue must be addressed in a revised DEIS. FERC cannot determine that the potential impacts have been avoided and mitigated without additional evaluation and planning by ACP.

4.1.6 Geology on Federal Lands

Monongahela National Forest, page 4-37: The DEIS fails to satisfy the NEPA requirements for construction on public lands. The DEIS states, "Atlantic has not provided the information requested by the FS to access potential project-induced landslide hazards and also the effectiveness of proposed mitigation measures for restoration of steep slopes on MNF lands." This statement appears to have a typo; "access" should be corrected to say "assess". The United States Forest Service (USFS) must have detailed information to assess the project's impacts on public lands. If the USFS has requested this information to adequately assess the impacts and ACP has not provided it, then the DEIS was issued prematurely. The USFS must have all the information requested to make their determination. Failure to provide this information violates NEPA requirements. FERC must issue a revised DEIS with the information requested by the USFS.

4.1.7 Conclusion

Page 4-42: **The DEIS does not provide adequate information to determine that impacts from landslides will be minimal.** The DEIS states "However, Atlantic and DTI are currently working to provide documentation of the likelihood that their proposed design features and mitigation measures would minimize the risk of landslides in the project area." Without this information FERC cannot conclude that ACP has minimized the risk of landslides in the project area. A revised DEIS must be issued which includes the deficient information. NEPA specifically requires agencies to "Take a Hard Look" at the impacts of the proposed action, and to allow public review of that information, before making a decision. Asking the public to comment on incomplete information, and assuming that any subsequent documentation filed by ACP will mitigate all hazards, clearly cannot be construed as an objective analysis of impacts.

4.3.1.5 Water Supply Wells and Springs

Page 4-74: The DEIS does not supply sufficient information on water supply wells and springs. The DEIS states "Atlantic should 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." This information is critical in determining the impacts of construction on private drinking water sources. The results of the completed field surveys must be included in a revised DEIS.

4.3.1.7 Groundwater Impacts and Mitigation

Karst Groundwater, page 4-84: The DEIS does not adequately identify mitigation measures in karst terrain. The DEIS states "Atlantic should 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 would be implemented to minimize these impacts, for review and written approval by the Director of OEP." The results of consultations and additional mitigation procedures to avoid impacts in karst terrain is critical to ensure that avoidance and mitigation is adequate. This information must be included in a revised DEIS.

4.3.2.2 Existing Surface Water Resources

Field Survey Summary, page 4-89: Details of crossing plans for major waterbodies are incomplete. The DEIS states, "site-specific construction and restoration measures have not been incorporated into the plans." This information is vital when assessing the impacts of construction on major waterbodies and must be included in a revised DEIS.

West Virginia Surface Water Classifications, page 4-94: The DEIS does not adequately address Tier 3 stream impacts. The DEIS states, "Use of this existing access road would not likely impact the stream. We acknowledge that various tributaries that flow into Tier 3 streams would be crossed by the projects, some of which may contain trout and cross public lands. By implementing the construction measures

discussed below in section 4.3.2.6, impact on these streams and stream biota would be effectively minimized." The FERC cannot conclude that construction would not 'likely' impact Tier 3 streams without an antidegradation review as required by WV State Code *§22-11-7b. Water quality standards; implementation of antidegradation procedures; procedure to determine compliance with the biologic component of the narrative water quality standard.* An antidegradation review must be performed on any Tier 3 streams potentially impacted by ACP.

Public Drinking Water Sources, page 4-104: The DEIS does not adequately address impacts to public drinking water supplies. The DEIS states "ten surface water intakes are within 3 miles of ACP, and eight source water protection watersheds would be crossed…The remaining waterbody crossings would be conducted using a dry crossing method, which reduces sedimentation and turbidity impacts, as the pipeline trench is isolated from flowing water." While the DEIS mentions the crossing method reduces sedimentation, it provides no basis for this claim. A turbidity analysis is needed where the pipeline would impact source water protection areas. Excess sediment in source water accelerates the formation of haloacetic acids when chlorine is added for treatment purposes. Haloacetic acids are regulated by EPA under the Safe Drinking Water Act. Excess sediment in source water can cause water utilities to exceed the standards resulting in undue hardships on the water utility and endangering human health.

Hydrostatic Testing and Dust Control Procedures, page 4-111: **The DEIS does not identify water sources for dust control.** The DEIS states, "Water sources for dust control are still being evaluated by Atlantic and DTI." Atlantic will use approximately 38.2 million gallons of water for dust control during the driest times and when streams are at their lowest flow. The DEIS must identify the sources of water for dust control and the approximate amount of the withdrawal from each water source. Without this information the DEIS does not satisfy NEPA requirements and a revised DEIS must be issued which contains the deficient information.

First-order Streams: The DEIS fails to address cumulative impacts on headwater streams. First-order or headwater streams are vitally important to the health of the watershed. The overall health of a watershed is dependent on its network of tributaries. Further analysis is needed to understand the impacts to headwater streams. A project of this magnitude that impacts multiple watersheds must be assessed at a regional scale. The DEIS must contain an analysis on the projects total impacts within each watershed to determine the overall impacts of the project. ACP must provide an analysis for each watershed including information on the number of headwater stream crossings by watershed and the number of stream crossings on each stream if waterbodies are crossed multiple times. At the landscape level, impacts from the ROW are exacerbated by the cumulative impacts of the proposed access roads. There is a negative correlation between road miles within a watershed and water quality. An analysis of the pre-construction vs. post-construction ratio of roads within a basin must be included in the DEIS to adequately assess the impacts from the proposed project.

Stream Bank Cover: **The DEIS fails to address loss of stream bank cover due to stream crossings.** The DEIS should include an analysis of the loss of stream bank cover on a watershed scale to determine the

% loss of stream bank cover by watershed to provide a better understanding of the potential impacts of the project.

4.3.3.8 Wetland Mitigation

Page 4-125: The Wetlands Mitigation plan is not included within the DEIS. The DEIS states "construction and operation of ACP would temporarily and permanently impact 783.4 and 247.5 acres of wetlands, respectively." However, the wetlands mitigation plan is not included in the DEIS and FERC recommends submitting it prior to construction. This plan is critical in assessing whether the impacts to wetlands have been mitigated properly. Allowing the plan to be submitted prior to construction prevents the public from reviewing and commenting on the wetland mitigation plan, undermining the public 's participation and failing to meet the requirements of NEPA. The Wetland Mitigation Plan must be included in a revised DEIS.

Wetland Impacts: The DEIS fails to address the project's impact on wetland functions regarding water storage for flood prevention. The DEIS must provide an analysis of the disruption of water storage for flood control. The analysis must include watershed-based wetland impacts with details on the acres of impacted wetlands by watershed to determine whether flooding within the watershed has the potential to significantly increase as a result of the loss of wetland functions during construction and operation of the pipeline.

4.3.3.10 Conclusion

Page 4-125: The DEIS prematurely concludes that the project would not significantly impact wetlands. The DEIS states **"**Based on Atlantic's and DTI's measures to avoid, minimize, and mitigate wetlands, along with adherence to their construction and restoration plans; the FERC *Procedures*; and federal, state, and local permit requirements, we have determined that ACP and SHP would not significantly impact wetlands." The mitigation plan has not been completed and the wetland permits have not been issued; therefor, FERC is premature in concluding that the project will not significantly impact wetlands. FERC must have all the pertinent information before drawing that conclusion.

4.5.2.4 Karst, Cave, and Subterranean Habitat

Page 4-157: The DEIS does not adequately address impacts to subterranean habitat. The DEIS states "Atlantic should file with the Secretary, and provide to the FWS, FS, WVDNR, and VDGIF, a revised *Karst Mitigation Plan*" Conservation measures to address potential impacts to subterranean obligate species have not been identified. The DEIS must include this critical information to adequately assess the potential impacts.

4.5.6 Habitat Fragmentation and Edge Effects

Page 4-165: The DEIS analysis on forest fragmentation is incomplete. The DEIS states "Several agencies, including the FS and WVDNR, have expressed concerns regarding forest fragmentation and the impacts on interior forest and their associated wildlife species." FERC recommends several additional items be submitted prior to the close of the DEIS comment period to address the deficiency. The additional

information should have been included in the DEIS. A revised DEIS must be issued containing this critical information.

4.6.2.1 West Virginia Threatened and Endangered Resources

Brook Trout, page 4-176: The DEIS does not adequately address impacts to brook trout. The DEIS states "the FWS encouraged Atlantic and DTI to avoid and minimize impacts on streams that contain brook trout habitat through coordination with appropriate resource agencies…. The WVDNR has expressed concern with Atlantic's proposed construction activities at Big Spring Fork." Evaluations of potential impacts to Big Spring Fork have not been completed. This information is critical to assessing the impacts on brook trout populations and must be included in the DEIS.

Eastern Hellbender: The DEIS fails to address the project's impacts on Eastern Hellbenders. The hellbender (*Cryptobranchus alleganiensis*), also known as the hellbender salamander, is a species of aquatic giant salamander endemic to eastern North America. This is a species of special concern in WV. Hellbender populations have drastically declined throughout their range, mainly because of declining stream quality. Hellbenders are sensitive to sedimentation issues because sediment smothers the hellbender's habitat. Impacted streams must be assessed for potential impacts on the hellbenders.

4.6.5 Aquatic Resources on Federal Lands

Monongahela National Forest, page 4-195: Aquatic Surveys are not complete. The Forest Service requested additional surveys for sensitive aquatic species including the candy darter (*Etheostoma osburni*), New River shiner (*Notropis scabriceps*), Appalachia darter (*Percina gymnocephala*), and Kanawha minnow (*Phenacobius teretulus*), in addition to the elktoe mussel (*Alasmidonta marginata*) and green floater mussel (*Lasmigona subviridis*). The results of the surveys had not been provided to FERC by the release of the DEIS. These results are imperative in assessing the impacts of the project on aquatic resources and must be included in a revised DEIS. Additionally, surveys for these species must be conducted in all streams having suitable habitat.

4.7.1 Endangered Species Act-Protected Species

Page 4-199: The DEIS fails to adequately address impacts on Threatened and Endangered Species. The DEIS states "Atlantic and DTI have not provided conservation measures to address potential impacts to these species in all cases." All potential impacts and conservation measured to avoid and minimize impacts must be included in a revised DEIS.

Page 4-199: Section 7 consultations with the USFWS are not complete. The DEIS must contain the results of the Section 7 consultations under the Endangered Species Act. Failure to include the results of Section 7 consultations with USFWS in the DEIS does not satisfy the NEPA requirements. Section 7 consultations must be included in a revised DEIS.

Page 4-202: The DEIS is lacking information on the impacts of water withdrawals on threatened and endangered species. The DEIS states **"**FWS is concerned that discharged water and stormwater run-off from proposed access roads adjacent to waterbodies could introduce increased sedimentation and/or

contaminants, degrading habitat quality for ESA-listed or under review species." These are serious concerns and they have not been addressed in the DEIS. The proposed conservation measures to address these concerns must be included in a revised DEIS.

Freshwater Mussels Impact Assessment, Conservation Measures, and Determination, page 4-238: Conservation measures to avoid or mitigate impacts to threatened and endangered mussel species have not been identified. The DEIS states "FERC and FWS will re-evaluate this determination upon receipt of pending survey results and proposed conservation measures." If FERC and FWS have not made a final determination on the impacts to threatened and endangered mussel species than the DEIS was released prematurely. A revised DEIS must be issued when the determination of impacts has been made.

4.7.3.4 U.S. Forest Service Managed Species Conclusions

Page 4-253 to 4-255: The Biological Evaluation, Locally Rare Species Report and Management Indicator Species Report have not been finalized. The DEIS states "Due to pending survey results, pending conservation measures, and consultations with the MNF, GWNF, and other appropriate federal and state agencies detailed above, our determination regarding the overall impacts on FS managed species is pending." The fact that the DEIS fails to provide enough information for the agencies to make a determination on impacted species is yet another glaring example of the inadequacies of the DEIS. A revised DEIS must be issued when this information becomes available.

4.7.4 State-Sensitive Species

4.7.4.1 West Virginia

Freshwater Mussels, page 4-257: The DEIS fails to adequately address impacts to freshwater mussel species. Surveys have not been completed and conservation measures have yet to be identified for two locations in WV with the potential to impact freshwater mussel species. A revised DEIS must be issued to address this deficiency.

4.7.4.6 State Sensitive Species Conclusions

Page 4-267: The DEIS fails to address impacts on sensitive species. The DEIS states, "Due to pending survey results, pending conservation measures, and consultations with the appropriate federal and 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 statelisted and sensitive species is pending." This lack of information in the DEIS blatantly disregards the entire purpose of NEPA. A revised DEIS must be issued that contains adequate information for the public to fully understand the impacts of this project.

4.9.8 Economy and Tax Revenues

Page 4-410: The ACP DEIS fails to analyze economic impacts to West Virginia gas users. Almost certainly, the ACP would result in significant increases in price of gas in WV, which will adversely affect

current users. The DEIS needs to analyze these impacts on the economy, and completely fails to do so. Former Commission Chairman Norman Bay has previously stated "Overbuilding may subject ratepayers to increased costs of shipping gas on legacy systems. If a new pipeline takes customers from a legacy system, the remaining captive customers on the system may pay higher rates." This issue must be addressed in a revised DEIS.

4.11.1.3 Air Emission Impacts and Mitigation

Page 4-455: The DEIS fails to adequately address greenhouse gas emissions. While this DEIS does provide some information on greenhouse gases, it does not include a detailed analysis of methane emissions. Additionally, it does not address the basic question of whether cumulative emissions will increase or decrease, whether the CO2 emissions of end users of the gas from the ACP pipeline displace, or add to, emissions from existing coal-fired power plants, or the impacts of "upstream" emissions from additional gas drilling, pipelines and compressor stations. Former Commission Chairman Norman Bay called on the commission to "analyze the environmental effects of increased regional gas production from the Marcellus and Utica" and consider "the downstream impacts of the use of natural gas and … a life-cycle greenhouse gas emissions study." The revised DEIS must address these issues.

4.11.3.2 Noise

Page 4-471: The DEIS does not adequately address noise impacts. The DEIS states "There would be no noise impacts due to operation of the pipeline." However, gas pipelines create a phenomenon of low and extra-low frequency soundwaves that occur in the communities they transverse caused by the operations of high pressure natural gas transmission systems. These noises are known as "flutter" and "hum." The DEIS must address these noise occurrences and their impact on nearby residents in a revised DEIS.

5.1.8 Land Use, Recreation, Special Interest Areas, and Visual Resources

Page 5-17: The DEIS fails to adequately address impacts on recreation and special interest areas. The DEIS states "Site-specific crossing plans are pending for these features, including the Greenbrier River-Trail, Allegheny Trail, North Bend Rail-Trail, and Forest Trails Loop Trail." Without this information, one cannot adequately address how construction will impact recreation and tourism in these areas. This information must be included in a revised DEIS.

In conclusion, for the reasons outlined above, we request a revised DEIS to be issued with complete and accurate information in order to comply with the NEPA requirements. A complete DEIS is necessary to provide the planning and analysis needed so that the agency decision-makers can mitigate or avoid impacts, and can correctly identify the least-impacting alternative. We appreciate the opportunity to submit these comments and look forward to further participation in this proceeding.

Respectfully Submitted,

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Upper Potomac Riverkeeper
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Carolyn Reilly
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Lakshmi Fjord
Friends of Buckingham County Virginia

Chris Hale
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April Keating
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ORIGINAL

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

APR 0 6 2017

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

Re: Atlantic Coast Pipeline and Supply Header Project Draft Environmental Impact Statement; North Carolina, Pennsylvania, Virginia, and West Virginia; December 2016 (FERC Docket No. CP15-554-000, CP15-554-001, CP15-555-000; CEQ#20160325)

Dear Deputy Secretary Davis:

In accordance with the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act, the EPA has reviewed 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. (Dominion). Atlantic and Dominion request authorization to construct and operate 641.3 miles of natural gas transmission pipeline and associated facilities, three new natural gas-fired compressor stations, and four modified existing compressor stations. The 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. In addition, Atlantic and Piedmont Natural Gas Co., Inc. (Piedmont) request authorization to allow Atlantic to lease capacity on Piedmont's existing pipeline distribution system in North Carolina for use by Atlantic.

EPA appreciates the coordination done by FERC with federal agencies, and efforts made to incorporate suggestions from scoping and during development of the draft EIS. EPA is a cooperating agency for this DEIS and this comment letter jointly reflects the review and comments of EPA Regions 3 and 4. Our staffs have worked closely on this matter and we appreciate that FERC staff have regularly requested additional clarification and assistance.

This letter provides recommendations we believe would strengthen FERC's EIS as it is finalized, in the areas of geology and soils, streams and wetlands, and groundwater and drinking water protection. More detail on these recommendations, and additional suggestions to tighten the analysis in the final EIS are provided in the enclosed technical comments. EPA rates the environmental impacts associated with the preferred alternative as "Environmental Concerns" and the DEIS information as "Insufficient" under its DEIS rating scheme. See, www.epa.gov/nepa/environmental-impact-statement-rating-system-criteria We look forward to discussing our comments with you and answering any questions you may have. EPA recognizes national energy needs and is committed to energy development and distribution while assuring environmental and human health protection.

We stand ready to assist FERC in addressing these and other issues that public comments may raise, in our cooperating agency role. Please contact Jeff Lapp, Associate Director at (215) 814-2717 or lapp.jeffery@epa.gov, or the staff contact for this project Ms. Barbara Okorn at (215) 814-3330 or okorn.barbara@epa.gov.

Sincerely,

John R. Pomponio
Division Director
Environmental Assessment and Innovation Division

Enclosure (1) Technical Comments

Enclosure–Technical Comments
Atlantic Coast Pipeline and Supply Header Project

1) Geology and Soils

The DEIS indicates that challenging geologic conditions are likely to be encountered during project construction. We recommend that the final EIS provide additional risk and risk mitigation information on this issue. Given that blasting, in combination with steep slopes, sensitive karst topography, and active or abandoned mines and quarries, has the potential to result in adverse impacts, we recommend efforts be made to complete relevant ground reconnaissance surveys prior to release of the final EIS. EPA also recommends evaluating the potential effects of these geologic hazards, including mining-related subsidence, landslides and flash flooding, on pipeline construction and operation.

EPA believes it is especially important to evaluate potential impacts in high risk areas. This would include evaluating locations with high susceptibility to landslides and determining their proximity to streams. To aid in identification and evaluation of karst hazards, we recommend the Virginia Division of Conservation and Recreation's "Karst Assessment Standard Practice" be used by Atlantic and Dominion investigators.

Similarly, we recommend that the final EIS describe the nature and extent of potential blasting impacts on local residents, drinking water wells, springs, wetlands, local hydrology, and other resources of special concern, as appropriate. We also recommend the practicability of monitoring be considered in hydrologically sensitive areas, such as karst terrain, to determine if wells have been affected, given the potential for alterations to flow paths and transmissivity. Practicable geohazard mitigation developed in coordination with the U.S. Forest Service may also warrant consideration in appropriate areas outside of forest lands.

EPA appreciates the special consideration that crossing karst streams and terrain has received in the DEIS. In light of the DEIS, which indicates over 50 percent of karst hazards throughout the 71 miles of karst terrain crossed are identified as "high risk," we recommend the FEIS consider ecological risks to karst systems, and risk mitigation that includes avoidance measures. This would provide an appropriate NEPA "hard look" at issues related to the current DEIS conclusion that karst blasting and other construction activities would result in only temporary, insignificant impacts.

Finally, 152.7 miles of ACP route and 34 miles of SHP route were identified as areas with shallow bedrock based on the Soil Survey Geographic Database data. We recommend, to the extent practicable, that the area be surveyed for heavy metals, radioactive materials, and acid producing rocks with the potential for contamination of nearby water sources. This information could be used to implement best practices and limit potential impacts to groundwater.

2) Wetlands, Streams and Forests

The EIS reports 79.5 miles of pipeline will pass through wetlands. Construction of the ACP and SHP project would temporarily result in impacts to about 786.2 acres of wetlands (17.7 acres in West Virginia, 1.1 in Pennsylvania, 316.1 in Virginia, and 451.3 in North Carolina). The continued operation of the pipeline would impact about 248.3 acres of wetlands by permanent conversion (3.5 acres in West Virginia, 0.2 in Pennsylvania, 88.5 in Virginia, and 156.1 in North Carolina). The ACP and SHP facilities would cross 1,989 waterbodies (851 perennial, 779 intermittent, 248 ephemeral, 64 canals/diches, and 47 open water ponds/reservoirs). Permanent impacts from fill placed in wetlands totals 9.1 acres along the ACP and 0.5-acre along the SHP. Temporary workspace requested along the ACP route (1,272 acres) may add to this total, and water withdrawals may impact wetland and stream habitat.

EPA recommends that the final EIS complete ongoing wetland and stream surveys, and consider practicable avoidance and mitigation to incorporate into the project design and construction. We would be happy to assist you with this matter. Although wetland impacts in the DEIS are classified by system type, this classification does not provide details regarding the wetland quality or identify unique, difficult-to-mitigate wetland systems such as cypress gum swamps, vernal pools, bog, fen, or groundwater seeps, would be impacted. EPA recommends that specific information regarding high quality and unique wetland types be included, to the extent practicable, in the final EIS, so that appropriate mitigation can be considered.

Some aquatic resources are crossed using the open-cut method. As indicated in the DEIS, each open-cut crossing adversely affects aquatic resources. The Neuse River and Rocky Swamp crossing is of particular concern due and the location at a wide point in the floodplain. As described in the DEIS, using the dry-ditch method results in potential impacts to species and habitat, bank stabilization, and downstream aquatic resources. In addition, the proposed Neuse River crossing location will impact a large amount of bottomland hardwood wetlands, which could be substantially avoided with an alternative crossing location. We recommend the final EIS consider practicable alternative crossing locations for the Neuse River. More generally, the final EIS could be strengthened by describing whether and how the number of water crossings were minimized.

The DEIS acknowledges impacts by the proposed projects to forest resources and quantifies losses for construction and operation. The quantification indicates large impacts to forest resources (6,100 acres of deciduous, coniferous and mixed forest during construction and approximately 3,424 acres during operation). Studies to consider these impacts are ongoing and include a fragmentation study; Construction, Operational and Maintenance Plan; Migratory Bird Plan; Restoration and Rehabilitation Plan; Karst Mitigation Plan; geotechnical studies; and coordination with the U.S. Forest Service and other agencies. We recommend, to the greatest extent possible, inclusion of these studies, rare and endangered species studies, and a summary disclosure of the impacts to, and practicable mitigation for, watersheds, ecosystems, and ecosystem services in the final EIS.

Significant wetland, stream, and forest resources will be impacted by the proposal. An ACP and MVP collocation alternative is presented as a major route alternative in the DEIS. The DEIS concludes that the ACP and MVP collocation alternative offers some environmental advantages, including

avoidance of the Monongahela National Forest (NF) and George Washington NF, reduced crossings of the Appalachian National Scenic Trail and the Blue Ridge Parkway from two to one, and reduced construction within sensitive karst topography. However, FERC did not recommend the collocation option in light of constructability issues, and insufficient space. We recommend that the option of collocating minor portions of the route be considered as well, given the entire MVP route does not appear to have constructability concerns. We are working with FERC on collocation opportunities at the Neuse River Crossing in North Carolina. Success at this crossing may open other collocation opportunities.

3) **Groundwater and Drinking Water Protection**

The pipeline's proposed path has the potential to impact public and private drinking water supplies. We recommend the final EIS provide as complete a list as practicable of public and private supply wells and springs within the project area, and describe practicable avoidance and minimization measures to protect groundwater resources, especially in the Lyndhurst Area. We suggest that the final EIS describe efforts to minimize overall drinking water impacts through avoidance of Groundwater Assessment Areas (GAAs) and Wellhead Protection Area (WHPAs), and reducing proximity to WHPAs and wells. Upgraded construction could be required in areas where the final pipeline crosses WHPAs.

We support FERC's recommendation that the applicants complete field surveys for wells and springs within 150 feet of the construction workspace and within 500 feet of the construction workspace in karst terrain. We recommend inclusion of this information in the final EIS. In addition, we support FERC's recommendation that for wells and springs within 500 feet of identified contaminated soil or groundwater sites, Atlantic and Dominion should complete preconstruction and post-construction water quality tests, with landowner permission, and analyze for contaminants of concern from the potential source. We recommend describing the parameters for monitoring in the final EIS. We also recommend describing any communications strategy the applicants may be implementing for purposes of informing private well owners regarding potential impacts on their water supply. The final EIS could also discuss the practicability of pre- and post- construction well testing, where appropriate, in addition to preconstruction and post-construction water quality testing as ACP has proposed.

The DEIS mentions the Spill Prevention, Control and Countermeasure Plan to minimize potential groundwater impacts resulting from a spill during major earth disturbance activities. However, also of concern for contaminating drinking water are aboveground storage tanks (ASTs) containing potentially hazardous materials. During major earth disturbance activities, these ASTs could pose the risk of hazardous waste spills and cause serious threats to both groundwater and surface water drinking water resources. We recommend FERC encourage Atlantic and Dominion, as appropriate, to work with the West Virginia Department of Health and Human Resources and to survey the existing ASTs in Virginia that may be affected by major earth disturbances from the projects, and include this information in the final EIS. In West Virginia, AST information may be readily available from the Department of Environmental Protection and/or the Bureau for Public Health. We recommend ACP and Dominion notify AST owners when major earth disturbances will occur and develop a spill detection and response plan for hazardous materials ASTs.

Based on the information provided by state agencies, ten surface water intakes are located within three miles of the ACP, and eight source water protection watersheds would be crossed, three of which are in Zones of Critical Concern. Table 4.3.2-4 lists the surface water intake facilities within three miles and water protection areas crossed by the projects. We recommend that the final EIS describe activities that will be implemented to minimize the impact on surface water intakes and source water protection areas. Source Water Protection Plans contain valuable information and should be consulted when considering construction impacts and mitigation. We recommend FERC encourage Atlantic, as appropriate, to establish communication protocols with state agencies and public water utilities regarding construction activities and timelines near the surface water intakes and source water protection areas.

Please consider the following additional specific comments on the DEIS on the topics of water use and water designations:

- Pages 4-107-111: Hydrostatic tests would require 83.7 million gallons of water (see table 4.3.2-9) and 3.4 million gallons of water would be required for dust control. We recommend providing the proposed or potential sources of water used for hydrostatic tests and dust control, anticipated quantities of water to be appropriated from each source, and practicable measures that could be implemented to ensure water sources and aquatic biota are not adversely affected by the appropriation activity.
- In Pennsylvania, the SHP facilities would cross streams with Cold Water Fisheries (CWF) and High Quality (HQ) designations, and streams with trout stocking designations. EPA encourages ACP and Dominion to consider reasonable route deviations to stream sections listed as CWF and HQ. A proposed access road crosses the upper reaches of Slaty Fork, a Tier 3 stream. Upgraded construction may be appropriate for high quality stream area crossings.
- While the number of waterbodies has been reduced, the ACP would still cross 17 waterbodies listed on the National Rivers Inventory (NRI). EPA encourages ACP and Dominion to consider reasonable route deviations to stream sections not listed in the NRI, and upgraded construction for high quality stream area crossings.

4) <u>Cumulative Impacts</u>

EPA recommends that additional analysis of cumulative impacts be provided in the final EIS. The DEIS considers the impacts of other projects in the action area using HUC 10 watersheds crossed by the proposed project. However, the DEIS analysis considers all 73 HUC 10 watersheds in the aggregate, concluding for example that the projects will have 0.1 percent of the surface water impacts to more than 8.2 million acres across 73 HUC 10 watersheds. This analysis could be strengthened by performing a cumulative impact assessment at the individual watershed scale, i.e., by individual HUC. This would also complement the analysis of groundwater at a state scale, and the DEIS conclusions that cumulative effects on groundwater would be less than significant.

In addition, we recommend the final EIS cumulative impact analysis consider two additional categories of impacts -- stream crossings and water withdrawals -- as these will likely have more impact to surface waters than acres disturbed. Other discussed environmental variables that may influence cumulative impacts at a watershed level include miles of impaired streams, occurrence of rare or at-risk

species, and number of National Pollutant Discharge Elimination System outfalls in the HUC. This information would sharpen the disclosure of cumulative impacts and appropriate consideration of mitigation.

Below is an example of a methodology used to assess the cumulative impact of stream crossings. The methodology assessed the number of stream crossings per HUC10 for the ACP and FERC-jurisdictional natural gas pipeline projects (MVP, WB XPress, Rover, Mountaineer XPress, and Leach XPress). The following tables provide a list of the most highly impacted HUCs.

Table 1: HUC 10's with highest number of cumulative stream crossings

	HUC 10	Name	# of stream crossings
1	503020104	Headwaters Middle Island Creek	58
2	208020201	Calfpasture River	51
3	503020102	Fishing Creek	35
4	301020112	Mill Creek-Nottoway River	33
5	208020707	Deep Creek	32

Table 2: HUC 12's with the highest number of cumulative stream crossings

	HUC 12	Name	# of Stream Crossings
1	20802080203	Deep Creek-Southern Branch Elizabeth River	31
2	30102011206	Round Gut-Nottoway River	26
3	20700050703	Inch Branch-Back Creek	19
4	50302010402	Buckeye Creek	19
5	20802020104	Hamilton Branch	15
6	20802070701	Little Creek-Deep Creek	15
7	30102010501	Butterwood Creek	15

This type of assessment, coupled with known attributes of watersheds, would indicate areas of special concern, such as Inch Branch-Back Creek and the Headwaters Middle Island Creek, which are impaired for benthic macroinvertebrates and have high numbers of stream crossings. Some of these headwaters also are critical for downstream Federally-listed endangered freshwater mussels, such as the snuffbox and clubshell. These areas could potentially be avoided through minor route modifications, where practicable.

Document Content(s)

USDA United States Department of Agriculture
Forest Service
Monongahela National Forest
200 Sycamore Street
Elkins, WV 26241
304-636-1800

File Code: 1900; 2700
Date: April 6, 2017

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First St., N.E., Room 1A
Washington, DC 20426

Dear Ms. Bose:

Subject: Forest Service's Comments on the Draft Environmental Impact Statement for the Proposed Atlantic Coast Pipeline Project
OEP/DG2E/Gas 4
Atlantic Coast Pipeline, LLC
Docket No. CP15-554-000 and CP15-554-001

The Forest Service submits comments on the Draft Environmental Impact Statement (EIS) for the Atlantic Coast Pipeline Project (ACP Project) proposed by Atlantic Coast Pipeline, LLC (ACP). The proposed ACP Project would affect National Forest System (NFS) lands on the Monongahela National Forest and the George Washington National Forest.

As a cooperating agency, the Forest Service provides comments on the Draft EIS to assist the Federal Energy Regulatory Commission (FERC) with the development of the Final EIS and to assist ACP in identifying information necessary to assess potential effects of the ACP Project on NFS lands. The comments are detailed in the attached table. We appreciate FERC coordinating the EIS and we look forward to continued consultation with ACP regarding the ACP Project.

For questions or additional information, please contact Jennifer Adams, Special Project Coordinator, by phone at (540) 265-5114 or by email at jenniferpadams@fs.fed.us.

Sincerely,

CLYDE THOMPSON
Forest Supervisor

cc: Atlantic Coast Pipeline, LLC

FOREST SERVICE COMMENTS
DRAFT ENVIRONMENTAL IMPACT STATEMENT
ATLANTIC COAST PIPELINE PROJECT

Page #	Section #	Comment
Access Road Improvement Maps		In Rev 11 b on the east slope of Tower Hill and southwest of Browns Pond, the centerline has been rerouted several thousand feet to the northeast. Confirm if this section been surveyed for TESLR species.
General	General	Engineering will need to review site specific plans and project specifications for any road work, including maintenance, reconstruction, and construction.
General	All sections pertaining to soil or geology	There is a lack in detailed discussion on actual data collected on NFS lands within the DEIS. NFS lands should be discussed separately from other project lands. Please create a paragraph in the introduction describing surveys for data collection or reference them to a cited appendix. Suggested text: An Order 1 Soil Survey was completed for the ACP in the MNF and GWNF. The soil survey activities were conducted to be compliant with the requirements outlined in special use permit #GBR205003, dated April 22, 2015 for surveys in the MNF, and special use permit #GWP433201T, dated March 31, 2015 for surveys in the GWNF, both of which were issued by the U.S. Forest Service. These two permits were renewed as #MAR205001 dated April 11, 2016 and #GWP433202T dated April 11, 2016, as well as amendment #1 to SUP GWP433202T dated May 20, 2016. The survey resulted in the production of an Order 1 Soil Survey report (COM Plan Attachment G) with delineated soil map units determined through the use of the ACP Soil Mapping Key. A total of 360 test pits were completed during the investigation, including 85 test pits in the MNF and 275 test pits in the GWNF. A total of 511 soil samples were collected in duplicate by horizon in 111 test pits. Forty-one (41) of those test pits, including 190 horizons, were selected for particle size analysis, nutrient analysis, and total and organic carbon contents. Soil test pit logs, transect logs, and laboratory test results for soil samples collected in the field are provided as with the report. The data gathered for the Survey was utilized for environmental impact studies, geohazard studies, and for assessing Best Management Practices (BMPs) for post construction restoration within the pipeline study corridor.
ES-3	Karst Terrain and Steep Slope	The karst section, when referring to steep slopes, should clearly illustrate the difference between working on steeps slopes in general and those steep slopes that are located over karst terrain. In addition, given that steep slopes are a major issue for this pipeline analysis through the mountainous regions (Allegheny Mountains and the Ridge and Valley), a separate section highlighting steep slopes in general and then in detail also needs to be included.
ES-3	Karst Terrain and Steep Slope	Combining the discussions of karst terrain and steep slopes in the same section is confusing. These two major issues should be discussed in separate sections.
ES-3	Project Impacts and Mitigation	Paragraph #4., "sleep slopes" should be "steep slopes."
ES-4	Karst Terrain and Steep Slope	"*Prior to construction, Atlantic would perform electrical resistivity investigation surveys to detect subsurface solution features along all portions of the route with the potential for karst development; these results would be correlated with boring logs to ensure the analysis reflects the field conditions*."

Page #	Section #	Comment
		These data should be collected prior to the project decision and should be used in this effects analysis to determine any effects from the construction and installation of the pipeline. Site specific mitigation and designs should be incorporated into the Construction, Operation, and Maintenance Plan. Electrical resistivity investigation survey data must be provided to the Forest Service prior to construction start and the Forest Service must be consulted prior to such actions on National Forest System Lands.
ES-4	Karst Terrain and Steep Slope	"*Atlantic and DTI developed a Geohazard Analysis Program and is also developing a Best in Class Steep Slope Management Program to address issues of landslide potential and susceptibility*." Atlantic will need to provide details on how they plan to abide by LRMP standards and guidelines. In general, SW07 in the MNF plan specifically limits or prohibits use of wheeled and tracked equipment on slopes over 40%. The document needs to include language and an analysis that reflects how ACP plans to meet LRMP direction. The site specific details and application of the analysis need to be reflected in the various parts of the Construction, Operation, and Maintenance Plan.
ES-5	Karst Terrain and Steep Slope	"*Based on our review of Atlantic's and DTI's proposed construction methods, its implementation of impact avoidance and minimization measures, and our consultations with state agencies and other resource managers, along with our recommendations, we conclude that the potential for ACP and SHP to initiate or be affected by damaging karst conditions would be adequately minimized*." This statement would appear to be premature given the acknowledgement previously in this section of incomplete information presumed necessary to arrive at a conclusion (reference ES-4 and ES-5). • ES-4: "*Because analysis, field surveys, and final measures related to slope hazards have not yet been completed for ACP and SHP, we recommend that Atlantic and DTI file the results of its geotechnical studies and geohazard analysis field reconnaissance, and identify mitigation that would be implemented in slope hazard areas during construction and operation of the projects."* • ES-5: "*On the MNF and GWNF, Atlantic has not provided the information requested by the FS to assess potential project-induced landslide hazards and risk to public safety, resources, and infrastructure and also the effectiveness of proposed mitigation measures for restoration of steep slopes."* The Forest Service cannot concur with this conclusion for National Forest land until all erosion control, steep slope procedures, etc. are available for review and a FS decision on NFS lands has been made.
ES-5	Karst Terrain and Steep Slopes	In the 1st paragraph, "on the MNF and GWNF," is the first use of these entities in the ES. We suggest spelling out both completely with the acronym in parentheses.
ES-5	Public Land and Recreational Impacts.	Last paragraph. Timber Removal Plan. Please clarify if this is the same or different than the Timber Extraction Plans referenced later in the paragraph on the following page.
ES-6	Public Land and Recreational Impacts.	2nd paragraph. WBWF and WOF are non-profit organizations, not land-managing agencies.
ES-6	Public Land and Recreational Impacts.	3rd paragraph, "West Virginia and western Virginia" is preferred.

Page #	Section #	Comment
ES-6&7	Executive Summary	*"...that construction and operation of ACP and SHP **may affect and are likely to adversely affect** five federally listed species (Indiana bat, Northern long-eared bat, Roanoke logperch, running buffalo clover, and Madison Cave isopod), and **would not likely adversely affect** or have **no effect** on the remaining species identified by the FWS and NOAA Fisheries."* This is inconsistent with the determination made on page 182 in the BA for the clubshell mussel where: *"the proposed ACP and SHP Projects **may affect, and is likely to adversely affect** the clubshell."*
ES-6&7	Executive Summary	*"...based on these consultations and Atlantic's and DTI's field surveys, and assuming implementation of our recommendations, we determined that construction and operation of ACP and SHP **may affect** and are **likely to adversely affect** five federally listed species (Indiana bat, Northern long-eared bat, Roanoke logperch, running buffalo clover, and Madison Cave isopod), and **would not likely adversely affect** or have **no effect** on the remaining species identified by the FWS and NOAA Fisheries. In compliance with Section 7, we are submitting this draft EIS as our Biological Assessment and requesting formal consultation with the FWS.* This is inconsistent with the determination made on page 240 in the BA for the small-whorled pogonia where: *"the ACP project **may affect**...**and is likely to adversely affect** the small-whorled pogonia."*
ES-7	Sensitive Species	*Based comments from the FS, and inadequate or inconsistent information, we have several recommendations for outstanding information.* This statement acknowledges deficiencies in information needed to conduct an appropriate effects analysis for at least some sensitive species. Given this, the FS has serious reservations about the conclusions of the analyses up to this point because those conclusions have been reached prior to acquiring the necessary information to substantiate what must otherwise be presumed to represent judgements based on incomplete information.
ES-7	Executive Summary	*"...a revised Biological Assessment to avoid and minimize impacts on the population of running buffalo clover and small whorled pogonia in the MNF."* Small whorled pogonia also occurs on the GWNF and may be impacted by the proposed project. The Biological Assessment also needs to address avoidance and minimization of impacts to small whorled pogonia on the GWNF.
ES-9	Executive Summary	There is not a discussion in the Executive Summary on Fisheries or Aquatic Resources under either the Water Resources or Wildlife sections.
ES-10	ES	*"The regrowth of trees in the temporary workspaces would take years and possibly decades…"* Please clarify differences in recovery time for various successional stages. Re-establishment of young trees would take years, and re-establishment of a young reproducing forest would likely take decades. Recovery time for a closed canopy of mature forest trees, and the habitat values that currently exist within such areas, would approach a century or more.
ES-10	ES	*"Vegetation types, such as grassland/herbaceous, barren, and emergent wetlands, would return to preconstruction conditions during operation of ACP…facilities."* These habitat types may regain a superficially similar appearance, but without assistance, it is highly unlikely that soil quality, native plant communities, hydrological conditions, etc. would return to preconstruction conditions equivalent in ecological function and value to what was disturbed. With intentional restoration, long term-monitoring, and adaptive management, it is possible that those habitats and their ecosystem services can be restored close to what existed before, but even that is not guaranteed. Please revise for clarity.

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ES-10	ES	*"[construction] could also impact wildlife…These impacts would be temporary…or short term…lasting no more than a few years until the preconstruction habitat and vegetation type is reestablished."* Impacts to certain species of wildlife in the 4208 acres likely to be permanently impacted will, likewise, likely be long-term and functionally permanent, lasting beyond the existence of the pipeline until mature forest cover is restored to those acres. Please revise for accuracy.
ES-13	Alts Evaluated	Typo – "We also evaluated one route variation and reviewed ~~the~~ over 169 variations…."
ES-14	Major Conclusions	"*Atlantic and DTI would minimize impacts on the natural and human environments during construction and operation of its facilities by implementing the numerous measures described in their respective construction and restoration plans*" This statement seems inconsistent with other statements in the Major Conclusions regarding adverse effects and permanent impacts on the environment. There will be irreversible impacts to the soil and vegetation resources from construction of the ACP pipeline on NFS lands. No matter how ACP plans to implement measures to reduce these impacts, there will still be an unavoidable irreversible dedication of the soil resource as defined by NEPA and the USFS FSH 2550. Topsoil mixing where stumps are removed, topsoil displacement in road construction, road reconstruction and skid roads for timber removal will all negatively impact soil productivity/quality on NF lands. The approximate effect is calculated in acres of soil disturbance to the soil resource of NFS land. The Construction, Operation, and Maintenance Plan is currently not complete, and substantial work remains to develop and refine measures to avoid, minimize, and mitigate impacts to a variety of resources on NFS lands, including steep slopes/sensitive soils; threatened, endangered, and sensitive species; and management indicator species. Until such measures have been established, accepted by the Forest Service, and incorporated into the Construction, Operation, and Maintenance Plan, the Forest Service cannot concur with the conclusion that impacts would be minimized.
1-3	1.0	Thank you for portraying and correctly labelling the Appalachian National Scenic Trail on Figure 1-1 and elsewhere throughout the EIS and supporting documents.
1-7	1.2.2.1	4th paragraph. "…and developed applicable portions of the EIS." Change to "…and contributed to the development of applicable portions of the EIS."
1-7	1.2.2.1	Last paragraph – *Note:* Atlantic submitted a revised SUP application to the FS dated on June 16, 2016.
1-8	1.2.2.1	Typos – change NSF to NFS in two locations under heading MNF and GWNF.
1-8	1.2.2.1	In the top paragraph, "…direction, and the Forest LRMPs." Should be changed to "…..direction, the Forest LRMPs, and other applicable laws and regulations.",
1-8	1.2.2.1	2nd paragraph – There is a discrepancy in the DEIS description of a 53.5-foot-wide maintenance corridor (the long-term ROW grant) and ACP's revised SF-299 Application submitted to the USFS dated 6/16/2016. In the SF-299, ACP requests a 75-foot wide permanent right-of-way across the MNF and GWNF. ACP will need to revise the SF-299 to reflect the most current proposed ROW width on NFS lands.
1-9	1.2.2.1	3rd Paragraph - Regarding the discussion of NPS-acquired transfer lands: The National Park Service acquired lands (referred to as trail segments) and transferred management authority of certain trail segments to the Forest Service under authority of the NTSA through a Memorandum of Agreement (MOA). In the MOA, the NPS retained certain responsibilities over the transferred trail segments, including

Page #	Section #	Comment
		any future authorization of oil or gas pipeline crossings. The NPS retains only those specific interests in the lands which were expressly reserved in the MOA. Otherwise, the trail segments transferred to the FS are subject exclusively to Forest Service regulations and management authority under the terms of the MOA and are in all respects NFS lands for the duration of the MOA. The ANST is a unit of the National Park system; however, the lands acquired and administered by the Forest Service for the ANST are NFS lands and subject exclusively to Forest Service regulations and management authority. *Note:* The currently proposed ACP route does not involve any NPS transferred trail segments.
1-8	1.2.2.1	5th paragraph. Improper misuse of "NFS" – there are 3 uses of NSF and one use of NFS. All should be "NFS."
1-9	1.2.2.1	2nd paragraph. Add the following after "…with the non-profit Appalachian Trail Conservancy (ATC)," *"local ATC-affiliated Trail Clubs,…".* The local ATC-affiliated Trail Clubs are full partners with NPS, ATC and the land managing agencies.
1-9	1.2.2.1	Change from "…ongoing management of the NPS-acquired parcels in this area" to "…ongoing management of some of the NPS-acquired parcels in this area…" There is a mixture of NPS-acquired/NPS-managed, NPS acquired/FS-managed, and FS-acquired/FS-managed ANST parcels in the area of the ANST near the proposed ACP crossing of the ANST and BRP.
1-11	1.2.2.6	3rd paragraph says the MNF is cooperatively managed by the FS and WVDNR. This is misleading. Although the FS and WVDNR cooperate on the management of wildlife and fisheries, the FS is responsible for overall management of the National Forest.
1-23, 1-24	1.4	Bottom paragraph and Table 1.4-1. Table 1.4-1 should be revised to show the consultations of the applicant with NPS-APPA (Appalachian Trail Park Office) in addition to the listed consultation with NPS-BLR. No Permit or Clearance is needed from NPS-APPA, but consultation with them, as the designated lead federal agency for the entire ANST is important and should be done and documented here.
2-6	2.1.2	Thank you for adding text in each description of types of Aboveground Facilities specific to whether or not they will be located on NFS lands
2-9	2.1.2.6	Clarification is requested regarding the proposed communication towers (Bath County Power Station and Rocky Mountain MW Site) located on NFS lands. Additional information regarding the scope of the proposed improvements at these existing facilities is needed. Regulations found at Forest Service Handbook (FSH) 2709.11, Chapter 90, sec. 94.1(1) states that "the proponent does not need agency approval to co-locate the proposed use in or on an existing authorized facility when the proposed use is compatible with the communications site management plan and existing communications uses at the site. After securing permission from the facility owner or facility manager, the proponent may immediately locate equipment in or on the facility and proceed with operations." Sec. 90.5 defines "co-location" as, "installation of telecommunications equipment in or on an existing communications facility or other structure." The term "facility" is defined as, "a building, equipment shelter, or other structure designed to house communications equipment or a tower, mast, or other structure that supports a communications antenna." Based on the brief description of ACP's proposed communication uses at the two NFS land sites and in Table 2.1.2-6, it appears that ACP is proposing to "construct new megawatt antennas" at these sites. Please clarify that ACP intends to co-locate the new antennas in or on existing facilities as defined in the FSH.
2-15	2.2	Clarify if the acres of land disturbed on NFS lands includes new and/or improved access roads.
2-15	2.2	Bottom paragraph. "Following construction, 209.6 acres of new land ……" Please clarify the meaning of "new land."
2-18	Table 2.2-2	Please add footnote to clarify that land requirement calculations for operation were based on a 53.5 foot-wide right-of-way on NFS lands.
2-25	2.2.5.1	The 3rd paragraph states a total of 17 roads would be on FS and 15 will be used permanently. This does not match information on Table 4.8.9-3 on page 4-344 which shows 16 roads and states that one (36-014.AR3) will not be used.
2-25	2.2.5.1	*"A total of 15 permanent roads would be required for operation of ACP on NFS lands."* Also, please express in terms of the number of miles and total acres of permanent roads impacted.
2-25	2.2.5.1	This section states that Atlantic "would improve unsuitable dirt and gravel roads through widening and/or grading, installing or replacing culverts, or clearing overhanging vegetation of tree limbs." This also needs to include surfacing of roads to ensure that the traveled way is stabilized and sufficient to accommodate construction traffic.

Page #	Section #	Comment
		This section indicates 17 access roads would be used during construction of ACP on National Forest lands. Table 4.8.9-3 lists 16 access roads.
2-27	2.3.3.1 Waterbody Crossings	*ATWS necessary for waterbody crossings would be located a minimum of 50 feet from the waterbody edge, except where adjacent upland consists of actively cultivated or rotated cropland or other disturbed land. The 50-foot setback would be maintained unless site-specific approval for a reduced setback is granted by the FERC and other jurisdictional agencies. Additional ATWS setbacks may be required on FS administered lands to comply with riparian setback standards, and would become conditioned as part of the SUP process. As stated above in section 2.3.1.1, we have determined that Atlantic's and DTI's request to locate certain ATWS within 50 feet of waterbodies is acceptable.* The MNF LRMP typically would require a 100 buffer between ATWS and any stream channel. See also our comment on section 4.3.2.9, page 4-114, regarding setback distance for ATWS
2-29	2.3.1.2	Table 2.3.1-2 seems out of place; please provide an introductory paragraph or other explanatory text.
2-32	2.3.2.2	*"Topsoil would follow such that spoil would be returned to its original horizon."* Please also specify that on NFS lands, topsoil with invasive species present would be isolated and/or treated as per the COM plan so as to prevent spread of invasives to new areas during construction, and to prevent re-establishment after construction.
2-32	2.3.2.2 Clearing and Grading	"*On NFS lands, the FS has indicated it would require segregation of all topsoil, regardless of depth or land use*." Note that the prescribed topsoil segregation is intended to meet direction contained in the MNF LRMP (guideline SW15).
2-33	2.3.2.3	*"...to provide a minimum of 3 feet of cove over the top of the pipe after backfilling."* There are inconsistencies throughout the document regarding the minimum cover depth. On page 2-37, it says 2 ft minimum.
2-34	2.3.2.5 Pipe Stringing, Bending, Welding, and Coating	"*Once the welds are made, a coating crew would coat the area around the weld with additional epoxy or other coating before the pipeline is lowered into the trench. Prior to application, the coating crew would thoroughly clean the bare pipe with a power wire brush or sandblast machine to remove dirt, mill scale, and other debris. The crew would then apply the coating and allow it to dry."* All coating must be pre-applied to pipes prior to being brought on to NFS lands. Where welds need to be made, epoxy coating may be applied on site in the trench area. Epoxy coating being applied in the trench at weld sites is to be applied by hand, no epoxy application shall be sprayed or splattered onto surrounding environment. Any mixing of materials would need to be done in a specialized area where any spill or potential contamination can be contained and not have contact with the soil.
2-34	2.3.2.6	*"Topsoil would not be used as padding."* Ensure this statement is consistent with COM plan, which specifies that some topsoil will be buried to prevent re-infestation by existing invasive plants.
2-34	2.3.2.6 Lowering-In and Backfilling	"*In rocky areas or where the trench contains bedrock, padding material such as sand, approved foam, or other protective materials would be placed in the bottom of the trench to protect the pipeline*." On NFS lands, foam will not be permitted.
2-34	2.3.2.6 Lowering-In and Backfilling	"*Where sufficient padding material is not available on site, or when the native material that was excavated from the trench is rocky or otherwise not suitable for backfill material, the acquisition of backfill from other sources may be necessary*." All off-site sources for backfill to be used on NFS lands must be free from contaminants and invasive species and must pre-approved by FS personnel.
2-34	2.3.2.6	"*Trench breakers (stacked sand bags or polyurethane foam) would then be installed in the trench on slopes at specified intervals to prevent subsurface water movement along the pipeline*."

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	Lowering-In and Backfilling	As a means to meet applicable Forest Plan direction regarding slope stability, the FS will require further direction in the COM plan regarding trench breakers on National Forest land. Foam will not be permitted on National Forest land. Bags of concrete mix may be used no more frequently than every other plug; sand bags or other semi-permeable, FS-approved material shall be used for all other trench plugs. Trench plug spacing in the FERC Upland Erosion Control Revegetation and Maintenance Plan (May 2013 version) is acceptable to the Forest Service, although closer trench plug spacing will be allowed where ACP determines a need due to slope steepness. On slopes greater than 30 percent, bleeder drains shall be spaced no farther apart than every other trench plug. Closer spacing may be used where ACP determines a need due slope steepness, discharge volume, or other factors. Bleeder drains may be needed on slopes less than 30 percent if subsurface flow or seeps are encountered during trench excavation. The Forest Service representative and ACP's environmental inspector will consult to determine the need for bleeder drains on slopes less than 30 percent. Protect bleeder drain outlets using rip-rap or other FS-approved material. The FS may specify alternate materials in certain locations if necessary for protection of resources. The FS will require post-construction water quality testing at selected bleeder drain outlets. Locations will be selected by the FS based on nearby sensitive resources, and the FS will provide the chemical parameters to be included in the testing.
2-34	2.3.2.6 Lowering-In and Backfilling	As a means to meet applicable Forest Plan direction regarding slope stability, the FS will require further direction in the COM plan regarding handling and storage of excavated material. a. Describe methods for preventing erosion of stockpiled material. The FS will require temporary seeding or other FS-approved technique for any material left exposed for more than seven days. b. Describe methods for preventing saturation of stockpiled material, which could lead to slippage of backfilled material. Techniques may include temporary seeding and mulching, use of tarps, implementing an accelerated backfilling schedule, or other methods proposed by ACP and approved by the FS.
2-34	2.3.2.6 Lowering-In and Backfilling	As a means to meet applicable Forest Plan direction regarding slope stability, the FS will require further direction in the COM plan regarding backfilling of excavated material. 1. Describe techniques for ensuring moisture levels in backfilled material do not present an elevated risk of slippage. a. Topsoil and spoil material shall be replaced only when moisture levels in those reserved materials are at appropriate levels. Appropriate levels shall be determined using Time Domain Reflectometry (TDR) measurements taken at 5 or more locations in each pile between 1 and 2 ft below the pile surface. This requirement applies to all topsoil and subsoil piles that are not exclusively composed of coarse fragments on National Forest land, except as noted otherwise below. i. In jurisdictional wetland areas, ACP is not required to conduct soil moisture testing. The flat topography of the wetlands being crossed by the project is not likely to lead to slope failures. ii. In areas that (1) are not jurisdictional wetlands, and (2) were identified by the Order 1 soil survey as having wet or poorly drained soil, testing is required regardless of the timing of excavation and backfill, and regardless of any precipitation that may or may not have occurred between initial excavation and completion of backfilling.

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		In all other areas, testing is not required if (1) excavation and backfilling occur on the same day, or (2) no precipitation occurs between initial excavation and completion of backfilling. b. All individual moisture values from each pile (not the average of all measurements) must be less than 25 percent volumetric water content for replacement of material into the trench (spoil material) or onto the surface of the trench (topsoil). Twenty-five percent volumetric water content is approximately field capacity (field capacity is the approximate soil moisture resulting from 2 to 3 days of drainage following saturation). c. ACP shall employ qualified and trained inspectors who will be responsible for taking TDR measurements and evaluating whether the results meet allowable soil moisture requirements for backfilling. The number of inspectors will be adjusted (increased or decreased) based on the schedule of activities and the needs of the project. The TDR unit (brand and model) must be agreed to as suitable by the Forest Service. d. ACP's inspector shall keep records of the measured moisture levels for each pile at or just before the time of replacement into or onto the trench. The location (i.e., GPS locations along with the nearest milepost) of each pile shall be noted along with those moisture levels. e. TDR measurements shall be taken during the construction phase of the Project during trench backfilling (both subsoil and topsoil) on National Forest lands. Measurement results shall be provided to the Forest Service weekly, except for weeks when no backfilling occurs on National Forest land. The Forest Service will be notified that no backfilling occurred via ACP's weekly status report, which is filed on the FERC docket. f. If moisture levels are found to be unsuitable for replacement (i.e., they exceed allowable moisture requirements), topsoil or spoil material may be mechanically mixed, or Forest Service-approved materials (e.g. lime, etc.) may be physically mixed in, to allow evaporation to achieve allowable moisture levels.
2-35	2.3.2.6 Lowering-In and Backfilling	"*The soil would be inspected for compaction and scarified, as necessary*" As a means to meet applicable Forest Plan direction, the FS will require further direction in the COM plan regarding remediation of compaction on National Forest land. Employ timber mats or trench spoil to protect underlying soil where possible. Limit the use of heavy equipment on steep slopes to the minimum amount necessary. Use a cone penetrometer to measure compaction on the construction ROW prior to and following completion of construction activities. Post-construction compaction that exceeds pre-construction compaction indicates the need for compaction remediation. On ROW slopes <20% where compaction remediation is needed, use de-compaction techniques such as a ripper, harrow disk, backhoe bucket teeth, chisel plow, or other FS-approved techniques to de-compact travel lanes and any other compacted areas. On ≥20% slopes where compaction remediation is needed and can be accomplished safely and effectively without causing further resource damage, use backhoe bucket teeth, or another safe, FS-approved method, to break up compacted soils. .
2-37	2.3.3.1	*"ATWS necessary for waterbody crossings would be located a minimum of 50 feet from the waterbody edge"* On GWNF lands, a minimum of a 100-foot buffer is required for perennial waterbodies and increases with slope. A 50-foot minimum buffer is only allowable for intermittent streams.

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2-37	2.3.3.1	For Wet Open-cut Construction Method and all other methods discussed in this section, please discuss any FERC time constraints involved with these methods.
2-39	2.3.3.2	Table 2.3.3-1 lists Augusta County VA as location of the HDD for Blue Ridge Parkway/Appalachian National Scenic Trail. Please also add Nelson County VA.
2-39	2.3.3.2	*"…there must be a fault or pathway extending vertically to the surface"* Appalachian geology is complex with more than just faults as conduits. The migration of fluids could also occur horizontally, especially in folded or fractured formations or in proximity to shallow groundwater such as perched aquifers/seeps/springs, etc.
2-40	2.3.3.2	Pits or containment structures – No pits will be authorized on NFS lands, only closed loop systems with containment tanks will be considered.
2-41	2.3.3.3	*"...a minimum of 50 feet from the wetland edge"* As indicated in previous comments, on GWNF lands, a minimum of 100-foot set back is required and increases with slope.
2-41	2.3.3.3	*"...ATWS within 50 feet of wetlands and the request for expanded workspace within certain wetlands is acceptable."* On GWNF lands, it is not acceptable to include ATWS within the minimum of 100-foot set back.
2-42	2.3.3.5 Steep Slopes	"*During construction, temporary slope and trench breakers consisting of compacted earth, sandbags, or other materials would be installed to reduce runoff velocity and divert water off of the construction right-of-way*." See previous comment on trench breakers for additional direction that must be followed on National Forest land.
2-42	2.3.3.5 Steep Slopes	"*Upon installation of the pipeline, permanent trench breakers and plugs consisting of sandbags, gravel, foam, cement, or cement-filled sacks would be installed over and around the pipeline, and permanent slope breakers generally consisting of compacted earth and rock would be installed across the right-of-way during restoration*." As a means to meet applicable Forest Plan direction regarding slope stability, the FS will require further direction in the COM plan regarding trench breakers on National Forest land. Foam will not be permitted on National Forest land. Bags of concrete mix may be used no more frequently than every other plug; sand bags or other semi-permeable, FS-approved material shall be used for all other trench plugs. Trench plug spacing in the FERC Upland Erosion Control Revegetation and Maintenance Plan (May 2013 version) is acceptable to the Forest Service, although closer trench plug spacing will be allowed where ACP determines a need due to slope steepness. On slopes greater than 30 percent, bleeder drains shall be spaced no farther apart than every other trench plug. Closer spacing may be used where ACP determines a need due slope steepness, discharge volume, or other factors. Bleeder drains may be needed on slopes less than 30 percent if subsurface flow or seeps are encountered during trench excavation. The Forest Service representative and ACP's environmental inspector will consult to determine the need for bleeder drains on slopes less than 30 percent. Protect bleeder drain outlets using rip-rap or other FS-approved material. The FS may specify alternate materials in certain locations if necessary for protection of resources.

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		The FS will require post-construction water quality testing at selected bleeder drain outlets. Locations will be selected by the FS based on nearby sensitive resources, and the FS will provide the chemical parameters to be included in the testing.
2-44	2.3.3.8	This section refers to Appendix M for list of road and trail crossings. However, App M is titled Road and Railroad Crossings and Trails are included as a type of road. Please include Trails in the name of Appendix M and change the third column title to Road, Railroad or Trail Type. Also, on page M-3, Change "FS Trial 718" to "FS Trail 718."
2-50	2.5.4 Forest Service Compliance Monitoring	*Conversely, some COM Plan requirements or mitigation projects may have less certain outcomes or may be associated with thresholds such as water temperature.* This statement of recognition, along with other statements that speak about minimizing effects (as opposed to eliminating them), are key considerations for conclusions of analyses that must fully incorporate potential direct, indirect, and cumulative project effects. This comprehensive level of consideration seems to currently be lacking in the documented accounts for the various aquatic resources analyses and conclusions.
2-52	2.5.6	*"...or until wetland ~~revegetation~~ restoration is successful."* Wetlands are not just about revegetation, but form and function of hydrology and soils is critical. Add sentence acknowledging these aspects of successful restoration of a wetland.
3-4	3.2.1	*"These pipelines currently do not have the available capacity to transport the required volumes of natural gas to the delivery points proposed for ACP and SHP, nor do these existing facilities have the necessary infrastructure to transport gas to the required delivery points. Even if additional pipelines were constructed to connect any of these pipeline systems to the supply and delivery areas for ACP, there still is not sufficient capacity on any of the existing pipeline systems to transport 1.44 Bcf/d of natural gas."* Documentation should be provided to support these statements.
3-5	3.2.2.1	"*The environmental 3-5 Alternatives impacts associated with these upgrades and new pipeline construction for the Transco system (a combined total of 640 to 680 miles of new pipeline) would likely be similar to the impacts of ACP and SHP, and we have not identified or received any information that suggests the alternative would provide a significant environmental advantage over ACP and SHP."* Documentation should be provided to support this statement. Miles of line do not necessarily equate to severity of the environmental impact. The nature of the resources to be impacted needs to be considered. The Forest Service has previously requested that such comparative information on impacts be obtained and considered for alternatives to the proposed action.
3-5	3.2.2.1	*"For this reason, and the fact that the existing system does not meet ACP's project purpose, modifications to the existing Transco system are not considered a viable system alternative."* The purpose and need is stated in terms of providing gas to end users. Nothing in the subject section indicates that modification of the Transco system could not meet this need. Therefore, the statement should be deleted, or documentation should be provided to support it.
3-5	3.2.2.2	Statement in reference to the existing Columbia system alternative: *"The environmental impacts associated with construction of these facilities would likely be similar to or greater than those of ACP, and we have not identified or received any information that suggests the alternative would provide a significant environmental advantage over ACP and SHP."*

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		Documentation should be provided to support this statement. Miles of line do not necessarily equate to severity of the environmental impact. The nature of the resources to be impacted needs to be considered. The Forest Service has previously requested that such comparative information on impacts be obtained and considered for alternatives to the proposed action.
3-5	3.2.2.2	*"For this reason, and the fact that the current system does not meet ACP's purpose and need, modification of the Columbia pipeline system is not considered a viable alternative to ACP and SHP."* The purpose and need is stated in terms of providing gas to end users. Nothing in the subject section indicates that modification of the Columbia system could not meet this need. Therefore, the statement should be deleted, or documentation should be provided to support it.
3-5	3.2.2.3	Statement in reference to the existing East Tennessee Natural Gas system: *"The environmental impacts associated with the system upgrades and new pipeline construction (a minimum of between 550 and 620 miles of new pipeline) would likely be similar to or greater than those of ACP, and we have not identified or received any information that suggests the alternative would provide a significant environmental advantage over ACP and SHP."* Documentation should be provided to support this statement. Miles of line do not necessarily equate to severity of the environmental impact. The nature of the resources to be impacted needs to be considered. The Forest Service has previously requested that such comparative information on impacts be obtained and considered for alternatives to the proposed action.
3-5	3.2.2.3	*"For this reason, and the fact that the current system does not meet ACP's purpose and need, modification of the existing East Tennessee system is not considered a viable alternative to ACP and SHP."* The purpose and need is stated in terms of providing gas to end users. Nothing in the subject section indicates that modification of the East Tennessee system could not meet this need. Therefore, the statement should be deleted, or documentation should be provided to support it.
3-9	3.2.3.2	*"In conclusion, construction and operation of merged system alternative may hold an environmental advantage when compared to construction and operation of both ACP/SHP and MVP/EEP separately. However, pursuing this alternative would require significant time for the planning and design, result in a significant delay to the delivery of the 3.44 Bcf/d of natural gas to the proposed customers of both ACP and MVP, and would limit the ability to provide additional gas to the projects' customers. When the environmental factors, technical feasibility, and ability to meet the purpose and need of the projects are cumulatively considered, we do not find that the merged system alternative holds a significant advantage over the proposed actions and have eliminated it from further consideration."* This statement is not supported by the information presented. If the merged system is potentially environmentally advantageous, then it is possible that the merged system is preferable to the proposed actions. The technical issues mentioned earlier in this section for the 48 inch pipe do not seem to render that option infeasible, and there is nothing presented in this section that would indicate that the merged system would not meet the purpose and need (the purpose and need section does not address required timing of project completion). A detailed comparison of feasibility and environmental impacts is needed before the MVP Merged Systems Alternative can be eliminated from consideration.

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3-10	3.3.1	Regarding the ACP and MVP Collocation Alternative*: "Based on our review of data, aerial photography, and topography, we conclude that there is insufficient space along the majority 3-11 Alternatives of ridgelines in West Virginia to accommodate two parallel 42-inch-diameter pipelines. Therefore, the advantages of collocating the two projects are reduced."* This statement should be supported by specific information that allows some estimation of the extent to which collocation benefits would be reduced.
3-11	3.3.1	Regarding the ACP and MVP Collocation Alternative: *"Additionally, implementation of this alternative would require significant planning and design, which would significantly delay the delivery of gas to Atlantic's customers. When the environmental factors, technical feasibility, and ability to meet the purpose and need of the projects are cumulatively considered, we do not find that the collocation alternative offers a significant advantage and do not recommend its adoption."* This section does not present any information that would allow comparison of environmental impacts or technical feasibility, nor does the section present any information to indicate that the alternative would not meet the purpose and need (the purpose and need section does not address required timing of project completion). Such information should be provided, or the alternative should be carried forward for further consideration.
3-13	3.3.2.1	Regarding the Hastings to Dooms route alternative: *"Finally, the alternative route would cross an additional 2.2 miles of land owned by the GWNF, and it is likely that Atlantic would need to construct a new corridor through the GWNF due to the amount of side slope construction that would be required along the existing transmission corridor."* This statement is not correct. The subject alternative would cross a 2.2-mile segment of the GWNF that would not be crossed by the proposed action, but the crossing by the proposed action would not occur. The net result would be a large decrease in the total mileage across the GWNF.
3-13	3.3.2.1	*"The Hastings to Dooms route alternative is 43.2 miles longer than the corresponding segment of the proposed route and would introduce new routing concerns. Atlantic would likely not be able to optimize collocation with the existing transmission lines in all cases, and some deviations from the transmission line corridors could be significant, further decreasing the benefit of collocation and adding additional mileage to the project. Although in many cases, steep slopes are not in themselves construction or routing constraints, this alternative appears to only increase the number of steep slopes crossed while increasing impacts to developed areas. Based on the factors analyzed above, we find that this route alternative would not provide a significant environmental advantage and do not recommend that it be incorporated as part of the project."* More presentation and comparison of environmental impacts is needed to support this statement. Although longer mileage and more steep slopes are concerning, the section currently does not present any data upon which to base this statement.
3-14	3.3.2.4	*We conclude that the Hasting to Dooms, Dooms to Suffolk, Dooms to Bremo to Farmville, and Pleasant Shade to St Pauls segments, used alone or in any combination, do not confer a significant environmental or technical advantage when compared to the proposed route.*

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		No information on environmental impacts is presented to support the conclusion that multiple electric transmission line routes do not confer an environmental advantage. Therefore, the statement should be deleted, or information on environmental impacts should be provided to support it.
3-19	3.3.4.1	*Routing ACP to the south of the MNF and GWNF would increase the pipeline route by about 43 miles. Generally, as the length of a pipeline route is increased, the amount of environmental impacts on various resources are concurrently increased. However, we acknowledge that a shorter pipeline route could conceptually have significantly greater qualitative impacts to sensitive resources than a longer route, which could make the longer route preferable. In this instance, we have not identified or received any information that suggests the shorter pipeline route through the National Forests has significantly greater impacts to sensitive resources than the alternative, but acknowledge that ground resource surveys have not been conducted. Therefore, as currently analyzed, we do not recommend that an alternative south of the National Forests be incorporated as part of the project.* No analysis of a National Forest Avoidance Alternative has been conducted, and environmental impacts of this alternative have not been considered or compared to the proposed action. Therefore, the Forest Service cannot support the recommendation that the National Forest Avoidance Alternative be dropped from consideration. In our scoping comments, we requested that all alternatives, including a National Forest Avoidance Alternative, be fully addressed in regard to their feasibility and environmental effects. We hereby reiterate that request.
3-19	3.3.4.1	*Similar to routing south of the National Forests, we do not find that avoidance of the National Forests would provide a significant environmental advantage when compared to the shorter proposed pipeline route through the National Forests. We also acknowledge that although the route would avoid designated National Forest lands, many of the same forest habitats and waterbodies would be crossed by the alternative, along with similar mountainous terrain. Therefore, we do not recommend that it be incorporated as part of the project.* No analysis of a National Forest Avoidance Alternative has been conducted, and environmental impacts of this alternative have not been considered or compared to the proposed action. Therefore, the Forest Service cannot support the recommendation that the National Forest Avoidance Alternative be dropped from consideration. In our scoping comments, we requested that all alternatives, including a National Forest Avoidance Alternative, be fully addressed in regard to their feasibility and environmental effects. We hereby reiterate that request.
3-19	3.3.4.2	*Atlantic adopted the GWNF6 route after the FS stated it would not approve Atlantic's former route through the National Forests. Specifically, the FS issued a letter to Atlantic on January 19, 2016, stating Atlantic's route did not meet the minimum requirements of initial screening criteria found in 36 CFR 251.54(e)(1)(i) and (ii), and that Atlantic must develop and evaluate system and/or route alternatives that avoid the Cheat, Back Allegheny, and Shenandoah Mountains, and Cow Knob salamander habitat. When compared to Atlantic's originally proposed route, which included three HDD crossings that were designed to drill under sensitive species habitats, the GWNF6 route is generally 15 miles south of its former location through the National Forests (see figure 3.3.4-1).* This passage should note that the reasons for rejection of the former route included inconsistencies with Forest Plan direction and emphasis related to threatened species (Cheat Mountain salamander), Regional Forester's Sensitive Species (West Virginia northern flying squirrel and Cow Knob salamander), and red spruce ecosystem restoration. The proposed HDD crossings may have reduced, but would not have eliminated, the impacts to Cow Knob salamander.
3-21	3.3.4.2	*Because Atlantic adopted the GWNF6 route, we have received several comments suggesting Atlantic's former route through the National Forests is preferable to the currently proposed route. While Atlantic's current route is 31.8 miles longer than the former route, and may*

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		inherently have more generalized environmental impacts than the former route (i.e., forest clearing, waterbody crossings, karst topography, steep slope construction, private landowners affected, and air emissions, among other factors), the FS' January 19, 2016 letter indicated that the FS could not approve the former route. Therefore, we find that Atlantic's originally proposed route through the National Forests would not meet the project objective (essentially resulting in the no-action alternative), and we do not recommend that it be incorporated as part of the project. This passage should note that the former route was rejected because of impacts to highly sensitive environmental resources, including threatened species, Regional Forester's Sensitive Species, and red spruce ecosystem restoration areas. Because of these impacts, the Forest Service determined that the former route could not be made consistent with the Forest Plans.
3-21, 3-22	3.3.4.3	While the proposed BLR-ANST crossing would result in no surface impacts on NFS lands, or to the ANST, there would be aural/auditory impacts to ANST recreationalists and other recreation visitors to NFS lands in this area.
3-31	3.3.8.2	The references to Augusta County, West Virginia are incorrect. Please correct to Augusta County, Virginia.
3-31 to 3-33	3.3.8	It should be noted that pipelines are not compatible with designated Wilderness. For a pipeline proposal to include a portion of its route within Wilderness, a specific determination and authorization by the President of the United States is required. Therefore, the regulatory process that would be required to construct an alternative through Wilderness would be a significant factor in the decision.
3-33	3.3.8.2 and 3.3.8.3	The following sentence is incorrectly worded: "….the regulatory process that would be required to construct of the alternative across the ANST was not…"
4-1	4.0 Environmental Analysis	"*The conclusions in the EIS are based on our analysis of the environmental impact and the following assumptions: Atlantic and DTI would comply with all applicable laws and regulations*;…" The analysis must also document compliance with LRMP direction for National Forest land.
4-3	4.1.2.1 Surficial/ Bedrock Geology	"*Surficial geology has not been mapped in detail in the areas crossed by ACP and SHP. National scale mapping depicts unconsolidated surficial deposits near ACP as colluvium derived from the weathering and breakdown of the underlying bedrock, alluvium, and coastal plain sediments and in SHP as colluvium (Soller et al., 2009)*." Some surficial geological features such as alluvium and colluvium were mapped during the Order 1 Soil Survey on NFS lands. This data is provided with the Order 1 Soil Survey data and should be discussed within this section of the EIS.
4-4	4.1.2.2	"*In addition to bedrock removal, blasting of the bedrock could potentially damage nearby pipelines and other structures and could initiate landslides, karst activity, or ground subsidence over underground mines. Blasting of bedrock, particularly karst bedrock, could create fractures in the rock, temporarily affecting local groundwater flow patterns and groundwater yield of nearby wells and springs around the blast site, and affecting their water quality by a temporary increase in turbidity levels shortly after blasting*." Effects to local groundwater flow patterns from blasting in bedrock are likely to be permanent. Identification of existing pipelines, underground mines, karst, and nearby wells should have been previously known from surveys. This description of effects is not specific enough for the activities proposed. Site specific information for the entire ROW is available for National Forest lands, and that discussion should occur in the analysis in the form of a table by mile marker.
4-4	4.1.2.2	"*Areas with shallow bedrock classifications were identified using the Natural Resources Conservation Service's (NRCS) Soil Survey Geographic Database (SSURGO) (Soil Survey Staff, 2016)."*

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	Shallow Bedrock and Blasting	"*Based on SSURGO data and the mapped locations of shallow bedrock, blasting may be required along 152.7 miles (25 percent) of ACP and 34.0 miles (91 percent) of SHP. In addition, SSURGO data identifies that lithic (hard) bedrock is present on 73.9 miles (12 percent) of ACP and 22.1 miles (59 percent) of SHP, which may also require blasting or other special construction techniques. SSURGO shallow bedrock data along ACP and SHP is summarized in table 4.1.2-1."* The Order 1 Soil Survey on National Forest land was conducted, in part, to inform areas of the COM Plan (including the blasting plan) at a detailed, site-specific level. The Order 1 Soil Survey is the most site-specific and detailed level soil survey and should be used as it was intended to be, to inform decisions such as the aforementioned. ACP also used seismic refraction testing to determine depth to bedrock. Please include this information in this analysis and provide a separate table for that information. The FS has not yet been provided with these results.
4-13	4.1.2.3 Karst Geology	Please separately identify and analyze impacts to any karst features on National Forest land.
4-17	4.1.2.3 Construction Impacts and Mitigation	Require that the karst specialist(s) has the proper karst education, certification and experience. See Forest Service comments on the COM plan for more details on necessary protection and mitigation measures for any karst encountered on National Forest land.
4-18	4.1.2.3 Construction Impacts and Mitigation	*"…one or more voids totaling 6 inches or more is encountered …"* Please define what constitutes a 6-inch void. A 6 inch diameter crack is too large to serve as a trigger for cessation of blasting. Use a 1 inch diameter.
4-21	4.1.2.3 Construction Impacts and Mitigation	Certain proposed pipeline construction areas may require a check "Call Before You Dig" with active- inactive oil and gas wells and unknown transmission/gathering lines, www.call811.com.
4-24	4.1.4.2 Slope Stability	"*Ten sites, five on ACP and five on SHP, have been assigned a high potential slope instability hazard. Sixteen sites, eight on ACP and eight on SHP, have been assigned a moderate potential slope instability hazard. Seventeen sites, 14 on ACP and 3 on SHP, have been assigned a low potential slope instability hazard. Twelve sites on ACP were dismissed as having no potential slope instability based on the results of ground or aerial reconnaissance*." The high and medium hazard sites on National Forest land will require site specific "Best in Class" applications and will need to be outlined in the COM Plan. These site specific designs will need to show in an analysis that slope stability can be maintained. Documentation of the effectiveness of stabilization techniques must be provided.
4-25	4.1.4.2 Landslides	"*In West Virginia, 73 percent of the AP-1 mainline route would cross areas with a high incidence of and high susceptibility to landslides*" "*Atlantic has not yet completed the Phase 2 analysis at all evaluation sites*." This information will be critical to inform the site-specific designs on MNF lands as well as the effects analysis of the FEIS. The Forest Service will need to review this data once it becomes available. The results will need to be incorporated into the Best in Class site specific designs.

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4-26	4.1.4.2	In the Steep Slopes discussion, 40 percent is presented numerous times as a lower threshold to classify steep slopes. Per the GWJ Forest Plan, >35% slope is the break for steep slopes. The analysis presented is not in accordance with Forest Plan standards. Please include additional analysis that identifies those segments (between 35-40% slopes) that were not included.
4-27	4.1.4.2 Steep Slopes	This section should note that a determination of compliance with applicable Forest Plan direction is still outstanding. Standard SW07 in the MNF LRMP states that mechanized equipment should not be used on slopes over 40% unless the ability to maintain slope stability can be demonstrated. Similar direction applies to slopes over 35% on the GWNF. This issue needs to be discussed and resolved.
4-27	4.1.4.2 Steep Slopes	"*using alternative backfill*;" Alternative backfill material to be used on National Forest land is subject to prior approval by the Forest Service. Material must be free of contaminants and invasive species.
4-27	4.1.4.2 Steep Slopes	"*chemical stabilization of backfill*" Any chemical product to be used on National Forest land is subject to prior approval by the Forest Service.
4-29	4.1.4.2	*"storms that produce debris flows...is in the order of every 15 to 20 years"* Please add this sentence following the one listed above to provide greater significance description: *"There is a high probability that over the life of the project two or more storm events that produce debris flow may occur."*
4-29	4.1.4.2 Steep Slopes	*"Pipeline installation techniques, including padding and use of rock-free backfill, effectively insulate the pipe from minor earth movements."* According to meeting notes and discussion from a February 17 FS/ACP conference call and Go-To-Meeting, ACP stated that excavated material from the trench would be used to backfill after pipe placement. This from a discussion referring to steep slope site specific design and construction plans for ridgeline pipe placement on the MNF. The FS would like to know what the end point placement of this excavated material will be on National Forest lands. Rock free excavated material is certainly not the norm on steep slopes and ridges located on National Forest land and if the excavated trench material is not used for backfill then it is important know how this material will be stabilized on steep slopes. Please describe in this section where and when the use of rock-free backfill will be used.
4-32	4.1.4.4 Acid Producing Rock and Soils	"*backfill of the trench with acid-producing rock or soil first to a maximum of 12 inches below the surface;"* Acid producing material should not be placed in areas where it can be exposed to forms of water (i.e., drainage or subsurface water flow) which could result in acid runoff or drainage.
4-32	4.1.4.4 Acid Producing Rock and Soils	"*applying lime to the topsoil or replacing a minimum of 12 inches of acid-free topsoil*." Natural segregated topsoil should be replaced.
4-34	4.1.6.1 Monongahela National Forest	"*Approximately 3.6 miles of the shallow bedrock is crossed within the MNF and could require blasting per SSURGO data*." The data from the seismic refraction survey should ultimately be used to inform blasting on the MNF, along with the Order 1 Soil Survey data. This data needs to be displayed in the same manner as the Order 1 soil survey information and compared to the depth of the soil pits to ensure accuracy.
4-34	4.1.6.1	Add Appalachian Plateau to second sentence under MNF so it reads: "The project across the MNF is within the Appalachian Plateau and Valley and Ridge Provinces and is underlain by Silurian, Devonian, and Mississippian sedimentary rock (such as sandstone, shale, siltstone, and limestone) and by Quaternary deposits (such as colluvium)."

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4-34	4.1.6.1	Add the following text to the last paragraph at bottom of page 4-34: "Potential natural landslides in the project area include a variety of mass movements such as debris slides, debris flows, rockslides, rockfalls, and slumps. Debris flows (also referred to as mudslides, mudflows, or debris avalanches) are the dominant type of rapid, catastrophic landslide (Wooten et al., 2015; Eaton et al., 2003; Sas and Eaton, 2008; Morgan et al., 1999; USGS, 1996; Jacobson et al., 1993; Clark, 1987; Hack and Goodlett, 1960). The ACP project (pipeline ROW construction and related facilities such as access roads) may result in some project-induced landslides such as cut slope failures and fill slope failures. Fill slope failures are a potential source of debris flows which can extend far downslope from the pipeline corridor ROW or access road (Collins 2008; Wooten et al. 2009; Latham et al. 2009; Wooten et al. 2014; Wooten et al., 2015)."
4-36	4.1.6.1	Add the following paragraphs before the paragraph that begins "Mitigation measures for landslides hazards…" in the middle of page 4-36: "The project-induced landslide hazard of most concern is the potential for project-induced debris flows because debris flows can travel hundreds or thousands of feet downslope and pose a risk to public safety, resources, and infrastructure on NFS lands and non-NFS lands. Three project-induced debris flow hazards are: 1.- During pipeline construction, the temporary spoils (excavated material) stored in the temporary ROW or in the Additional Temporary Work Space (ATWS) would be a short term hazard for slope failures that could result in debris flows. 2.- A long-term debris flow hazard would be the spoils placed as fill to restore the original ground contour. The restoration fill slopes would have potential to fail down along the ROW corridor as well as at an angle or perpendicular to the ROW corridor. The restoration fill would be placed on cut slopes that in some circumstances may be a potential slip surface for failure of the fill slope and a resulting debris flow. The restored pipeline corridor would contain long fill slopes extending hundreds of feet downslope within the ROW corridor and would have a potential for fill slope failures triggered by rainstorms during the decades of pipeline operation and beyond. Some fill slope failures may result in debris flows with destructive paths down the ROW corridor as well as off the corridor and down hundreds or thousands of feet of NFS lands, and in some cases, to non-NFS lands downslope. 3.- Another long-term debris flow hazard would be the change of the surface and subsurface drainage in the areas of construction and in adjacent natural slopes along the corridor ROW that may create or contribute to a debris flow failure of the natural ground downslope from the ROW corridor. The source area for these three types of slope failures is generally on cross-slopes of 40% or steeper. The potential number of project-induced debris flows paths or occurrences would be greater on lands within one-half mile from 40% or steeper cross-slopes on the corridor ROW on NFS lands. Some potential debris flow paths may be longer than one-half mile. The values at risk on NFS lands for project-induced debris flows are public safety and infrastructure and the wide range of resource values for which National Forests are managed. The values at risk on non-NFS lands downslope from 40% or steeper cross-slopes on the corridor ROW on NFS lands include public safety, resources, roads, utilities and other infrastructure. Natural landslides (including debris flows) are part of the natural disturbance regime on NFS lands and non-NFS lands downslope. The natural landslide hazards (including debris flow hazards) and risks to public safety, resources, and infrastructure on NFS lands and non-NFS lands are inherent in the steep mountainous geologic setting. The ACP pipeline project would add an increment of human-induced landslide hazards and risks to the natural landslide hazards and risks in the area."
4-38	4.1.6.2	Add the following text to the end of the paragraph that ends "…Hack and Goodlett, 1960)." near bottom of page 4-38: "The ACP project (pipeline ROW construction and related facilities such as access roads) may result in some project-induced landslides such as cut slope failures and fill slope failures. Fill slope failures are a potential source of debris flows which can extend far downslope from the pipeline corridor ROW or access road (Collins 2008; Wooten et al. 2009; Latham et al. 2009; Wooten et al. 2014; Wooten et al., 2015)."

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4-38	4.1.6.2 GWNF	*"Depth to bedrock may be 5 feet or less over most of the ACP route through the GWNF as determined from SSURGO data."* The Order 1 soil survey and site specific seismic data collected on FS lands should be used by ACP to determine the depth to bedrock and possible blasting needs and not the broader scale and more general soil survey information found in SSURGO. Areas where blasting will be required are important knowledge for the FS to have to determine effects from pipeline construction.
4-38	4.1.6.2 GWNF	*"The ridgetops can provide a more stable foundation for the pipeline than side slopes."* Ridgetops may be more stable for the pipe, but potential collateral impacts need to be considered. Depending on the width of the ridges, there will be locations that require excavation to provide a more level working space for equipment. Excavated material will be stockpiled at the edges of the workspace or in an ATWS. Many times these stockpiles will be near the tops of some very steep side slopes. This loose, unconsolidated material could become mobile if wetting and slippage occurs. The FS will require construction narratives on steep slope construction plans to account for the placement and end point of all excavated material to minimize unstable slopes and project-induced debris flows/landslides.
4-40	4.1.6.2	Add the following paragraphs before the paragraph that begins "Mitigation measures for landslides hazards…" in the upper part of page 4-40: "The project-induced landslide hazard of most concern is the potential for project-induced debris flows because debris flows can travel hundreds or thousands of feet downslope and pose a risk to public safety, resources, and infrastructure on NFS lands and non-NFS lands. Three project-induced debris flow hazards are: 1.- During pipeline construction, the temporary spoils (excavated material) stored in the temporary ROW or in the Additional Temporary Work Space (ATWS) would be a short term hazard for slope failures that could result in debris flows. 2.- A long-term debris flow hazard would be the spoils placed as fill to restore the original ground contour. The restoration fill slopes would have potential to fail down along the ROW corridor as well as at an angle or perpendicular to the ROW corridor. The restoration fill would be placed on cut slopes that in some circumstances may be a potential slip surface for failure of the fill slope and a resulting debris flow. The restored pipeline corridor would contain long fill slopes extending hundreds of feet downslope within the ROW corridor and would have a potential for fill slope failures triggered by rainstorms during the decades of pipeline operation and beyond. Some fill slope failures may result in debris flows with destructive paths down the ROW corridor as well as off the corridor and down hundreds or thousands of feet of NFS lands, and in some cases, to non-NFS lands downslope. 3.- Another long-term debris flow hazard would be the change of the surface and subsurface drainage in the areas of construction and in adjacent natural slopes along the corridor ROW that may create or contribute to a debris flow failure of the natural ground downslope from the ROW corridor. The source area for these three types of slope failures is generally on cross-slopes of 40% or steeper. The potential number of project-induced debris flows paths or occurrences would be greater on lands within one-half mile from 40% or steeper cross-slopes on the corridor ROW on NFS lands. Some potential debris flow paths may be longer than one-half mile. The values at risk on NFS lands for project-induced debris flows are public safety and infrastructure and the wide range of resource values for which National Forests are managed. The values at risk on non-NFS lands downslope from 40% or steeper cross-slopes on the corridor ROW on NFS lands include public safety, resources, roads, utilities and other infrastructure. Natural landslides (including debris flows) are part of the natural disturbance regime on NFS lands and non-NFS lands downslope. The natural landslide hazards (including debris flow hazards) and risks to public safety, resources, and infrastructure on NFS lands and non-

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		NFS lands are inherent in the steep mountainous geologic setting. The ACP pipeline project would add an increment of human-induced landslide hazards and risks to the natural landslide hazards and risks in the area."
4-41	4.1.6.1 Monongahela National Forest	"*However, Atlantic and DTI would comply with DOT regulations, specifically 49 CFR 192.317(a), which require pipeline operators to protect transmission pipelines from hazards, including landslides. Regulations at 49 CFR 192 also specify pipeline design requirements to ensure safe pipeline operation and include pipe stress requirements/testing and requires consideration of external loads in pipeline design. Adherence to DOT's pipeline safety regulations would minimize the risk of landslides in the project area*." The DOT requires compliance to keep the pipeline protected, but the risk that landslides pose to the surrounding environment also need to be considered. The paragraphs leading up to the conclusions on landslide hazards present substantial risks associated with construction in these areas.
4-41	Soil Section	To be compliant with Forest Service directives for National Forest land, include a section referencing FSH 2550 in regards to FSH 2551.3 (Standards and Guidelines for Soil Quality) outlined below. Include 1) a statement whether this project complies with FSH 2550; 2) the commitment of irretrievable and irreversible resources for the soil resource; 3) determination of consistency with the Forest Plans; and 4) a statement on the unavoidable adverse impacts to the soil resource. Outlined in FSM 2550 http://www.fs.fed.us/biology/resources/pubs/soils/wo_fsm2550.pdf FSH 2551.3 – Standards and Guidelines for Soil Quality New approaches to the National and Regional Soil Quality Standards (SQS) incorporate adaptive management to adjust SQS for each management situation. The process is outlined in the following nine steps: These 9 steps outline the application of SQS methodology from the beginning of the project to the point that the project is implemented: 1. Review identified Desired Conditions for the project area (Reference or Forest Plan Desired Conditions). 2. Conduct an Interdisciplinary Landscape Assessment to identify departure from Desired Conditions and any cultural or resource issues and concerns (used to design a management action and to evaluate the risks associated with implementing the action). Preliminary soil disturbance monitoring can also be done to document existing soil quality conditions on the landscape (Page-Dumroese et.al. 2009) 3. Interdisciplinary team designs management actions to move the landscape toward the desired condition and address issues and concerns. a. According to the Monongahela National Forest (MNF) 'Land and Management Resource Plan (2006),' the desired conditions for soil resources are that soil protective cover, soil organic matter, and coarse woody material are at levels that maintain the natural infiltration capacity, moisture regime, and productivity of the soil. Also, soils must have adequate physical, biological, and chemical properties to support the desired vegetative growth. Exposed mineral soil and soil compaction from human activity may be present but are dispersed and do not impair the productivity and fertility of the soil. 4. Identify potential soil property changes due to a proposed action. 5. Estimate the likelihood of each potential soil property change due to the proposed action.

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		6. Identify ecosystem components, functions, or services at risk (departing from reference conditions or moving away from desired conditions) from changes in soil properties that result from implementing the planned action. 7. Estimate ecological risk as having a low, moderate or high likelihood of a negative change in an ecosystem component, function, or service due to a minor, moderate or extreme change in a soil property. 8. Modify management activities to mitigate changes in soil properties that have a moderate or high ecological risk (this step is where SQS are followed, or if SQS do not exist they are inferred from literature and expert opinion). 9. Monitor results for detrimental disturbance and adjust SQS (Page-Dumroese, 2009).
4-41	4.1.7 Conclusion	*Considering the historic and recent landslide incidences in the immediate project area, along with the factors above, we conclude that constructing the pipelines in steep terrain or high landslide incidence areas could increase the potential for landslides to occur.* This conclusion needs to be fully considered in the analysis and conclusions of potential effects on aquatic resources.
4-47	4.2.2.3 Compaction-prone Soils	"*Surface texture characteristics were used as an indicator of overall soil compaction potential; however, as outlined in the FERC Plan, during the restoration phase of construction compaction of topsoil and subsoil layers would be tested at regular intervals in agricultural and residential areas using penetrometers or other appropriate equipment*." Cone penetrometers should be used instead of pocket penetrometers for greater accuracy and consistency following the ASTM standards. Rutting is limited to 5% of the active ROW across the permit area within National Forest Lands at any given time no matter the number of spreads operating at a given time. This testing will be done on all National Forest lands.
4-47	4.2.2.3 Compaction-prone Soils	As a means to meet applicable Forest Plan direction, the FS will require further direction in the COM plan regarding remediation of compaction on National Forest land. Employ timber mats or trench spoil to protect underlying soil where possible. Limit the use of heavy equipment on steep slopes to the minimum amount necessary. Use a cone penetrometer to measure compaction on the construction ROW prior to and following completion of construction activities. Post-construction compaction that exceeds pre-construction compaction indicates the need for compaction remediation. On ROW slopes <20% where compaction remediation is needed, use de-compaction techniques such as a ripper, harrow disk, backhoe bucket teeth, chisel plow, or other FS-approved techniques to de-compact travel lanes and any other compacted areas. On ≥20% slopes where compaction remediation is needed and can be accomplished safely and effectively without causing further resource damage, use backhoe bucket teeth, or another safe, FS-approved method, to break up compacted soils.
4-55	4.2.7	There is no mention of the RUSLE2 sediment analysis (Appendix L) throughout the entire section. The sediment analysis is supposed to quantify erosion rates and loads and potential transport to receiving streams. Please update section with data results from analysis and conclusions on soil loss from the project.
4-55	4.2.7 Soil Impacts for Federal Lands	"*Atlantic filed soil reports upon completion of the Order 1 Soil Surveys, which are currently under review by the FS. For this EIS, SSURGO data was used to analyze potential soil impacts on Federal Lands. Additional analysis of soil characteristics on National Forest land is forthcoming based on the results of the Order 1 soil survey*." "*TABLE 4.2.7-1*" The soil section of this DEIS needs to provide soil data collected from the Order 1 Soil Survey on NFS Lands. Include a discussion on the data obtained from the Order 1 Soil Survey within this section.

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		SSURGO data will not be accepted for analysis in the DEIS when referencing NFS Lands. Include sections such as 4.2.1, 4.2.2, 4.2.2.2, 4.2.2.3, 4.2.2.4, 4.2.2.5, 4.2.2.6, 4.2.2.7, 4.2.2.9, 4.2.2.10, 4.2.2.11, 4.2.3, 4.2.4, 4.2.5, 4.2.6 that use Order 1 Soil Survey data for discussion.
4-62	4.2.7.1 Forest Service Soil Standards	"***All topsoil must be segregated on all areas of NFS land***. *Where topsoil segregation is performed on the MNF and GWNF, the O and A horizons would be segregated from the transition soil horizons AB/BA. O horizon soils are defined as a soil layer containing a high percentage of organic matter. A horizon soils are defined as the dark subsoil below the O horizon. AB/BA horizon soils are defined as light colored subsoils located below the O and A horizons.* ***Because of the increased need for additional right-of-way width and loss of additional forestland, and the need to remove stumps, which would increase topsoil mixing with subsoil and the increase the potential for erosion, topsoil segregation is generally not conducted in forested areas***." Topsoil segregation is required along the entire ROW on NFS lands. But, in the last statement, it is said that topsoil will not be segregated in forested areas. The FS understands that topsoil segregation will be difficult on steep slopes, and there is potential to use an amendment to mitigate this effect. However, the statement that topsoil generally is not segregated in forested areas does not apply to National Forest land. Segregating topsoil in forested areas is required by the MNF LRMP SW15.
4-63	4.2.8 Conclusion	"*Construction-related impacts on soils would be temporary and localized to the construction workspace, except where erosion, sedimentation, landslides, and other forms of soil movement affect adjacent areas. Analyses are ongoing to determine whether impacts would be minimized through the use of the construction and restoration plans summarized above and discussed throughout this EIS.*" The short paragraph in 4.2.8 is inconsistent with statements made in the Major conclusions on ES-14 where the document indicates temporary and permanent impacts on the environment. The subject paragraph needs to be reworded to include permanent impacts to the soil resource. On NFS lands, the dedication of the soil resource for housing a pipeline will result in an irreversible commitment of resources and degradation of soil quality as defined in FSH 2550. This commitment would exist the life of the pipeline and beyond if no ecological and soil restoration occurs post decommissioning any part of the pipeline. Analysis and conclusions of potential direct, indirect, and cumulative effects to aquatic resources cannot be considered complete and valid until deficiencies in the analysis of soil resources have been corrected and deemed acceptable.
4-67	4.3.1.5	According to VDH-ODW, Zone 1 for well protection is 1,000ft radius and is a priority zone for managing potential sources of contamination. Please discuss regulations that were followed that allow for identification of wells and springs, karst in proximity of 0.25 mile, 500 ft or 150 ft. Ensure procedures used are in accordance with state best management practices. Zone 2 is a 5,280-foot radius (one mile) which represents an estimate of the total recharge zone for the well. Please complete tables with those additional wells and springs that could be affected for both Zones 1 and 2.
4-68	Table 4.3.1-1	This table should include an additional column called "Surface Drainage Direction of Spring from Project" such as up/side/down gradient. This additional information would clearly disclose those locations with higher potential impact than others.
4-82	4.3.1.7	The Groundwater Impacts and Mitigation section is too general and does not describe actual site-specific impacts.

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4-86	4.3.1.8	Four springs were identified within the GWNF – Please reference where the data is further described and update with January 2017 Wetland and Waterbody Survey Report for the GWNF. Nine seep points were identified. Please also include a summary that characterizes these water sources, such as water quality, water volume, etc. This section should fully describe the existing condition, potential impacts and mitigation measures. Further describe the existing condition/summary information from the field surveys. Explain whether or not these sources meet State standards based on data collected during field survey.
4-92	Access Roads	*Access roads for ACP would cross 490 waterbodies (some waterbodies are crossed more than once), including 2 major, 102 intermediate, and 377 minor waterbodies, and 9 open ponds.* Potential direct, indirect, and cumulative effects to aquatic resources from access roads are not isolated to streams crossings; they can potentially emanate from any and all locations along roads. The various effects of roads need to be considered as part of the documented analysis and conclusions for aquatic resources.
4-94	West Virginia Surface Water Classifications	*ACP and SHP pipeline facilities do not cross Tier 3 streams in West Virginia; however, a proposed access road crosses the upper reaches of Slaty Fork, a Tier 3 stream.* ACP crosses an unnamed tributary of Shock Run (Reach Code = 05050003002200) that is on the MNF but currently it is not identified as a Tier 3 stream. However, there is more than a reasonable chance that this tributary is utilized by a component of the wild brook trout population known to inhabit the Shock Run watershed. If so, this tributary would in fact be a Tier 3 stream by definition even though it is not currently identified as such. Conducting a fish population survey in this tributary could determine the validity of this professional conjecture.
4-100	4.3.2.6	DEIS states impacts on water bodies could result from "*construction activities in stream channels and adjacent banks*". Impacts to waterbodies are not confined to activities in the immediate vicinity of the waterbody or the immediate time of the construction activity. Impacts may result from construction activities upslope of the stream channels and that may be a considerable distance from the channel. Additionally, depending upon how well and how fast revegetation occurs, impacts could occur at some time well after the construction occurred. Erosion and sedimentation control measures are expected to be implemented, but a significant storm event, either during construction or for an indefinite period afterward until adequate vegetation becomes established, could easily overwhelm these measures. Additionally, the DEIS states that the impacts "would be limited to the period of in-stream construction and would return to normal shortly after stream restoration activities are completed". In reality, fine sediment that has entered the waterbody and settled on the bed can continue to impact the environment of aquatic organisms for a considerable time. Sources of potential effects other than crossings must be considered along with cumulative effects as part of the analysis and conclusions. Some sections in the DEIS seem to do a better job than others in acknowledging this through words. However, there is little confidence that the potential effects which are mentioned somewhere in the DEIS have been adequately considered in drawing analysis conclusions for aquatic resources.
4-111	4.3.2.7 Hydrostatic Testing and Dust Control Procedures	*Water sources for dust control are still being evaluated by Atlantic and DTI.* *Prior to construction, Atlantic and DTI should file with the Secretary, for the review and written approval of the Director of OEP, proposed or potential sources of water used for dust control, anticipated quantities of water to be appropriated from each source, and the measures that would be implemented to ensure water sources and aquatic biota are not adversely affected by the appropriation activity.* DEIS page 4-114 states that, "*No water would be appropriated from sources within the MNF or GWNF, and no hydrostatic test water discharges would occur on NFS lands*." However, it is possible that water withdrawals and discharges off NFS lands may affect aquatic

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		habitats and biota on NFS lands (for example, withdrawal from Big Spring Fork in West Virginia could impact the Elk River where it flows across NFS lands). Therefore, such potential impacts need to be considered and disclosed in the analysis. The FS will coordinate with the appropriate state and federal regulatory agencies to ensure that the effects of off-Forest withdrawals and discharges on Forest aquatic resources are appropriately avoided, minimized, and mitigated.
4-113	4.3.2.8 Extra Workspaces within 50 Feet of Waterbodies	*Atlantic's and DTI's construction and restoration plans, along with the FERC Procedures, specify that extra workspace should not be within 50 feet of waterbody boundaries except where an alternative distance has been justified and deemed acceptable by FERC.* The MNF LRMP typically would require a 100 buffer between ATWS and any stream channel. See also comments for page 2-27 (2.3.3.1 Waterbody Crossings)
4-114	4.3.2.9 Waterbodies on Federal Lands	*To meet the requirement of the Forest Plan for the MNF (FS, 2011), ATWS would be required to be set back a minimum of 100 feet for perennial and intermittent streams with a drainage area of at least 50 acres, a minimum of 50 feet for intermittent streams with a drainage area of less than 50 acres, and a minimum of 25 feet for ephemeral streams.* The Forest Plan for the MNF calls for landings for timber harvest to be located a minimum of 100 feet from perennial, intermittent, and ephemeral streams. Impacts from ATWS are expected to be comparable to those from timber harvest landings, thus the ATWS should also be required to be located a minimum of 100 feet from perennial, intermittent, and ephemeral streams. The DEIS states that the Forest Plan for the MNF states the distance from the ATWS to the streams differs depending upon whether the stream is perennial (100 feet), large intermittent (100 feet), small intermittent 50 feet), or ephemeral (25 feet). These buffers are for the cutting and removing of timber, an activity which is much less intensive and thus not comparable to ATWS activities, thus the buffer for the landings, 100 feet for perennial, intermittent and ephemeral streams, is the appropriate buffer for ATWS. See also comments for page 2-27 (2.3.3.1 Waterbody Crossings)
4-114	4.3.2.9 Waterbodies on Federal Lands	The DEIS states *"Some extreme and unpredictable impacts from seasonal precipitation events could cause slope instability, flash flooding, and debris flow hazards. These events could lead to additional water resources impacts."* This paragraph is rather general and vague, especially considering that it pertains to extreme and unpredictable impacts. The additional water resources impacts mentioned in the above should be explained in greater detail. Additionally, more information should be given about the seasonal precipitation events which can cause the impacts, for example, what type of event would represent a 1-2 year event, 10-year event, etc. These impacts should be considered and discussed as part of the documented analysis and conclusions for aquatic resources.
4-113	4.3.2.9	This section on waterbody crossings indicates that, *"about 18 crossed by access roads"* on the GWNF. Please specify exactly how many water bodies on the GWNF will be crossed.
4-113	4.3.2.9	In the second paragraph under the table, please replace "FS district" with "Forest." Consultation is occurring with each Forest (the MNF and the GWNF) at the Forest level. Each Forest is composed of multiple Districts, but consultation is not occurring at the District level.
4-113	4.3.2.9	The water quality section does not mention the RUSLE2 sediment analysis (Appendix L). The sediment analysis is supposed to quantify erosion rates/loads and potential transport to receiving streams and watersheds compared to baseline - thus, allowing for a meaningful impact analysis on surface water quality. Please update this section with data results from RUSLE2 analysis and conclusions on water quality impacts.
4-116	4.3.3.1	The document indicates that wetland surveys have been conducted along 92 percent of the proposed ACP route and 93 percent of the SHP route and the majority of other areas with proposed infrastructure.

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		Wetlands surveys should have been conducted along 100 percent of both routes and all areas of proposed infrastructure. Please explain rationale behind only conducting partial surveys.
4-125	4.3.3.9	The section indicates that, *"less than 0.1 acre…impacted on federal lands."* The Jan 2017 Wetland and Waterbody Survey Report indicates that nine wetlands and nine seep points on the GWJNF would be impacted but no acreages are provided. Please update the survey report and this section of the DEIS to indicate acres of each wetland/seep point impacted.
4-125	4.3.3.10	*"...would not significantly impact wetlands."* Please include a discussion on mitigation measures expected. There are over 700 acres of construction impacts to wetlands. Federal regulations require no net loss to wetlands.
4 -134	4.4.2	The DEIS says: "The Big Cedar Shale Barren is crossed by workspace and an access road." The maps that have been provided by ACP to the Forest Service do not show any access roads, work areas, etc. that impact the Big Cedar Shale Barren. Please clarify whether or not there may be potential impacts to the Big Cedar Shale Barren that the Forest Service is unaware of.
4-137	4.4.3	*"Trees that are not physiologically adapted to edge conditions would become more vulnerable to windthrow at lower wind speeds than interior forest"* The wording of this sentence is unclear. Better wording might be "the newly exposed trees would not be physiologically adapted to edge conditions, which would make them vulnerable to windthrow." While there is an acknowledgement of a potential to impact trees adjacent to the cleared areas, these potential impacts go much farther than the simple mechanical effect of windthrow. Much of the NFS lands impacted are overmature oak forests on moderate to low site-indexes. These forests are a moderate to high risk for oak decline. It is likely that the added stress of construction on adjacent trees would trigger an oak decline event that would affect more than just the adjacent tree(s). While this impact may not be quantifiable in terms of acres, the potential impact and scope of that impact (e.g. not just the adjacent tree(s)) should be acknowledged for appropriate disclosure of impacts to comply with NEPA. Please see *Incidence and Impact of Oak Decline in Western Virginia, 1986*, Steven W. Oak, Cindy M. Huber, and Raymond M Sheffield, Resource Bulletin SE-123.
4-138	4.4.3	*"Impacts are considered short term if, after three growing seasons, the revegetated disturbed areas resemble adjacent undisturbed lands."* Please clarify by which metric resemblance is being measured, e.g., vegetative species composition, soil structure, water quality, wildlife populations, etc. Short term impacts are those which only temporarily impair ecosystem services, and from which the ecosystem can recover and return to previous levels of functionality. Visual appearance alone does not indicate restoration. *"…and in some cases, restore native flora."* See comment above. Any area for which no plans exist for a reasonable effort to restore native flora should be considered to be impacted long-term.

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4-143	4.4.4	Throughout this document and in Appendix G, section 11.4.2.1 the use of herbicides to treat non-native invasive species is identified. In order to comply with NEPA, the impact of that herbicide use on the human environment must be disclosed before any herbicide may be applied. Herbicide use may be interpreted as a connected action to the construction and maintenance of the pipeline. Thus, the disclosure of the impacts related to herbicide use must be included in this document. A word search for "herbicide," "risk assessment." and "human risk assessment" revealed no such discussion. Please include disclosure of the impacts of herbicide use on humans, plants, and animals. We strongly suggest that Atlantic adhere to herbicides and application rates for which risk assessments have already been completed (http://www.fs.fed.us/foresthealth/pesticide/risk.shtml).
4-145	4.4.6.1	*"As discussed in section 4.4.1, ACP crosses red spruce forests in West Virginia. Red spruce grows in association with hemlock, red and sugar maple, yellow birch, pin cherry, beech, and black cherry, but it may grow in almost pure stands. On the MNF, ACP would construct two new access roads across Management Prescription 4.1 (Spruce and Spruce-Hardwood Ecosystem Management) between AP-1 MPs 71.6 and 72.0 near Gibson Knob. This area contains much of the lands that have the potential natural vegetation capable of supporting red spruce or spruce-hardwood communities. Management emphasis in this prescription area is placed on restoration and management of disjunct red spruce and spruce-hardwood communities. This management prescription area was surveyed in 2016 and categorized as Hemlock Forest and Existing FS Roads (see table 4.4.7-1). ACP would affect 0.9 acre of Hemlock Forest within the construction right-of-way and ATWS, and 3.8 acres of FS Roads for a permanent access road. Although Atlantic has minimized impacts on red spruce forests through adopting reroutes on NFS lands, specific measures to restore this community have not been identified."* Revise this passage as follows: As discussed in section 4.4.1, ACP would cross a small area of mixed northern hardwood-red spruce forest on the MNF in West Virginia. In general, red spruce grows in association with hemlock, red and sugar maple, yellow birch, pin cherry, beech, and black cherry, but it may grow in almost pure stands. The subject stand that would be impacted is largely dominated by hardwoods, with scattered red spruce and hemlock present. On the MNF, ACP would construct two new access roads across a small segment of Management Prescription 4.1 (Spruce and Spruce-Hardwood Ecosystem Management) between AP-1 MPs 71.6 and 72.0 near Gibson Knob. Management emphasis in this prescription area is placed on restoration and management of disjunct red spruce and spruce-hardwood communities. The section of this management prescription area to be crossed was surveyed in 2016 and categorized as Hemlock Forest and Existing FS Roads (see table 4.4.7-1). ACP would affect 0.9 acre of Hemlock Forest within the construction right-of-way and ATWS, and 3.8 acres of FS Roads for a permanent access road. Although Atlantic has minimized impacts on red spruce forests through adopting reroutes on NFS lands, specific measures to restore this community have not been identified.
4-146	4.4.6.2	We are gratified to see that FERC is recommending that ACP "*describes vegetation communities and construction and operation impacts according to the protocols and classification systems requested by the George Washington National Forest (GWNF), and based on vegetation data collected during surveys"*. We have been requesting these surveys and disclosure of impacts since first providing our comments on the initial resource reports. Please disclose those impacts in similar format as Table 4.4.6-1. However, instead of Vegetation Community Type, these impacts should be classified by Ecological System Group as defined in the GWNF Forest Plan on page 2-11 and 12. The impact should be further classified by Structural Class within each ESG pursuant to the definitions on page 2-14 of the GWNF Forest Plan.
4-146 & 147	4.4.7	The DEIS says: *"We received comments regarding potential impacts of the ACP route crossing five designated Special Biological Areas (SBAs) in the GWNF, including Browns Pond SBA, Ratcliff Hill SBA, Big Cedar Shale Barren SBA, Reubens Draft Shale Barren, and Big Levels Macrosite SBA."* Please clarify if these 5 Special Biological Areas will or will not be affected by the proposed project.
4-147	4.4.7	The DEIS says: *"The proposed ACP crosses Browns Pond SBA between AP-1 MPs 96.0 and 97.0 on the GWNF, and permanently impacts 2.2 acres of oak-pine vegetation for construction related to an access road."*

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		It is unclear to the Forest Service what the impacts to the road through the Brown's Pond Special Biological Area will be. The DEIS says 2.2 acres of habitat will be impacted. Please describe where this impact will occur and what the impact will be.
4-147	4.4.8	*"Following construction, lands outside of the permanent right-of-way and the ATWS, staging areas, pipe/contractor yards, and temporary access roads would be allowed to revegetate naturally."* These areas may still need erosion control, stabilization, invasive weed control, and restoration seeding to achieve full restoration. Stabilization and restoration plantings will be required on National Forest land, along with invasive weed control where needed.
4-147	4.4.8	*"Short-term impacts on federal lands include areas dominated by grass and shrubs."* It is not clear whether this sentence means short-term impacts will occur primarily in areas that are currently dominated by grass and shrubs, or if dominance by grass and shrubs will be the result of the impact. Please clarify.
4-147	4.4.8	*"On areas outside of the permanent right-of-way and ATWS, staging areas, pipe/contractor yards, and temporary access roads, non-native invasive plant species such as those identified below in section 4.4.9 would likely increase."* MNF LRMP Goal VE13 states, "For management actions that have been identified by the Forest as likely to cause a negative effect on RFSS populations, negative effects shall be avoided or minimized to the maximum extent practical while still accomplishing the purpose of the project or action. Unavoidable negative effects shall be mitigated to the extent practical and consistent with the project purpose." MNF LRMP Goal VE19 a) states "Work to prevent new infestations of NNIS, with emphasis on areas where species have a high probability for establishment and spread." As stated in this document in section 4.4.9, "federal agencies shall not authorize, fund, or carry out actions likely to cause or promote the spread of invasive species… [unless the benefits outweigh the potential harm] and that all feasible and prudent measures…will be taken to minimize the risk of harm." The 64 rare plant species on the MNF, including both known and undiscovered populations along the project corridor, will not receive benefit from the proposed project; therefore it is important that risk of harm be minimized to the maximum extent possible. Please demonstrate that all areas on the MNF affected by this project will be covered by plans to control NNIS.
4-148	4.4.8	*"The incorporation and development of native flowering plants on the operational right-of-way for the pipeline would create, where conditions and land management practices are suitable, substantial acreages of pollinator habitat where this type of habitat is either non-existent or was previously degraded."* Please either remove or provide support for the statement that pollinator habitat in some areas is "either non-existent or…degraded." Many native trees and shrubs provide excellent pollinator habitat. Replacing them with native forbs may provide habitat for different pollinators, but it is still a disruption to the current existing ecological community, and not necessarily an improvement to what is already there.
4-149	4.4.8	The DEIS states "*The timber cruise would identify mature and old growth trees. Results of the timber cruises would be used to develop a Timber Extraction Plan, which would identify areas of old growth impacted by construction activities."* The purpose of timber cruising is not to identify old growth. Old growth must be identified on the GWNF pursuant to the Guidance for Conserving and Restoring Old-Growth Forest Communities on National Forests in the Southern Region. We strongly recommend utilizing the current Old Growth Survey protocol for the GWNF and that these surveys be performed simultaneously with the forest stand examination surveys described immediately above. The acres of impact on old growth forest must be disclosed in the EIS for proper effects disclosure and NEPA compliance.

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4-151	4.5.1	The first sentence should specify that the "project area provides suitable habitat for a wide variety of terrestrial wildlife species....", because aquatic wildlife is addressed in a different section. Delete the second sentence, because some species are dependent not so much on vegetation cover types, but on such attributes as rocky substrate, elevation, proximity to water sources, juxtaposition to other habitat types, etc....
4-152	4.5.1.1	*"Generally, bat species are able to move away from disturbance; however,* *construction activities can contribute to the loss of roosting and foraging habitat, cause noise and vibration disturbance to hibernating bats, and nighttime lighting can also disturb foraging bats (WVDNR, 2015a)."* **Recommended re-wording**: Generally, adult bat species are able to move away from disturbance; however, construction activities can cause mortality of young bats, cause and/or contribute to the loss of roosting, maternity colony and foraging habitat, cause noise and vibration disturbance to hibernating bats, and nighttime lighting can also disturb foraging bats (WVDNR, 2015a).
4-152	4.5.1.1	The first sentence of the second paragraph is unclear; it seems to imply that the Allegheny wood rat is a parasite of the eastern small-footed bat. Also, habitat degradation will affect any species whose habitat is degraded. Clearer and more accurate wording to address the two species dependent on rocky habitat would be the following: "Species such as the eastern small-footed bat and the Allegheny woodrat are associated with rocky habitats (talus, boulder fields, cliffs), which are restricted to certain geologic formations and are concentrated in certain areas of Virginia and West Virginia. The Allegheny woodrat is greatly affected by habitat fragmentation, and eastern small-footed bat maternity colonies are highly susceptible to disturbance and habitat degradation during the maternity season."
4-152	4.5.1.1	*"Open habitat types are limited in West Virginia and Virginia, and are threatened by conversion to agriculture or other developments. Species that use these habitats include least shrew, southern bog lemming, and meadow jumping mouse (WVDNR, 2015a)."* Please clarify if this refers to open habitat types in general or if you are specifically referring to high elevation open habitat types.
4-152	4.5.1.1	*"Most mammal species are able to move away from disturbance, and many species avoid noise and vibrations; however, mortality from increased use of access roads, and from construction equipment on the right-of-way would be possible."* Adult small mammals, especially mice, shrews, moles, and voles have a harder time moving away from this kind of disturbance given their small size, nocturnal nature, underground roosting and nesting habitat, and small home ranges. The young of all of these species could be destroyed by construction activities, due to their limited ability to move from underground nests. This sentence needs to be changed to reflect this reality. In addition, blasting happens at a rate of speed that doesn't allow for movement of small mammals either above or below ground, and therefore would result in direct injury and death. The effects of blasting are not evaluated here and need to be.
4-153	4.5.1.3	The first sentence is not accurate. Frog and toad habitat varies by species, but as far as water resources, habitat is any still body of water, including ponds, roadside ditches, marshes, and other wetlands. These may occur in the vicinity of floodplains, but many more occur outside of floodplains at varying elevations.
4-160	4.5.3.5	*"If Atlantic identifies additional bald eagle nests or occupied bald or golden eagle winter roosting habitat prior to or during construction, Atlantic and DTI would follow the National Bald Eagle Management Guidelines"* One of the threats to wintering golden eagles is direct disturbance due to construction and blasting activities. The National Bald Eagle Management Guidelines will not address wintering golden eagle habitat or wintering behavior. Please outline specific mitigation measures to avoid direct disturbance to wintering golden eagles in this section, as you have in section 5.0 of the Migratory Bird Plan.
4-160	4.5.3.5	*"The FERC Plan and Procedures (see table 2.3.1-1) require that maintenance of the permanent right-of-way during operations occur outside of the migratory nesting season (April 15-August 1), which Atlantic and DTI have committed to adhere to. Atlantic and DTI currently plan to avoid clearing vegetation during the nesting season, based on the revised construction schedule (see section 2.4). However, Atlantic has indicated that construction during the migratory bird season may be necessary in some areas along ACP.*

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		Therefore, to ensure impacts on migratory birds would be minimized during construction of ACP, ***we recommend that: Prior to construction, Atlantic should 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 would 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 would be implemented to minimize impacts on nesting migratory birds in areas where construction during the active season cannot be avoided."*** Waiting until after the Decision is made to identify the areas that ACP would be clearing vegetation during the nesting season does not allow the EIS to fully disclose and analyze the effects of the proposed actions on migratory birds. Nor does this allow for a full development of conservation and mitigation measures to address impacts of the proposed actions on migratory birds. In addition, the seasonal restrictions identified for both migratory birds and bats for tree and other vegetation removal is in direct conflict with several Forest Plan standards to avoid steep slope stability, soil movement, and winter road use concerns, as well as seasonal restrictions on T&E aquatic species and other sensitive species. These conflicting recommendations by FWS and Forest Service regulations need to be addressed and resolved before the FEIS is completed.
4-161	4.5.3.5	*"Based on Atlantic's and DTI's current construction schedule, there are nine rookeries within the 0.5-mile disturbance buffer, and one located within the 500-foot vegetation buffer. Three additional rookeries were identified within the 0.5-mile buffer during the review of CCB and NHI data, but were not observed as being active during surveys (see table 3.1.1-1 of the Migratory Bird Plan [see table 2.3.1-1]).* *Atlantic's Migratory Bird Plan does not include commitments to avoid disturbance of rookeries during construction. Therefore,* ***we recommend that: Prior to construction, Atlantic and DTI should 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 the 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 should also coordinate with VDGIF, WVDNR, and NCWRC to verify that no additional conservation measures would be required for the NHI and CCB rookeries, and file with the Secretary copies of agency correspondence related to these discussions."*** Waiting until after the Decision is made to identify appropriate conservation measures for active rookeries, does not allow the EIS to fully disclose and analyze the effects of the proposed actions on migratory birds. Nor does this allow for a full development of conservation and mitigation measures to address impacts of the proposed actions on migratory birds in the Habitat Equivalency Analysis (HEA).
4-162	4.5.5	No scientific evidence is presented to support the claim that wetlands would revert back to pre-construction hydrology, native species, etc. in one to two years. Recovery is likely to take far longer, on the order of decades, particularly in forested wetlands.
4-164	4.5.6	*"Fragmentation and a loss of habitat connectivity could also impact wildlife. The removal of interior forest in order to create the necessary rights-of-way would result in the conversion of forest to herbaceous and/or scrub-shrub vegetation and would remove habitat for interior species. Edge effects could include a change in available habitat for some species due to an increase in light and temperature levels on the forest floor and the subsequent reduction in soil moisture; such changes may result in habitat that would no longer be suitable for species that require these specific habitat conditions, such as salamanders and many types of plants. An alteration of habitat could affect the fitness of some species and increase competition both within and between species, possibly resulting in an overall change to the structure of the forest community"* Edge habitat also provides travel corridors for predators, thus increasing the opportunity and likelihood of predation on species in adjacent patches of habitat. More supporting documentation of effects statements in this section is needed from the scientific literature. Fragmentation is a well-studied issue.

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		Use of the words "could" and "possibly" suggest a higher level of uncertainty than is warranted for such well-established impacts of forest fragmentation. Substitute "would" for "could," and delete "possibly."
4-164	4.5.6	Please explain the rationale for using a minimum interior forest patch size of 35 acres for the fragmentation analysis. This number does not appear in the cited reference (Robbins et al. 1989). The minimum isolated forest tract sizes given for detection of various species are not useful for assessing the impacts of fragmentation. Scattered detection points in suboptimal patches do not necessarily signify occupation or successful breeding, which is what is important to the species. Robbins et al. 1989 considers their next metric up (50% of the maximum acreage; 700 hectares for cerulean warblers) to be the minimum area required for breeding, and Hamel 2000 states that this minimum varies regionally. Thirty-five acres is too small to use as a minimum interior patch size, and more recent research exists for determining a more meaningful figure. The fragmentation analysis needs to include a discussion of impacts on species populations (especially interior species and those with metapopulation dynamics). Please explain the rationale for the definition of edge habitat (300 feet). The definition of edge (part c) is confusing. Please clarify whether it means 300 feet into the interior of the forest starting at the end of the disturbance, or something else.
4-170	4.6.1 Existing Aquatic Resources	*There are cross 1,787 waterbody crossings on ACP (some waterbodies are crossed more than once) …* Consider revising to: "*There are 1,787 waterbody crossings on ACP (some waterbodies are crossed more than once) …*"
4-170	4.6.1 Existing Aquatic Resources	*A number of these crossing locations have the potential to provide habitat for fish, including both warmwater and coldwater fish species. Fish found in the southeastern region of the U.S. make up 62 percent of the fauna in the U.S., and nearly 50 percent of North American fauna (NCWRC, 2005).* Consider adding the sentence inserted below and ensure that the analysis of potential effects for aquatic resources incorporates this relevant information. "*A number of these crossing locations have the potential to provide habitat for fish, including both warmwater and coldwater fish species. Although other proposed crossing sites may be located upstream of known or suspected habitat for fish species, these sites are hydrologically and ecologically connected fish bearing stream networks and therefore influence conditions in downstream fisheries. Fish found in the southeastern region of the U.S. make up 62 percent of the fauna in the U.S., and nearly 50 percent of North American fauna (NCWRC, 2005).*"
4-174	4.6.1.2	*"Appendix K identifies 24 wild brook streams and/or stockable trout streams crossing locations, and the proposed crossing method(s)."*

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		Appendix K does not specifically identify trout streams. TOYR are listed, but with no indication what the TOYR is for. In addition, according to the trout TOYR in appendix K there are more than 24 wild brook trout and/or stockable trout streams that are being crossed in VA. Table R-3 lists 26 trout streams or potential trout streams being crossed within GWNF alone.
4-176	Brook Trout	*The WVDNR is specifically concerned with the withdrawal of 2.6 million gallons from the Big Spring Fork and considering the existing water quality concerns, and 4-177 Fisheries and Aquatic Resources has recommended further restricting, or utilizing a different water source to support hydrostatic testing. Therefore, we recommend that:* • *Prior to construction, Atlantic should file with the Secretary and the WVDNR an evaluation of the potential impacts of the proposed construction activities at Big Spring Fork. In coordination with the WVDNR, Atlantic should develop the appropriate conservation measures to avoid further degradation of aquatic resource habitat at these locations, for review and written approval by the Director of OEP.* Although the withdrawal point would be located off of National Forest land, the withdrawal could impact aquatic habitat and biota in downstream portions of the Elk River that cross National Forest land. Such impacts need to be considered and disclosed. The Forest Service will work with WVDNR and other regulatory agencies to ensure that these potential impacts are considered and are avoided, minimized, and mitigated to the maximum extent practical.
4-188	4.6.4 Sediment and Turbidity	Discussion on Sediment and Turbidity should include results of Sediment analysis and downstream effects on biota.
4-189	Sediment and Turbidity	*Atlantic would attempt to minimize downstream sedimentation and turbidity, and subsequent impacts on aquatic biota in these waterbodies, by conducting the dry-cut crossings during low-flow periods within the applicable time-of-year work windows for protection of fisheries of special concern, and following the FERC Plan and Procedures (see section 2.3.1-1) relative to construction on the streambanks. However, the potential for erosion and sedimentation from landslides and slope failures on steep slopes over the long term must be recognized (see sections 4.1 and 4.2). Long-term impacts related to slope instability adjacent to streams has the potential to severely impact water quality and stream channel geometry.* Minimize is a relative term which suggests that "attempts to minimize effects" would still likely result in effects. In addition, the statement acknowledges the potential for long-term and possibly severe effects associated with increased risks for slope instability. Potential effects to erosion and stream sedimentation from other proposed actions (such as access roads, ATWS, and releases of drilling mud) seem to be dismissed in this discussion or perhaps altogether in the DEIS. All of these potential effects must be considered additive to other current and anticipated future effects as part of the required cumulative effects analysis and resulting conclusions for aquatic resources.
4-189	Loss of Streambank Cover	*… by adhering to Forest Plan standards by locating ATWS at least 100 feet from perennial waterbody banks and 50 feet from intermittent waterbody banks on NFS lands.* See our comments for page 2-27 (2.3.3.1 Waterbody Crossings)
4-191	4.6.4 Dry Crossing Method	*"Atlantic and DTI would also implement the erosion and sedimentation control measures described in the FERC Plan and Procedures (see table 2.3.1-1) to contain materials within the construction work areas and minimize impacts on fisheries due to changes in water quality"*

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		FERC Plan & Procedure documents included in table 2.3.1-1 do not specifically reference minimizing impacts during dry crossing methods, specifically a maximum timeframe for the crossing.
4-191	4.6.4 Dry Crossing Method	*"This potential impact would be minimized by screening the intakes of the pumping system, as described in the FERC Plan and Procedures (see table 2.3.1 1)."* FERC Plan & Procedure documents included in table 2.3.1-1 do not specifically describe screening intakes to minimize impacts to aquatic organisms.
4-192	4.6.4 Dry Crossing method	*"Furthermore, operation and routine maintenance of the pipeline rights-of-way would not have a significant impact on fishery resources in ACP or SHP project areas."* This statement is incongruent with the more likely and correct statement on page 4-189 that "*Long-term impacts related to slope instability adjacent to streams has the potential to severely impact water quality and stream channel geometry."*
4-193	4.6.4 Blasting	*"Atlantic has committed to coordinating with the FWS to identify the appropriate rock removal method (blasting or mechanical), which is least impactful to federally listed species on a site-specific basis. Results of those discussions would be provided once available."* Section 2.2.4 in the Biological assessment has a more thorough and descriptive discussion on blasting that should be brought in here.
4-194	Water Appropriation and Discharge	*In addition, the FWS has expressed concern with regard to sediment-laden discharge water, or sedimentation from nearby access roads, that could drain into waterbodies occupied by the federally listed or under review species. We have recommended that Atlantic complete an analysis of these potential impacts for all federally protected aquatic species in section 4.7.1.* Potential effects from sediment-laden discharge water would also be of concern for aquatic biota other than species that are currently federally listed or under review. It is understood that the discharge of such waters would not occur on NFS lands. However, the impacts of discharge of such waters at locations off NFS lands but within a reasonable zone of potential influence for aquatic habitats and aquatic biota on NFS lands needs to be disclosed, and any potential impacts need to be avoided, minimized, and mitigated.
4-194	4.6.4 Spill Prevention	This section should recognize the potential for periodic leaks during the life of the pipeline (not just leaks or spills during construction) and discuss effects.
4-194	4.6.5 Aquatic resources on federal lands	*"Atlantic is completing a sedimentation model to assess the extent of sedimentation that could occur within these priority subwatersheds during construction. This analysis is in development and would be provided when available to further assess potential impacts to aquatic biota on NFS lands"*

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		Effects cannot be analyzed without the completed sediment analysis. The sediment analysis was provided late in the public comment period, and needs to be incorporated into the analysis for the FEIS. The conclusions reached by the current analysis represent judgments that are based on incomplete information.
4-195	Monongahela National Forest	*The MNF requested that Atlantic complete aquatic species surveys at waterbodies crossed by proposed ACP on the MNF to document potential RFSS and suitable habitat, including candy darter (Etheostoma osburni), New River shiner (Notropis scabriceps), Appalachia darter (Percina gymnocephala), and Kanawha minnow (Phenacobius teretulus), in addition to the elktoe mussel (Alasmidonta marginata) and green floater mussel (Lasmigona subviridis).* Although there would be some benefit to conducting fish population surveys in the vicinity of proposed waterbody crossings on the MNF, the MNF did not require these surveys to be conducted for project planning purposes if Atlantic and DTI wanted, instead, to presume presence for the specific RFSS that have previously been documented within the watershed context of those streams. This was the approach that Atlantic and DTI adopted. Therefore, the MNF is not requiring fish population surveys for purposes of project planning. Surveys may be required for project monitoring purposes should there be a decision to implement all or parts of this proposal. Surveys for elktoe and green floater mussels were conducted in accordance with the standard West Virginia Mussel Survey Protocol provided by WVDNR.
4-196	4.6.5 Aquatic resources on federal lands	*"Atlantic has committed to eliminate the access road along Laurel Run".* The elimination of access road along Laurel Run is appreciated and appropriate. Appendix K (waterbody crossings) still lists 7 access road crossings of Laurel Run, as does table 4.8.9-3 (DEIS page 4-344), table E-1 in Appendix E (Access roads), shapefile ACP_Rev11b_CIF_without_corridor_20170210, and discussed in detail in Appendix G on page 23 and in table 2.1.1-1. It is confusing and unclear exactly what is proposed. These crossings seem to be included in the counts discussed earlier in this document. Analysis cannot be completed without consistent and accurate information.
4-199	*4.7.1*	*"The FWS identified 30 federally listed threatened or endangered species, 2 designated critical habitats, 1 proposed species, 5 proposed critical habitats, and 6 species that are currently under review for federal listing that are known to occur in ACP and SHP project areas. Table 4.7.1-1 lists all potentially affected federally listed, proposed, and under review species, and designated and proposed critical habitat, indicates the state(s) where they may occur, and provides our determination of effect. While Atlantic and DTI conducted surveys for several federally listed species or species under review, survey access was not available in all cases (see table 4.7.1-1). In addition, as noted throughout this section and in our recommendations, Atlantic and DTI have not provided conservation measures to address potential impacts to these species in all cases. FERC and FWS will re-evaluate the determinations provided for these species upon receipt of pending survey results and proposed conservation measures. Therefore, we recommend that: Atlantic and DTI should 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; and 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."*

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		Table 4.7.1-1 lists a number of T&E species in counties with FS land with outstanding survey needs. The text above gives the impression that FERC will be issuing a decision with all of this outstanding T&E work undone and an unfinished Section 7 consultation with the FWS. Note that the FS cannot issue its decision as a cooperating agency without a completed Biological Assessment and Biological Opinion from the FWS.
4-201 & 202	4.7.1	The DEIS says: *"Small whorled pogonia a,b (Isotria medeoloides), b Has the potential to occur within the GWNF."* Small whorled pogonia does occur on the GWNF and there is an occurrence near the proposed project that may be affected by the proposed action. Please revise to indicate this known occurrence.
4-205	4.7.1.2	*"The only county crossed by ACP where the gray bat is known to occur is Bath County, Virginia. The species is not known to occur in counties associated with the proposed SHP. Species occurrence is based on a desktop review using the FWS IPaC website and on consultations with the FWS and VDGIF."* Based on information supplied by VDGIF the only counties in Virginia where the gray bat is found is Washington, Scott, & Lee Counties in far SW Virginia. There are no known documented occurrences in Bath County, Virginia. See: https://www.dgif.virginia.gov/wildlife/information/gray-bat/
4-208	4.7.1.3	Table 4.7.1-3: The tree clearing restriction for WV is November 16-March 31.
4-208	4.7.3.4	Table 4.7.3-1: This table needs to be expanded to include all surveys along access roads where improvements are planned, and all surveys adjacent to route variations where land not previously surveyed may be affected directly or indirectly by construction activities or edge effects.
4-210	4.7.1.3	"Conservation measures will be further refined upon FWS review of 2016 4-211 *Special Status Species* survey results….". The Forest Service also needs to be consulted, and MNF Forest Plan standards will need to be met. In addition to roost tree direction, the Forest Plan requires retention of all shagbark hickory trees of 5 inches DBH or greater. There may be a small, exceptional area of primary roost trees/shagbark hickories (follow-up survey outstanding) that requires a slight realignment or new mitigation measures to compensate for the taking of these primary roosting trees.
4-211	4.7.1.3	"To minimize impacts on drinking water and bat prey species, ATWS would be located in upland areas at a minimum of 50 feet from the wetland edge….", "….equipment refueling and lubricating would typically occur in upland areas 100 feet or more from the edge of the waterbody and adjacent wetlands to reduce potential impacts on bat drinking water sources." Please explain the rationale behind these distances, and provide citations indicating how they were determined to be safe distances for protection from contamination. Physical barriers should also be used, which should be included in the spill plan and referenced here.
4-212	4.7.1.3	Please provide supporting citations for the statement, "Once presumed to be exceptionally sensitive to disturbance, there are now numerous examples of roosts used by Indiana bat maternity colonies and roosts used by males, as well as documented occurrences of foraging Indiana bats in areas that are subject to airborne sound and near human activities."
4-214	4.7.1.4	"Based on 2016 surveys, there are 16 potential hibernacula within 0.5 mile of the route that could serve as habitat for the Indiana bat located within the ACP project area (see table 4.7.1-6). Northern long-eared bats were captured at one site, and may be present at another site." These areas should be treated as occupied if they are not confirmed.
4-217	4.7.1.4	"….two potential portals were identified during preliminary surveys and are currently being investigated…" Please clarify the extent of investigation. All caves on the Monongahela NF are closed to entry. Coordination with the MNF is required for special entry permission. It is unclear whether portals are being investigated or future entry is being planned, but no portals should be entered without written permission from the MNF.

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		"Nine secondary roost trees for northern long-eared bats were identified." Note that the area is being resurveyed. Many primary and possibly a few secondary roost trees will probably be added in a particular area, which would lead to either a slight alignment adjustment in one particular area of primary roost tree concentration or new mitigation measures.
4-232	4.7.1.13 Freshwater Mussels	*"Surveys for federally listed mussels are still needed on approximately 17 waterbodies in Virginia, and 7 waterbodies in North Carolina. No additional mussel surveys are currently proposed in West Virginia. Atlantic plans to complete these surveys by June 2017."* Because many of these determinations are being made 'pending surveys' it should be clearly noted these determination statements are currently unsupported.
4-237	4.7.1.13 Freshwater Mussels	DEIS only mentions access road crossings of Mill Creek in VA, with relation to T&E mussels. However, Appendix K-1 table of waterbody crossings along the Atlantic Coast Project lists 2 crossings of the Cowpasture River by access roads. This river is known to support T&E mussels.
4-238	4.7.1.13 Freshwater Mussels	*"At waterbodies where federally listed or under review mussels may occur and where Atlantic proposes water withdrawals (Nottoway River, Roanoke River, Tar River, Neuse River, and Cape Fear River crossings), intake pumps may entrain or impinge mussel larvae. Water withdrawals may also reduce water flow volumes and velocities, increase sedimentation, alter dissolved oxygen levels, and expose mussels to the air and desiccation."* According to Table 4.3.2-8, water withdrawals are also proposed for the Cowpasture River, known to support T&E mussels.
4-238	4.7.1.13 Freshwater Mussels	*"If Atlantic and DTI document federally listed mussels in the waterbody, avoid using the access road if in-stream activities cannot be avoided."* This sentence is not clear. Crossing a waterbody with an access road necessitates in-stream activity, unless there is an existing bridge.
4-238	4.7.1.13 Freshwater Mussels	The DEIS states a determination of *may affect, but is not likely to adversely affect* for the clubshell, Dwarf wedgemussel, James spinymussel, and tar river spinymussel, but the BA (page 182) has a different determination for the clubshell. There is inconsistency between the documents.
4-238	4.7.1.13 Freshwater Mussels	"*ACP **may affect** the dwarf wedgemussel, James spinymussel, and Tar River spinymussel, but ACP **is not likely to adversely affect** these species. FERC and FWS will re-evaluate this determination upon receipt of pending survey results and proposed conservation measures."* There is no rationale for this determination, and since these determinations are being made 'pending surveys' it should be clearly noted these determination statements are currently unsupported.
4-239	4.7.1.13 Freshwater Mussels	*Impacts to mussels located downstream of waterbody crossing activities or access roads include temporary increases in sedimentation and turbidity, and degraded quality.* Effects cannot be analyzed without completed surveys, or assumed presence. Sediment analysis has not been incorporated which would inform on downstream effects.
4-239	National Forest Systems Lands	*No waterbodies were identified within the survey corridor in the MNF that could provide suitable habitat for the clubshell mussel; therefore, no impacts on this species on the MNF are anticipated.* It is unclear why this section contains this statement that is specific to only clubshell mussel.
4-239	4.7.1.14	The effective date for the Final ruling on the rusty patched bumble bee (*Bombus affinis*) is now March 21, 2017; this species until then is considered Proposed Endangered https://www.fws.gov/midwest/endangered/insects/rpbb/ This section needs to be updated to include the Final Ruling as published by the FWS. It currently contains dated listing information.

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4-240	4.7.1.14	*"Construction of ACP and SHP has the potential to impact individual rusty-patched bumble bees. Hibernating queens and colonies may be located in ACP and SHP project areas, but the potential is low and discountable. In addition, noise or presence of humans and equipment involved in construction activities may cause foraging rusty-patched bumble bee to divert from the area. The resulting response would be temporary disturbance that would not have a measurable or detectable effect on an individual's survivorship or reproductive capacity. As such, the potential impact would be insignificant and would not result in harassment or an adverse impact."* This section needs to be updated to include the latest information in the Biological Assessment.
4-246	4.7.1.15	"Atlantic would indirectly affect the suitable habitat of federally listed plants adjacent to or in the vicinity of the ACP project area if the sun exposure, hydrology, or soil composition and moisture are changed due to vegetation clearing and contouring." Please add the introduction and spread of invasive species to the list of potential indirect impacts to listed plants.
4-246	4.7.1.15	"Atlantic has the potential to impact about 25 percent of the running buffalo clover in the area during construction." The BA states that approximately 16% of known populations within the vicinity of the projects will be directly affected. Please revise the DEIS or the BA for accuracy and consistency.
4-246	4.7.1.15	"Atlantic is currently exploring avoidance and minimization measures for running buffalo clover including evaluating avoidance measures where they have documented dense populations of running buffalo clover." Please revise to eliminate the circular reference to "exploring avoidance" by "evaluating avoidance measures."
4-246	4.7.1.15	"three small whorled pogonia populations **that are located occur** downslope" Please revise bolded text for clarity.
4-246	4.7.1.15	"Atlantic is evaluating potential indirect impacts on three small whorled pogonia populations that are located occur downslope of project workspaces." Please also conduct botanical surveys adjacent to any route adjustments where a sufficient surveyed buffer no longer exists and assess potential direct and indirect effects to any TE and RFSS plant species found.
4-246	4.7.1.15	"Atlantic does not expect the population in Seneca State Forest to be directly or indirectly impacted due to its location outside of the construction footprint and its occurrence upslope of construction activities." This statement is not supported by the results of the microclimate analysis referenced below. Please revise this section to reflect the results of the analysis after the requested changes below are incorporated.
4-247	4.7.1.15	"Atlantic is conducting a microclimate analysis of the three small whorled pogonia populations in the MNF and GWNF…" • The microclimate analysis (also referred to herein as the SWP Evaluation report) actually covers all four populations. Please update the text to reflect this. • Please also incorporate the results of the microclimate analysis into the BA and DEIS after addressing the following comments regarding the light analysis, impacts of invasive species, deer browsing, and monitoring: Re: light: There is no quantified change in light regime provided, only a qualitative visual assessment of a modeled simulation. There is no description of any direct measurements taken on-site to ground-truth the model, nor a description of how baseline or "construction conditions" sunlight values were established, nor a quantitative assessment of how proposed mitigation would preserve the existing light

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		regime. The simulations also do not demonstrate the impact of the one route realignment on light regimes, though it does state later in the document that the realignment is likely to reduce the impact to the population. • Please provide a quantified assessment of expected changes in light regime to each population. • Please re-run the simulation for the population adjacent to the realignment and provide a quantified assessment of the realignment's effect on light regimes. • Please also provide information about how baseline and "construction conditions" light levels were established for the simulation, and any information about how those model values correspond to actual values on site. Regarding invasive species: The microclimate report states that, "Atlantic will implement the Invasive Species Plan for the Project, which includes monitoring the right of way for infestation of invasive species that may have been created or exacerbated by its construction activities, and treating such infestations as described in the Invasive Species Plan for the Project." • Please clarify whether the "Invasive Species Plan for the Project" mentioned is the Upland Erosion Control, Revegetation, and Maintenance Plan, commonly referred to as simply "the Plan," or Section 11.0 of the COM plan, which is the "Non-Native Invasive Plant Species Management Plan" (but which also references "the Plan," and the Restoration and Rehabilitation Plan (Section 10.0 of the COM plan), regarding post-construction monitoring for invasives). Taken together, the Non-Native Invasive Plant Species Management Plan (COM Plan Section 11), the Restoration and Rehabilitation Plan (COM Plan Section 10), and the Upland Erosion Control, Revegetation, and Maintenance Plan ("the Plan") state the following plans for NNIS monitoring: • post construction monitoring and treatment will continue until the density and cover of non-NNIS species is similar to nearby non-forested, undisturbed lands, and until NNIS and noxious weeds are absent unless they are abundant in adjacent undisturbed areas. (Non-Native Invasive Plant Species Management Plan) • "post-construction and post-disturbance monitoring should be conducted in perpetuity, for the life of the project on USFS lands", "Qualitative monitoring will be conducted in years 1 to 5", and quantitative monitoring (via random quadrat sampling in consultation with USFS) would be done in year 3. "Reports, including a summary of corrective actions proposed, will be submitted within three months of identifying these conditions. Areas where control applications for noxious weeds are needed will be reported." (Restoration and Rehabilitation Plan) • "Conduct follow-up inspections of all disturbed areas, as necessary…at a minimum…after the first and second growing seasons." (Upland Erosion Control, Revegetation, and Maintenance Plan) The sum of the guidance provided by these documents is insufficient to effectively monitor and treat the invasive plant species found along the project route. • Appendix J of the COM plan describes each NNIS species and its optimal treatment timeframe and method, with timeframes ranging from early spring to late fall. Please use this to develop a plan to conduct annual NNIS monitoring at appropriate times of the year for each species, and to develop a plan for treating NNIS discoveries in a timely fashion. • Please provide more details re: how often monitoring and reporting will be conducted for the remainder of the life of the project on USFS land, after year 5. • When a sufficiently detailed plan for monitoring and treatment is developed, please add those details to COM plan sections 10 and 11, the SWP Evaluation report, the BA, and the DEIS. These important details need to be accessible to the reader in order to follow the logic of the effects determinations. Re: Deer browsing: "Deer browsing may increase…because additional sunlight on the forest floor may increase the understory vegetation."

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		• Please provide a reference to support this statement. • Mitigation measures are planned for this area with the stated purpose of preventing additional sunlight on the forest floor. If these measures are sufficient, then there should not be an increase in light or understory vegetation as a result. If these measures are not sufficient, then additional mitigation to prevent both increased sunlight and deer browse is called for. Please review the consistency of the analysis as a whole, and revise as appropriate. Re: Monitoring, the microclimate report states, "A qualified botanist would document populations during the growing season the year before construction (2017), during construction, and the year following initial restoration activities near these sites." This is not a sufficient length of follow up time to establish population survival and sustainability. According to research cited in Atlantic's own microclimate analysis, individuals of this species can go dormant for as long as 4 years at a time, and viability of a population can only be assessed with three consecutive years of monitoring or more (US FWS, 2008). • Please increase the monitoring timeframe such that it is sufficient to establish post-construction survival of these populations, and describe what that timeframe will be in the Restoration and Rehabilitation Plan, the BA, the DEIS, and the microclimate analysis report.
4-247	4.7.1.15	"A qualified botanist would document populations during the growing season the year before construction (2017), during construction, and the year following initial restoration activities near these sites." This is not a sufficient length of follow up time to establish population survival and sustainability. According to research cited in Atlantic's own microclimate analysis, individuals of this species can go dormant for as long as 4 years at a time, and viability of a population can only be assessed with three consecutive years of monitoring or more (US FWS, 2008). Please increase the monitoring timeframe such that it is sufficient to establish post-construction survival of these populations, and describe what that timeframe will be in the Restoration and Rehabilitation Plan, the BA, the DEIS, and the microclimate analysis report.
4-247	4.7.1.15	"If an access road requires improvements such as vegetation clearing or ground disturbance where there is potentially suitable habitat for a federally listed plant species, Atlantic would conduct surveys prior to construction activities. If Atlantic documents individuals during surveys along access roads, Atlantic would either avoid or transplant these individuals (pending additional coordination and concurrence by the FWS and other agencies as needed). Atlantic's avoidance efforts would consist of fencing off the plants or restricting use of the road near the federally listed plants." Planned improvements to access roads, as shown in the PDF documents "Access_Road_Maps_2017_1_12" parts 1 and 2, will impact areas near known populations of running buffalo clover, and may impact other undiscovered populations of TES species. Please conduct surveys in summer 2017 to document any TE or RFSS species within the total area of impact, plus within a 150 foot buffer beyond the limits of total impact, and develop avoidance and minimization measures for any that are found.
4-249	4.7.1.15	The DEIS says: *"Although the occurrence of small whorled pogonia is not within the survey corridor, changes in light regimes, increased deer browsing, and access roads. Per comments filed by the GWNF on September 7, 2016, the GWNF recommends that Atlantic meet with the GWNF, FWS, and Virginia Division of Natural Heritage (VDNH) at the site of the occurrence to discuss potential impacts and mitigation. To address GWNF's recommendations for the occurrence of small whorled pogonia, we recommend above that Atlantic provide the final avoidance and minimization measures for listed plant species to the FWS and appropriate agencies."* Comment: A field meeting did occur, but only the Forest Service was in attendance, FWS and VDNH were not there.

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4-250-251	4.7.3.1	*"86 RFSS in the MNF, and 53 RFSS in the GWNF may be affected by ACP (pending additional review and consultation with the FS. Appendix R describes suitable habitat, presents results of desktop analysis and/or habitat assessments or individual surveys conducted within the ACP project area, provides preliminary effects determination (where available), and describes the conservation measures that Atlantic would implement to avoid or minimize impacts on RFSS. The information provided in appendix R is based upon survey reports and supplemental information received from Atlantic through November 23, 2016 and FS comments on the preliminary draft BE and survey reports, where available. Full species accounts, description of habitat preferences, and a more detailed discussion of the potential impacts and conservation measures for each of the affected species would be provided in the draft BE. The BE will also include the full list of species evaluated, including those that were determined to not be affected."* Not having a completed Regional Foresters Sensitive Species section in the DEIS prevents effective public comment on the full impacts of the proposed actions on the 139 species determined to be potentially impacted by the proposed actions on Forest Service lands. The Forest Service is required by FSM 2670 to ensure that proposed activities in NFS lands do not cause downward trend in populations that could result in ESA listing. Full disclosure of analysis of the significance of adverse effects on the populations and habitat for RFSS is required.
4-253	4.7.3.4 U.S. Forest Service Managed Species Conclusions	*Based on our review and comments from the FS, the analysis provided in the preliminary draft BE submitted November 22, 2016 is incomplete, and the FS is currently unable to provide a determination of effects for RFSS. Therefore, we recommend that: …* This statement and the list that follows it in the DEIS acknowledge deficiencies in information needed to conduct an appropriate effects analysis for biological resources. Given this, the FS has reservations about the conclusions that have been documented in the DEIS for biological resources.
4-254	4.7.3.4 U.S. Forest Service Managed Species Conclusions	*Prior to the close of the draft EIS comment period, Atlantic should file with the Secretary and FS a revised MIS Report that:* *a. provides a revised analysis of impacts on wild brook trout on the MNF and GWNF, with the pipeline reroutes to avoid Laurel Run and elimination of the proposed access road parallel to Laurel Run. This evaluation should also include the FS-requested sedimentation analysis on all potentially affected waterbodies and the watersheds crossed by ACP on NFS lands;* This statement acknowledges deficiencies in information needed to conduct an appropriate effects analysis for brook trout. Given this, the FS has reservations about the conclusions that have been documented in the DEIS for brook trout.
4-256	4.7.4.1	Table 4.7.4-1's current title, "Federally Listed Endangered, Threatened, or Review Species in West Virginia" implies that it is a full list of TE and Review species in WV, but it is not complete. In the text above, the table is referred to as, "The West Virginia SGCN listed in Table 4.7.4-1 are also federally listed…" and the opening statement of the paragraph mentions, "Species with the potential to occur in or near the ACP and SHP". Perhaps this table represents plants that are WV SGCN because they are Federally listed or under review, and that have the potential to occur in or near the ACP and SHP? Please change either the name of the table, or the description of table in the text, so it is clear what this list represents.
4-260	Table 4.7.4-2 4.7.4	The DEIS does not appear to list the species in Virginia that the state has determined are threatened or endangered at the state level. For example, the eastern tiger salamander is a state listed species that the proposed project has the potential to affect.
4-267	4.7.4.6	"Due to pending survey results, pending conservation measures, and consultations with the appropriate federal and 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 pending. Therefore, we recommend that: Prior to the close of the draft EIS comment period, Atlantic should file with the Secretary an evaluation of the impacts and species-specific conservation measures,

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		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 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." Waiting until the FEIS to provide impacts on state-listed and sensitive species does not allow the Public to be able to comment on the full impacts of the proposed actions. Mitigation measures should also be included in the types of measures Atlantic should develop with the appropriate federal and state agencies. The Forest Service should be included in the list of federal agencies where these species occur on Forest Service lands.
4-271	Table 4.8.1-1	This table needs to be revised to provide acreages by land type on GWNF, MNF and FS total or include a separate table to provide this information.
4-294	4.8.1.1 Pipeline Facilities: Timber Removal	"*We conclude that implementation of the identified mitigation measures, including implementing Atlantic's and DTI's Timber Removal Plan, Open Burning Plan, and Fire Plan, would minimize the impacts of the project on harvested forests on state land to the extent practicable and would not be significant or adverse*." Timber harvesting on steep slopes (40% or greater) would need to be done in a manner that ensures slope stability and complies with MNF LRMP standard SW07 from the time the timber is harvested until pipeline construction begins. Winter logging must meet LRMP SW09 as well as all other erosion control plans and LRMP standards. Options include helicopter logging, use of overland equipment that does not require skid road development, and other non-ground disturbing methods as approved by FS personnel. Sediment and erosion control features are to be employed on these slopes as outlined in the COMP. Short term erosion control measures are to be utilized as directed in the COMP prior to the start of disturbance for the construction of the pipeline replacement. All timber harvest roads are to be fully reclaimed and restored according to MNF LRMP standards (RF07, RF12, RF13, and RF15).
4-307	4.8.5	It would be helpful if the first paragraph notes that information about Recreation and Special Interest Area, including Trails, on NFS lands, are discussed in section 4.8.9.
4-311	Table 4.8.5-1 Cont	Add ANST to "BRP" for the "name" of the recreation and special interest area at MP 158.2-158.3.
4-313	Table 4.8.5-1 Cont	In footnote "e" please change "GWNF-owned" to "GWNF-managed." GWNF and FS do not own land, rather the GWNF and FS manage National Forest System lands for the public.
4-319	4.8.5.2	GWNF, first paragraph. Change "…10.5 million people live within counties that are 75 miles from the forest border." Change TO: "…10.5 million people live in counties that are within 75 miles of the forest border."
4-320	4.8.5.2	BRP, bottom of page. Add: "….Shenandoah National Park in *Virginia* with the Great Smoky Mountains National Park in *North Carolina*.
4-343	4.8.9.1	Bottom paragraph. Change NSF to NFS. Please clarify how NFS lands are only 3 percent of all federal lands crossed by the ACP and at the same time are 99 percent. In the 3rd paragraph on page 4-335 it is noted that federal land is only 4% of the project.
4-344	4.8.9.1	In the second paragraph it may be helpful to state that no aboveground facilities or contractor yards associated with ACP will occur on NFS lands.

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4-344	Land Use and Ownership	*In addition to the pipeline facilities, roads to access the pipeline right-of-way during construction and operation would be located NFS lands (see table 4.8.9-3).* It appears that potential effects to aquatic resources from the development and/or use of these roads have not been fully considered in the DEIS.
4-344	Table 4.8.9-3	In general, information on roads proposed for use as access roads, both new and existing, is inconsistent throughout the document. This needs to be addressed. Some examples follow: Access road 36-014.AR3 is not shown in Attachment F. Attachment F shows 06-001-B001.AR7 as being partially on federal land. Please add this to table 4.8.9-3. Also, 06-001-B001.AR7 does not appear to be shown in Appendix E. 06-001-B001.AR5 is missing from table 4.8.9-3. It is partially on federal land according to Appendix E.
4-346	4.8.9.1	Since construction will occur 24 hours/day, then the potential impacts on sights and sounds for both day and night should be disclosed. I included a comment about establishing a decibel limit on the ANST and monitoring the sound; and stopping operations if the decibel is exceeded until a solution is found to mitigate that impact. I think these are legitimate potential impacts to the visitors' recreational pursuits during the construction phase.
4-349	4.8.9.1 Forest Service: Land Use and Ownership	"*On NFS lands, timber would be cruised, marked, and appraised to FS standards. Atlantic would pay for the timber land affected by the project and dispose of it per the discretion of the FS. The FS would prepare a Timber Cruise Plan to be followed by Atlantic and a qualified timber cruise contractor under contract to and at the direction of Atlantic. Each crew conducting a timber cruise would be accompanied by at least one FS-certified timber marker. Atlantic and the FS are also currently coordinating the development of a Timber Extraction Plan specific to the MNF and GWNF. As discussed in section 4.8.1.2, the Timber Extraction Plan would discuss the results of a timber cruise*." Timber harvesting on steep slopes (40% or greater) would need to be done in a manner that ensures slope stability and complies with MNF LRMP standard SW07 from the time the timber is harvested until pipeline construction begins. Winter logging must meet MNF LRMP SW09 as well as all other erosion control plans and FS LRMP standards. Options include helicopter logging, use of overland equipment that does not require skid road development, and other non-ground disturbing methods as approved by FS personnel. Sediment and erosion control features are to be employed on these slopes as outlined in the COMP. Short term erosion control measures are to be utilized as directed in the COMP prior to the start of disturbance for the construction of the pipeline replacement. All timber harvest roads are to be fully reclaimed and restored according to MNF LRMP standards (RF07, RF12, RF13, and RF15).
4-357	Effects of Proposed Project-Specific Amendments	*The direct, indirect, and cumulative effects related to MNF Potential Amendment 1 cannot be determined until the COM Plan has been revised and effects analysis completed related to sedimentation, impacts on riparian areas, and other resources.* This statement acknowledges deficiencies in information needed to conduct an appropriate effects analysis for aquatic resources. Given this, the FS has reservations about the conclusions that have been documented in the DEIS for aquatic resources.

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4-360	4.8.9.1	Table 4-8-9-10, Proposed Amendment 3. Please show that the ACP would cross the ANST in Augusta County, VA by either HDD or DPI to clarify that the ACP would not cross overtop the ANST via open trench construction.
4-361	4.8.9.1	Bottom paragraph, change "recreational uses" to "recreational users."
4-362	4.8.9.1	Public Access Plan: *Post appropriate signage to warn hikers to stay on the trail* – What is the authority to enforce, and who enforces? Add that Atlantic will consult with FS on wording for these signs. Need to consider all non-motorized trail users for trails open to mountain bicyclists and/or equestrians. If signs are needed on the ANST, ACP needs to consult with FS and ATC.
4-364	4.8.9.1	Recreation Opportunity Spectrum: The description of affects is insufficient. It should include whether or not the construction and operation of the pipeline would result in a change to the ROS inventory from SPM to RN (about 9 acres on MNF and about 44 acres on GWNF) based on the change in the setting, the fact that the corridor will not meet the 1986 ROS Book description of SPM, and it's questionable whether or not it meets the MNF and GWNF LRMP standard for SPM (predominantly natural appearing or natural appearing).
4-365	4.8.9.1	Under GWNF sub-heading, 4th sentence, poorly constructed. Change to "Approximately 10.5 million people live in the counties that are within 75 miles of the national forest."
4-365	4.8.9.1	3rd paragraph, change to: "…people live *in* the counties that are *within* 75 miles OF the forest…"
4-366t	Table 4.8.9-12	Footnote "c" – change to "…avoiding direct *surface* impacts."
4-366	4.8.9.1	At the beginning of the sub-section on Demand Species, refer back to the discussion on Demand Species on the MNF on page 4-364.
4-367	4.8.9	*"Proposed access road 36-016.AR1 at AP-1 MP 96.3 would cross several waterbodies that support wild brook trout."* The road in question regarding wild brook trout and incompatibility with LRMP direction is 36-14.AR3. In addition, there is more than 1 access road on FS that crosses wild brook trout streams.
4-367	4.8.0	*"Based on Atlantic's mitigation measures discussed throughout sections 2.3, 4.4, 4.5, 4.6, 4.7, 4.8.1, and 4.8.1.1, implementation of its various construction, restoration, and operation plans, impacts on demand species would be minimized to the extent practicable and not be significant or adverse."* The conclusion that impacts to demand species would not be significant or adverse is inaccurate and premature. Based on the previous paragraph in the DEIS, analysis for brook trout is incomplete. In addition, other places in the DEIS correctly conclude that "*Long-term impacts related to slope instability adjacent to streams has the potential to severely impact water quality and stream channel geometry."* In addition, DEIS page 4-253 states*: Due to pending survey results, pending conservation measures, and consultations with the MNF, GWNF, and other appropriate federal and state agencies detailed above, our determination regarding the overall impacts on FS managed species is pending.*
4-367	4.8.9.1	Recreation and Special Interest Areas: This section covers roads and trails with an emphasis on NF access. Roads and trails should not be lumped; they should be described separately. While some FS roads are used by visitors engaging in non-motorized recreational activities, generally the use of roads and trails differ sufficiently to warrant separation. The impacts on the users' experience differs significantly between motorized and non-motorized activities. Non-motorized users travel at a much slower rate so would be exposed to the altered setting longer; and non-motorized visitors on trails are engaging in their actual recreational pursuit so the effect on their experience would typically be greater. Motorized users on roads are traveling at a faster rate and therefore are typically exposed to the

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		changed setting for a shorter duration; and a large percentage of those passing by on a road may not be engaging at that moment in their recreational pursuit. The experience as influenced by the setting should be considered important for all national forest visitors, but there are potential differences in the extent to which these changed settings are perceived by visitors.
4-376	4.8.9.1	Visuals: 1st paragraph on this page, 3rd sentence, need to add "scale" to the list of landscape elements – "existing elements of form, line, color, texture, pattern or scale".
4-376	4.8.9.1	Visuals: 4th paragraph on this page, last sentence - contains a typo. "Atlantic would be required to ensure construction of the portion of ACP on the GWNF in a High SIO would be ~~in~~ consistent with FS management of these areas." Delete the word "in".
4-376	4.8.9.1	Visuals: 5th paragraph on this page, 1st sentence – grammatical issue. Change to "In addition, Atlantic would conduct additional visual analyses and prepare photo simulations…"
Multiple	4.8.9.1	Visuals: In several locations in the DEIS, the SIO for the location of the observation point is given. This is an erroneous application of the FS Scenery Management System. SIOs apply to visible lands altered by the project as viewed from travelways and observation points. It is typically inappropriate to state the SIO for the site of the KOP. Explanation: The inventoried concern level from travelways and observation points is one of multiple data in the SMS inventory which is used to derive Scenic Classes which are then used to establish the SIOs (based on overall objectives for each management prescription area). The SMS inventory data for the KOP influences the establishment of the SIO(s) for the visible NF lands. Specific edits to correct this are provided in the comments that follow.
4-367	4.8.9.1	4th paragraph. Change from: "This public road access includes…" to "Forest road public activities include..."
4-368	Table 4.8.9-13	Milepost 116.7 – Road 715 is a State Road (SR), not a Forest Road. Milepost 121.0 – Road 728 is a State Road (SR), not a Forest Road.
4-372	4.8.9.1	Top paragraph – Change "proposed" to "propose."
4-377	4.8.9.1	Visuals: KOP 34 – Torry Ridge Trail 1 – The area of the ACP r-o-w visible from this KOP is approximately MP 157 which is not located on GWNF land. Potential impacts to scenery viewed from the GWNF trail should be described, but an SIO should not be cited for non-FS lands viewed. **Delete the following sentence from the KOP 34 paragraph**: Due to the visibility of the corridor running through an otherwise natural and intact appearing landscape, ACP would not be consistent with a Moderate SIO in this area.
4-377	4.8.9.1	Visuals: KOP 35 – Torry Ridge Trail 2 – The area of the ACP r-o-w visible from this KOP is approximately MP 155.5 which is just south of GWNF land ownership. Potential impacts to scenery viewed from this GWNF trail should be described, but an SIO should not be cited for non-FS lands viewed. **Replace KOP 35 narrative with:** Existing visual conditions at Torry Ridge Trail 2 include a mixed hardwood and pine forest with heavy undergrowth in the immediate foreground. A partial gap in the forest allows views of Back Creek valley in the middleground and the Blue Ridge mountains in the background. The AP-1 mainline right-of-way would be visible in the middleground at MP 155.5, about

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		0.5 mile south of where the pipeline crosses GWNF land in the valley. The visual contrast would result in similar impacts to scenery as described for Torry Ridge Trail 1.
4-378	4.8.9.1	Visuals: KOP 38 – Blue Ridge Parkway at Raven's Roost – One mile out of the four miles of ACP visible from the KOP is on GWNF (MP 154 to MP 155). This area is within management area 7E1 and has a SIO of Moderate. Reference to there not being a SIO for the NPS KOP should be deleted (per comment above about not specifying SIOs at the KOPs). **Replace paragraph describing KOP 38 with**: Existing landscape character viewed from KOP 38 includes expansive views of dense, mature, mixed oak forest on Torry Ridge which is the prominent feature in the middleground. The valley at the base of Torry Ridge in the near middleground is primarily natural appearing forest but also contains mixed land uses that include roads, residences, and some agricultural patches. The valley viewed from the KOP wraps around the north end of Torry Ridge where it broadens into expansive middleground and background views that include predominantly forested areas with large openings of agricultural and other land uses. From Raven's Roost Overlook, ACP from MPs 152 to 156 would be visible in the middleground at approximately 0.75 mile distance to the northwest. Approximately one mile of this, from MP 154 to 155, is located on the GWNF with a SIO of Moderate. The appearance of the constructed ACP right-of-way located in the valley will borrow from the existing landscape character. In particular the ACP will appear similar to the linear, open corridor for Torry Ridge Road (SR 664). The ACP will be noticeable to casual observers at the KOP, but it will not begin to dominate the characteristic landscape. This meets the Moderate SIO.
4-378	4.8.9.1	Visuals: KOP 39 – BRP at Three Ridges Overlook – Neither the KOP nor the area visible to the southeast is on the GWNF. Move this narrative to the NPS section 4.8.9.2.
4-378	4.8.9.1	Visuals: KOP 40 – Change the sub-header title to Bee Mountain Near Three Ridges Wilderness (*not Overlook*). The FS commented on the ADEIS that the mountain, including some ability to see the texture of canopies, is visible in the photograph, and we questioned the inability for the simulated pipeline corridor to be visible in the photo. The DEIS did not address our concern about this photo simulation.
4-378	4.8.9.1	Visuals: KOP 64 – Shenandoah Mountain Trail Southern Terminus – the first sentence is poorly constructed; I cannot tell what is intended. Is the existing transmission line visible from this location or not? One photo is provided in the Supplemental Information for SIA, but no simulation was created. Aerial photography was used. That is not sufficient to support a conclusion that views of the pipeline from the trail will be screened by vegetation everywhere except directly at the crossing. Potential impacts to scenery should be described for locations where vegetative screening is thin or lacking and places where there are gaps in the canopy that may afford views to the pipeline corridor.
4-378	4.8.9.1	Visual Resources: In the first sentence, add "scale" to the list of landscape elements – "existing elements of form, line, color, texture, pattern or scale".
4-484	4.13 CUMULATIVE IMPACTS	*Projects and activities included in this analysis are generally those of comparable magnitude or nature of impact as ACP and SHP.*

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		This criterion (particularly the requirement for having a magnitude that is comparable to ACP) would seem to permit the omission of effects from past, present, and reasonably foreseeable influences that should be considered for the cumulative effects analysis.
4-485	4.13 CUMULATIVE IMPACTS	*Therefore, this cumulative impact analysis considers current and other reasonably foreseeable projects that may be constructed within the geographic scope (or "regions of influence") up through about mid-2019.* Although certain potential effects associated with the proposed project may only be expected to last for the short-term, others would likely persist as chronic or permanent changes to the existing condition. For example, as noted in other comments, effects to forests could persist for a century or more, and sedimentation and slope stability impacts could persist well beyond the in-service date. Restricting the analysis period to mid-2019 seems unrealistically optimistic about the rate of environmental recovery from potential effects associated with proposed activities.
4-485	4.13 CUMULATIVE IMPACTS	*Table 4.13-1 defines the potential geographic scope/region of influence for each resource analyzed in this section.* The geographic scope of influence is identified as the HUC-10 watersheds for numerous resources. While this area is arguably a very appropriate scale for analyzing potential effects to aquatic resources from this proposal, it presents challenges for conducting an adequate analysis of cumulative effects because of its size and the multitude of activities that realistically contribute to cumulative effects.
4-487	4.13 CUMULATIVE IMPACTS	*As described throughout this EIS, ACP and SHP would temporarily and permanently impact the environment.* The paragraph that begins with this statement and the paragraph that follows it severely downplay the level of risk, the magnitude, and the duration of potential consequences associated with the proposed project, particularly for aquatic resources.
4-489	4.13.2 Projects within the Geographic Scope of Analysis	*We identified eight types of projects that would potentially cause a cumulative impact when considered with the proposed projects. These are: …* Limiting the cumulative effects analysis to only considering projects that fit within the eight project types that are identified following the statement above would seem to be a fatal procedural flaw. Using this approach undermines the legitimacy of conclusions drawn from this cumulative effects analysis.
4-485	4.13	Table 4.13-1 and throughout this section: While a watershed may be the logical/appropriate effects zone for aquatic resources, that logic does not extend to terrestrial wildlife. Recommend you consider overall range size for endemics/local populations and home range size for larger/very mobile species (e.g., those that require large expanses of unfragmented forest).
4-488	4.13.1	The paragraph describing acres of various land resources that have been altered over the centuries is interesting, but would be much more useful for the purposes of determining cumulative effect if all metrics were presented for all states in table form, so that comparisons could be made across and within states. Please provide, by state, the number of acres of wetlands lost, forested lands converted to agriculture, and forested lands lost to urban use.
4-495	4.13.3.1	Add the following text to the end of the paragraph that ends "…and would avoid unstable areas." At top of page 4-495: "Natural landslides (including debris flows) are part of the natural disturbance regime on NFS lands and non-NFS lands downslope. The natural landslide hazards (including debris flow hazards) and risks to public safety, resources, and infrastructure on NFS lands and non-NFS lands are inherent in the steep mountainous geologic setting. The ACP pipeline project would add an increment of human-induced landslide hazards and risks to 1) other human-induced landslide hazards and risks in the area (such as roads, timber harvesting, land development), and 2) the natural landslide hazards and risks in the area."
4-495	4.13.3.2 Soils and Sediments	"*To reduce impacts on soils, and curtail erosion, Atlantic and DTI would follow the measures outlined in the FERC Plan and Procedures and their construction and restoration plans (see table 2.3.1-1), which include installation of erosion control devices,* ***topsoil****, soil decompaction, and revegetation*."

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		Revise to read: "…which include installation of erosion control devices, topsoil **segregation**, soil decompaction, and revegetation. Specific details are outlined in the COMP."
4-495	4.13.3.2 Soils and Sediments	"*While the combined projects would result in an increase in erosion, given the erosion control BMPs and restoration on federal lands, we conclude that ACP and SHP, when added to other the projects within the geographic scope of influence, would not result in significant cumulative effects on soils*." On NFS lands, the dedication of the soil resource for housing a pipeline will result in an irreversible commitment of resources. Soil quality would be detrimentally impaired within the ROW as defined by FSH2550. This commitment would exist the life of the pipeline and beyond if no ecological and soil restoration occurs after decommissioning any part of the pipeline.
4-495	4.13.3.3 Cumulative Impacts Water Resources	*"Construction and operation of ACP and SHP would result in short-term impacts on water resources (see section 4.3). Direct and indirect impacts, such as increased sediment transport to waterbodies and turbidity, should return to baseline levels over a period of days or weeks following construction and when restoration efforts have been permanently established."* This is incongruent with the more likely and correct statement on page 4-189 that "*Long-term impacts related to slope instability adjacent to streams has the potential to severely impact water quality and stream channel geometry."*
4-495	4.13.3.3 Water Resources	*Construction and operation of ACP and SHP would result in short-term impacts on water resources (see section 4.3). Direct and indirect impacts, such as increased sediment transport to waterbodies and Cumulative Impacts 4-496 turbidity, should return to baseline levels over a period of days or weeks following construction and when restoration efforts have been permanently established.* Although certain potential effects associated with the proposed project may only be expected to last for the short-term, others would likely persist as chronic or permanent changes to the existing condition. Even in the absence of an accepted analysis of potential soil erosion and stream sedimentation that may further reveal persistent impacts, some longer lasting effects are already acknowledged in various sections of the DEIS but ignored here.
4-497	4.13.3.3 Cumulative Impacts Water Resources	*"Section 4.3.1 describes the occurrence of water wells and springs in the vicinity of the projects.* ***We were unable to quantitatively determine the number of these features on a HUC-10 watershed basis****. However, it is apparent that ACP and SHP routes would cross near numerous wells and springs, some of which would be within 0.1 mile of ACP and SHP…. it is generally unlikely that pipeline activities would negatively affect groundwater supplies from wells, although springs may be more subject to disruption"* It is unclear and unsubstantiated how an effects determination can be made if the number and location of wells and springs is unknown.
4-497	Groundwater	*As is the case with ACP and SHP, most other types of other projects listed in table W-1 in appendix W would have a similar, limited ability to significantly affect groundwater resources,* The limited ability of ACP to significantly affect groundwater is stated as fact here although information needed to help substantiate such a claim (soils analysis) has not been produced or accepted at the time of this review.

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4-497	Surface Waters	This section contains statements that are based on incomplete analyses (soils, erosion/sediment, and cumulative effects), that are contradictory, and erroneous in concluding that "*the cumulative effect on surface waterbody resources would be temporary and minor*."
4-498	4.13.3.3 Cumulative Impacts Water Resources	*"Therefore, most of the impacts on waterbodies are expected to also be of short duration. Consequently, the cumulative effect on surface waterbody resources would be temporary and minor."* This is incongruent with more likely and correct statement on page 4-189 that "*Long-term impacts related to slope instability adjacent to streams has the potential to severely impact water quality and stream channel geometry."*
4-499	4.13.3.4	*"We are not able to discern specific impacts on forested vegetation or any other vegetation category for all the other projects contributing cumulative impacts on vegetation."* This statement is not consistent with the analysis that precedes it. Page 4-487 states that ACP will cross 63 HUC-10 watersheds, and gives both acres and percent of the watersheds that will be affected by ACP and SHP? Page 4-487 also clearly states, "…projected impacts on forested vegetation and habitat…due to the number of treed acres cleared, fragmentation of interior forests, and time required to recover this vegetation/habitat type, would be a significant impact." And "In terms of other projects that were recently constructed, or may be constructed in the near future, we also considered permanent impacts on specific environmental resources (i.e., removal of forest)." The entirety of section 4.13.2 is devoted to describing specific projects within the geographic scope of analysis that contribute to cumulative impacts, and Table 4.13.2-1 gives numbers of acres of temporary and permanent forested land impacts for all FERC related projects in that area. Please update this analysis, based on details available in preceding pages and the supporting documents that contributed to those sections.
4-499	4.13.3.4	*"based on NLCD from the EP, there are about 4,334,392 acre of upland forest in the shared HUC-10 watershed within the geographic scope of influence."* The ACP and SHP pipelines cross 73 HUC-10 watersheds. Please clarify this apparent reference to a singular HUC 10 watershed. Also, given that this section is describing cumulative impacts, it is not sufficient to compare the impact today to what exists today. Please present the acreage of forested lands that exist now as a percentage of what used to exist prior to agricultural and urban clearing, and the acreage of what will be removed by ACP as a percentage of the forested land that remains. *"While the vegetation impacts of these projects and ACP and SHP would not be inconsequential, the overall impact of these projects would be considered minor to moderate."* The above statement is in direct contradiction to the statement earlier in the document (p. 4-487) that says, *"…projected impacts on forested vegetation and habitat…due to the number of treed acres cleared, fragmentation of interior forests, and time required to recover this vegetation/habitat type, would be a significant impact."* *"The potential for habitat fragmentation resulting from ACP and SHP would be further reduced because the majority of the disturbed areas would be allowed to return to pre-existing condition."*

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		• If the project is permitted, habitat fragmentation would be certain rather than potential. • Some of the disturbed areas would be re-vegetated, to some degree. Only already disturbed land would be "allowed to return to pre-existing condition" because wherever mature forest is being cleared, it is highly unlikely that ecosystem services of the same quality will be restored in our lifetimes. • The fact that some areas will be revegetated does not reduce the likelihood of fragmentation at all, because it is a linear fragmentation. There will still be a 600+ mile unbroken line of cleared land if this pipeline is installed. Please revise for clarity and accuracy.
4-499	Wetlands	*Given the relatively small total of wetland acres affected by the combination of ACP and SHP, as well as the other projects listed in table W-1 in appendix W, we conclude that cumulative impacts on wetlands within the HUC-10 watersheds, when considered with the projects identified in this analysis, would not be significant.* This conclusion seems to relate mostly to a comparative assessment of the proportionate share of potential ACP contributions to cumulative wetland impacts rather than appropriately addressing potential consequences to wetlands from cumulative effects of past, present, and reasonably foreseeable future actions.
4-500	4.13.3.4	*"Cumulative impacts on vegetation…are expected to be minor to moderate."* Page 4-487 states, *"…projected impacts on forested vegetation and habitat…would be a significant impact."* Please revise the cumulative effects section for consistency.
4-500	4.13.3.4	*"…the large amount of undisturbed vegetation…"* Please define what is meant by undisturbed. Virtually all forested land in the geographic analysis area has been cut over at least once, and much of it several times, since the arrival of Europeans.
4-500	4.13.3.5	*"However, there are over 8.2 million acres of land area, much of which provides habitat for wildlife…."* and*"In general, wildlife is expected to return to affected areas following construction of ACP and SHP and other projects in the area."* As previously commented, these statements are extremely general and only address common species. There are many local populations that could be affected, which do not extend across the 8.2 million acres, and are quite specific in their habitat requirements (simple vegetative cover type is not a good proxy for many of these species, which require other specific biotic and abiotic habitat features). Cumulative effects/habitat disturbance history is the reason many of these species are now rare. Fragmentation and the species most affected need to be discussed, either here or in the fragmentation analysis, which contains no discussion. Somewhere in this document or the fragmentation analysis, fragmentation needs to be discussed (which species are most affected, how/why are they affected, how much does the proposed fragmentation reduce the interior or intact portions of the forests, etc…). There is a good general discussion on fragmentation in the *Migratory Bird Plan* that could be copied here or referenced, but species are not addressed and there is no analysis.
4-501	4.13.3.5	*"Given the large amount of wildlife habitat that would remain undisturbed within the geographic scope of influence, the measures that Atlantic and DTI would use to minimize impacts associated with vegetation and habitat removal and re-establish the right-of-way, and the requirements for restoration for other projects, we conclude that ACP and SHP, combined with the other identified projects, would not have a significant cumulative impact on wildlife."* Given the incomplete survey information and analysis of impacts of the proposed actions on the most sensitive species in this area (migratory birds, Management Indicator Species), this statement is premature and needs to be substantially verified with currently unfinished sections of this EIS, reports and analysis.

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4-501	4.13.3.6 Fisheries and Aquatic Resources	This section identifies various sources and potential consequences of impacts that would likely contribute to cumulative effects and correctly states that, "*Impacts on aquatic resources would be temporary to long-term.*" However, the statement that "*ensuing operations of the proposed ACP and SHP would not result in any cumulative impacts unless maintenance activities take place in or near streams at the same time/location as other (non-related) project work"* suggests a misconception of cumulative effects and undermines the credibility of resulting conclusions.
4-502	4.13.3.7	Please include a table of the specific effects that are expected for each species. Simply stating that the projects will affect a certain number of species in each jurisdiction does not give an indication of what species in particular will be affected, or how, or to what degree, and thus makes it impossible to assess the cumulative effects of this project on these species.
4-503	4.13.3.7 Special Status Species	*Consequently, we conclude that projects in the geographic scope of influence in combination with ACP and SHP would have minor cumulative effects to special status species.* Given an acknowledgement of missing information needed to assess potential project-related effects, failure to fully recognize the implications of potential effects that have been identified, and the use of a questionable approach to conduct and interpret potential cumulative effects, this statement currently lacks credibility for aquatic species.
4-504	4.13.3.7	*"The species discussed in section 4.7 of this EIS could potentially be affected by construction and operation of other projects within the same geographic scope of influence of ACP and SHP. Atlantic, DTI, and all other companies' projects are required by law to coordinate with the FWS, which will take into account regional activity and changing baseline conditions when determining the extent of impacts on a federally listed or proposed species. Non-federal projects are also required to adhere to the ESA, although the FWS has a different mechanism for evaluation and minimizing impacts. Protection of threatened, endangered, and other special status species is part of the various state permitting processes or resource reviews. As such, cumulative impacts on such species would be specifically considered and reduced or eliminated through conservation and mitigation measures identified during those relevant processes and consultations. Consequently, we conclude that projects in the geographic scope of influence in combination with ACP and SHP would have minor cumulative effects to special status species."* Given the incomplete survey information and analysis of impacts of the proposed actions on these species (including Regional Forester's Sensitive Species, locally rare species), this statement is premature and needs to be substantially verified with currently unfinished sections of this EIS, reports and analysis.
4-513	4.13.3.14	*"With exception of the WB XPress Project and MVP, no FERC-jurisdictional projects evaluated for the cumulative impacts analysis are within NFS lands. It is anticipated that any adverse impacts on sensitive resources within the MNF and GWNF (and the Jefferson National Forest, which is proposed to be crossed by the MVP) resulting from any other types of projects considered in our analysis would be regulated through project design, BMPs, and NFS permitting. Therefore, we conclude that the cumulative impacts associated with ACP and SHP, when combined with other known or reasonably foreseeable projects in the geographic scope of influence, would not be cumulatively significant."* This statement is premature and not accurate for a number of reasons. This EIS has incomplete survey information and analysis of impacts of the proposed actions on sensitive species, as well as visuals and cultural resources. Preliminary determinations of "may adversely affect" for a number of federally listed species puts into question the above statement of 'not cumulatively significant' for this project alone. No information is presented from the other ongoing gas pipeline projects overseen by FERC to substantiate the statement that any adverse effects impacts on sensitive resources would be adequately mitigated, to come to a "not cumulatively significant" conclusion. There is no justification given in this section for this statement other than 1) how many acres the pipelines would affect, 2) whether or not the MNF and GWNF would need to amend their LRMPs or not, 3) that there are only two other FERC-jurisdictional projects evaluated in

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		NFS lands, and that 4) any other projects' effects would be mitigated by various means. There is no information about effects to vegetation, water, air quality, soils, wildlife, recreation, scenery, timber, or other resources for either of these two forests. Please justify the conclusion that impacts to these Forests would not be cumulatively significant by summarizing the impacts expected to each of these resources within each of these Forests in relation to the Forests' resources as a whole, including TES species, and deriving the cumulative impact per Forest as a summation of the individual impacts.
4-513	4.13.3.14	The DEIS states "*To address proposed impacts on the GWNF, the LRMP would be amended to make provisions for ACP*". Changing the LRMP to accommodate a project is not the same thing as addressing proposed impacts, as this statement implies. This statement should be changed to better reflect what it is intended to mean; that the ACP project cannot be made consistent with the GWNF LRMP and the LRMP will therefore be changed to accommodate the project.
5-3	5.1.2 Soils	There is no mention of soil carbon and the effects to soil carbon from soil disturbance within the soil section of this document. There needs to be a section incorporating data from the Order 1 Soil Survey on soil carbon. The U.S. Department of Agriculture adopted a National Forest System land management planning rule in 2012, commonly referred to as "the 2012 planning rule." This rule will guide the development, amendment, and revision of land management plans for all units of the National Forest System (https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5362536.pdf). Based on the 2012 Planning Rule, FS project planning will include the identification and evaluation of information relevant to understanding ecological conditions and trends and to forming a baseline assessment of carbon stocks. Plans will include components to maintain or restore ecological integrity, so that ecosystems can resist change, are resilient under changing conditions, and are able to recover from disturbance. From this planning rule, the FS is working towards establishing ways to incorporate carbon mitigation from large-scale soil disturbing projects. Based on the 2012 planning rule, the FS required ACP to include soil carbon within soil testing parameters obtained from the Order 1 Soil Survey. The soil carbon data obtained from sampling will be used to calculate soil carbon loss due to soil disturbance activities associated with the ACP pipeline construction. The carbon lost due to pipeline construction will be mitigated post-construction.
5-12	5.1.6 Aquatic Resources	*The FS requested that Atlantic complete aquatic species surveys at waterbody crossings on the MNF to document potential RFSS and suitable habitat.* See comment for page 4-195. Although the MNF did not require these surveys to be conducted for project planning purposes, it is recommended that an aquatic resource monitoring plan be developed and implemented if any proposed project activities that may be approved. Details of the aquatic resource monitoring plan should be jointly developed by the various interested parties to ensure monitoring design and information is germane to the monitoring issues and protocols are appropriate and acceptable.
5-15	5.1.7 Special Status Species	*Due to inconsistencies between survey reports, incomplete incorporation of FS revisions and comments to reports, incorrect terrestrial and aquatic community classification data, incomplete quantification of habitat impacts (i.e., old growth, karst features), incomplete sedimentation analysis of watersheds, pending survey information (e.g., access roads), and lack of species-specific conservation measures, the FS is currently unable to provide determination of effects for the majority of RFSS. Therefore, we have recommended that Atlantic file a revised BE, MIS Report, and GWNF Locally Rare Species Report that addresses these issues.*

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		This statement summarizes many of the short-comings associated with the various analyses related to aquatic resources and elucidates the rationale for reservations concerning concluding statements within the DEIS about potential project impacts.
5-18	5.1.8	Conclusion for Visual Resources – 2nd paragraph on page, sentence 5 (about half way through the paragraph), change the wording of the sentence to: The Visual Impact Assessment analyzes the impacts to scenery viewed from identified key observation points on the MNF and GWNF to determine whether the project will meet SIOs established in the FLRMP.
5-18	5.1.8	PROCESS QUESTION: FERC recommends ACP provide documentation that the MNF, GWNF and ATC concur with the conclusions and determinations of the effects to scenery. When and how do we address that with ACP?
5-19	5.1.8	I do not agree with the concluding statement that overall impacts on land use, recreation, special interest areas, and visual resources will be adequately minimized since SIOs will not be met for views from several KOPs.
5-25 & 26	5.1.14	Cumulative Impacts: This section states that 8 kinds of projects were considered with regards to cumulative impacts, but no cumulative impacts analysis is provided. With regards to scenery, while the landscape has been altered throughout history (as stated in the DEIS), FS ownership and management has restored the natural appearing landscape character. The proposed pipeline is a step back with regards to scenery. Long-term special use sites and permanent rights-of-way such as for pipelines, electric transmission lines, communication sites and cell phone towers continue to be constructed on the national forest with cumulative impacts to scenery that should be documented.
B-30	App J, Page 30 of 174	This topo route map does not show the names of the proposed access roads. This topo route map includes the road up Laurel Run, shown elsewhere as 36-014.AR3. ACP agreed to not utilize or this build.
B-49	App J, Page 49 of 174	USFS ownership data is depicted inaccurately. It shows a rectangular private "inholding" east of the pipeline route between MP 154 and 155 which the "NATIONAL FOREST OWNERSHIP (USA)" GIS data layer clearly shows is now NFS lands.
F-6	2.0 Purpose	"*A more detailed description of seed mixes by region is presented in Appendix B*." The USFS developed NFS land-specific guidance for developing seed mixes that are specific to elevation, soil pH, precipitation, etc. This document needs to be referenced here and also attached. This document was filed with the FERC on December 16, 2016 (Docket # CP15-554-000, CP15-554-001).
F-7	2.0 Purpose	"*These meetings and consultations provided information about the appropriate seeding rates and percentages of each type of seed within a specific seed mix, as well as the location each seed mix is to be used considering the various soil types, elevations, temperatures, and other growing conditions along the right-of-way*." On NFS lands, FS-approved seed mixes and seeding guides will be used. This seed mix should be provided within this document and cited as an appendix or in some formal manner.
F-8	5.1 Erosion Control	"*Slope Breakers – Temporary and permanent slope breakers will be installed, where required, to slow runoff velocity and direct water off the rights-of-way. Temporary slope breakers, such as hay bales (weed free), silt fence, or earthen berms, will be installed prior to the start of construction activities. Permanent slope breakers will be installed during final grading*."

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		Spacing between temporary and permanent slope breakers will be defined by the slope and soil type and referenced in the COMP. Temporary Sediment Barriers will be maintained and cleaned frequently so as to function in a manner that is effective at providing protection during a storm event (high precipitation rates and in a short duration.) Silt fence shall not be used at locations of concentrated overland flow, whether the flow is natural or constructed. Compost filter socks or other controls designed to filter or chemically remove sediment from water shall be used in those locations, subject to FS approval. Silt fence may be used as perimeter control where concentrated flow does not exist, as well as where prescribed as a barrier to keep threatened, endangered, and sensitive (TES) species out of the work area, or spoil materials or sediments out of TES habitat. Where temporary slope breakers are deemed necessary during construction, as determined by consultation between ACP's environmental inspector and the FS representative, install berms or other appropriate diversion structures on the ROW to intercept and divert water from the ROW. Install 12-inch diameter or larger compost filter socks at the outlet of the berms to control sediment transport. In areas where excessive run-on (i.e., onto the ROW or access roads) is expected or occurs, diversion channels or berms may be installed on the upslope side of the ROW. Run-on diversions or berms shall disperse the water into a well vegetated area, such that it does not result in concentrated discharge or rill erosion at or downslope of the outlet. One or more 12-inch or larger diameter compost filter socks shall be installed at each outlet to aid in reducing energy and removing sediment suspended in the discharged water. No hay bales to be used on NFS land, only weed free straw.
F-8	5.1 Erosion Control	"*Temporary Sediment Barriers – Temporary sediment barriers, such as silt fences, staked hay or straw bales (weed free), or a combination of barriers, will be installed at the base of slopes adjacent to road, wetland, and waterbody crossings, and in other areas where required to prevent the transport of sediment off the construction rights-of-way*." No hay bales should be used on FS land, only weed free straw.
F-9	5.1 Erosion Control	"*Permanent Trench Breakers – Sacks of subsoil or sand, polyurethane foam, or bentonite clay bags installed around the pipe will remain in the trench to prevent subsurface channeling of water along the trench*." Describe trench breaker/plug materials and construction. Foam will not be permitted on National Forest land. Bags of concrete mix may be used no more frequently than every other plug; sand bags or other semi-permeable, FS-approved material shall be used for all other trench plugs. Describe trench breaker/plug spacing. FERC spacing specifications are acceptable to the FS, although closer spacing may be employed where ACP determines a need due to slope steepness.
F-9	5.1 Erosion Control	"*Mulch – Straw (weed free), hay (weed free), erosion-control fabric, or other equivalent material will be placed on the rights-of-way, where required, to protect the soil surface from water and wind erosion and to optimize the soil moisture regime necessary for successful revegetation, especially on dry, sandy sites*." The use of hay is prohibited on NFS lands.

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		Erosion-control fabric shall not be used on NFS lands due to wildlife concerns. ACP shall use FS-approved soil conditioners, hydromulch, soil binders, etc. that will be non-harmful to wildlife and the environment.
F-9	5.1 Erosion Control	"*Where appropriate for local resource priorities, the role of the EI may be filled by agricultural or horticultural monitors*" Dominion EI's along with FS representatives will inspect on NFS lands.
F-9	5.2 Soil Restoration	"*Successful revegetation is dependent on appropriate soil conditions and can be influenced by several factors, including soil texture, drainage class, salinity, and acidity. Soil characteristics along the pipeline routes and access roads and at contractor yards and aboveground facility sites are identified in Resource Report 7*." On NFS lands, the Order 1 Soil Survey will provide the nutrient requirements for successful revegetation along the ROW. The Order 1 Soil Survey will also advise the need for liming based on soil pH. There should be inclusion of data from the Order 1 Soil Survey and discussion of data results within this document.
F-9	5.3 Soil Compaction	"*Atlantic and DTI will minimize impacts by implementing the mitigation measures for compaction and rutting as described in the Plan and Procedures*." The Order 1 Soil Survey provides data on soil characteristics that would identify areas along the ROW that are compaction-prone. This information should be provided within this document addressing NFS Lands and used to discuss compaction potential on NFS Lands. According to MNF LRMP SW06, rutting resulting from management activity shall be confined to less than 5% of an activity area. This LRMP needs to be stated when mention of rutting occurs within this document. The analysis needs to determine if this standard can be met on NFS lands.
F-9	5.3 Soil Compaction	"*Atlantic and DTI will test for soil compaction*:" Compaction testing is required on MNF lands in accordance with MNF LRMP SW03. All compacted areas must be decompacted. Employ timber mats or trench spoil to protect underlying soil where possible. Limit the use of heavy equipment on steep slopes to the minimum amount necessary. Use a cone penetrometer to measure compaction on the construction ROW prior to and following completion of construction activities. Post-construction compaction that exceeds pre-construction compaction indicates the need for compaction remediation. On ROW slopes <20% where compaction remediation is needed, use de-compaction techniques such as a ripper, harrow disk, backhoe bucket teeth, chisel plow, or other FS-approved techniques to de-compact travel lanes and any other compacted areas. On ≥20% slopes where compaction remediation is needed and can be accomplished safely and effectively without causing further resource damage, use backhoe bucket teeth, or another safe, FS-approved method, to break up compacted soils. .

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F-10	5.4 Topsoil Segregation, Replacement, and Soil Contamination	"*Topsoil segregation will generally not occur in forested areas*." Topsoil segregation will occur in forested areas on NFS lands in accordance with MNF LRMP SW15. At a minimum, the FS will require segregation over the trench area for the top 6 inches of material, or all actual topsoil as identified by the FS, whichever is deeper, throughout all areas of National Forest land. The FS will require temporary seeding or other FS-approved technique for any material left exposed for more than seven days. Describe methods for preventing saturation of stockpiled material, which could lead to slippage of backfilled material. Techniques may include temporary seeding and mulching, use of tarps, implementing an accelerated backfilling schedule, or other methods proposed by ACP and approved by the FS.
F-11	5.6 Steep Slopes	"*Areas with steep slopes along the pipeline routes may make the establishment of vegetation more difficult due to the increased potential for stormwater runoff and erosion by water*." ACP must comply with MNF SW06, which states that rutting shall be confined to less than 5 percent of an activity area and also must meet the intent of the LRMP SW07, which is to maintain stabilization on slopes greater than 40%. There are effective erosion control measures that can be implemented on steep slopes to aid in revegetation. The use of soil stabilizers or conditioners in conjunction with hydroseed can be an effective complimentary measure for erosion control on steep slopes.
F-11	5.6 Steep Slope Areas	"*Table 5.6-1 in Appendix A quantifies by county the major soil drainage and slope classes crossed by the Projects. Soil drainage classes were used to determine some of the grass seed types utilized in specific mixes (see Section 5.7.5)."* On NFS lands, the Order 1 Soil Survey data should be incorporated into a table to display drainage classes and to be used to aid in revegetation discussions. The FS provided guidance for developing seed mixes that should also be cited here along with data from the Order 1 Soil Survey. The seed mix guidance was filed with the FERC on December 16, 2016 (Docket # CP15-554-000, CP15-554-001).
F-12	5.6 Steep Slope Areas	"*Also as discussed in Resource Report 6, Atlantic and DTI will implement the Slip Avoidance, Identification, Prevention, and Remediation – Policy and Procedure, and are conducting geotechnical studies along the proposed pipeline routes in Pennsylvania, West Virginia, and western Virginia in steep terrain areas to assess the potential for landslides and landslips to occur during construction and operation of the Projects*." The data collected from geotechnical studies should be incorporated into the EIS.
F-12	5.6 Steep Slope Areas	"*The following lists some of the special design and construction mitigation measures that will be implemented during construction in steep slope areas:* • *targeted management and diversion of surface water around landslide sites, including the use of ditches, berms, slope breakers, and/or grading;* • *mitigation of surface erosion by armoring or otherwise stabilizing surface soils using riprap, coir cloth, hydroseeding, mulching, and/or tracking;* • *targeted management of water sources along the trench, including the use of trench breakers and/or added drainage piping in the trench;*

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		• *targeted mitigation of seeps, springs, or other subsurface water encountered along the rights-of-way using subsurface drains or other special drainage measures;* • *engineering of the backfill around or within steep slope areas to dry the backfill, add compaction, improve backfill soil strength, and reduce saturation;* • *installation of targeted structures to stabilize backfill using engineered fill, retaining walls, sack-crete placements, key trenches, and/or shear trenches; and* • *reduction in surcharge on steep slope areas by reducing excess or saturated backfill*." Describe trench breaker/plug materials and construction. Foam will not be permitted on National Forest land. Bags of concrete mix may be used no more frequently than every other plug; sand bags or other semi-permeable, FS-approved material shall be used for all other trench plugs. Describe trench breaker/plug spacing. FERC spacing specifications are acceptable to the FS, although closer spacing may be employed where ACP determines a need due to slope steepness. On slopes greater than 30 percent, bleeder drains shall be spaced no farther apart than every other trench plug. Closer spacing may be used where ACP determines a need due slope steepness, discharge volume, or other factors. Bleeder drains may be needed on slopes less than 30 percent if subsurface flow or seeps are encountered during trench excavation. The Forest Service representative and ACP's environmental inspector will consult to determine the need for bleeder drains on slopes less than 30 percent. Protect bleeder drain outlets using rip-rap or other FS-approved material. The FS may specify alternate materials in certain locations if necessary for protection of resources. The FS will require post-construction water quality testing at selected bleeder drain outlets. Locations will be selected by the FS based on nearby sensitive resources, and the FS will provide the chemical parameters to be included in the testing.
F-12	5.6 Steep Slope Areas	"…*engineering of the backfill around or within steep slope areas to dry the backfill, add compaction, improve backfill soil strength, and reduce saturation*;…" The USFS understands the need for compaction of backfill material for stability purposes. However, the depth of backfill compaction and level of backfill compaction have not been discussed or agreed upon by ACP and USFS. On NFS Lands, no intentional compaction of near-surface soils used for revegetation will take place.
F-12	5.7 Site Preparation and Seeding	"*In the event that these timeframes cannot be met or construction or restoration activities are interrupted for an extended period, mulch will be spread prior to seeding. In these cases, all slopes within 100 feet of wetlands or waterbodies will be mulched at a rate of 3 tons per acre*." MNF LRMP standard SW03 states that disturbed soils dedicated to growing vegetation shall be rehabilitated as soon as possible, but generally within 2 weeks after project completion.

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		The USFS recommends mulch 1-3 tons/acre (1-3" depth) with an appropriate amount if nitrogen fertilization depending on the site characterizations and the Order 1 Soil Survey data.
F-13	5.7.1 Seedbed Preparation	"*Unless otherwise specified by land managing agencies or landowners, the seedbed will be prepared in disturbed areas to a depth of 3 to 4 inches using appropriate equipment (e.g., cultipacker roller) to provide a seedbed that is firm, yet rough. Atlantic and DTI will imprint exposed soils with a sheepsfoot, landfill compactor, tractor with studded tires, or land imprinter equipment. Soil imprinting, or tracking, leaves divots on the ground surface that trap moisture and seeds, creating catchments for native plant material to be spread across the seeded area (West Virginia Department of Environmental Protection, 2012). In addition, a seedbed with a rough surface is conducive to the capturing or lodging of seed when broadcasted or hydroseeded, and can reduce runoff and erosion potential. The rough seedbed surface will also retain soil moisture for seedling germination and promote faster establishment of vegetation*." A cultipacker roller shall not be used on NFS Lands. This equipment will likely create unintended compaction that will limit the revegetation potential, and sites ultimately may have to be decompacted and reseeded. Equipment and methods used to restore the ROW post-construction will require Forest Service approval. Restoration should include promoting infiltration, controlling erosion and maintaining stability, and creating a surface conducive to successful seed establishment.
F-13	5.7.1 Seedbed Preparation	"*In compacted areas, additional measures such as chisel plowing or disking may be necessary to improve water infiltration and soil aeration necessary to prepare an adequate seedbed. When hydroseeding, Atlantic and DTI will scarify the soil surface prior to seeding to anchor the seed to the soil surface and encourage germination*." Include a section pertaining to seedbed preparation specifically on NFS lands. Compaction testing is required on MNF lands in accordance with MNF LRMP SW03. All compacted areas must be decompacted. Address the prevention of compaction during construction, and remediation of compaction after construction. Employ timber mats or trench spoil to protect underlying soil where possible. Limit the use of heavy equipment on steep slopes to the minimum amount necessary. Use a cone penetrometer to measure compaction on the construction ROW prior to and following completion of construction activities. Post-construction compaction that exceeds pre-construction compaction indicates the need for compaction remediation. On ROW slopes <20% where compaction remediation is needed, use de-compaction techniques such as a ripper, harrow disk, backhoe bucket teeth, chisel plow, or other FS-approved techniques to de-compact travel lanes and any other compacted areas. On ≥20% slopes where compaction remediation is needed and can be accomplished safely and effectively without causing further resource damage, use backhoe bucket teeth, or another safe, FS-approved method, to break up compacted soils.
F-13	5.7.2 Seeding	"*On all other lands, Atlantic and DTI will perform seeding of permanent vegetation during the Fall of the year construction is completed, within the recommended seeding dates, and within six working days of final grading, weather and soil conditions permitting*." Include a NFS Land-specific seeding section within this section. The NFS lands have their own seed mix guidance document which will be used to develop seed mixes for NFS lands. This needs to be acknowledged within this section.

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		Three years of site monitoring will be required to ensure that germination and establishment have occurred in accordance with the WV DEP Erosion and Sediment Control regulations requiring 70% vegetative cover to provide sufficient vegetation to control erosion and sedimentation.
F-14	5.7.3 Seeding Revegetation Units along the Pipeline Route	"*After consultations with Federal, State/Commonwealth, local resource and land managing agencies, and subject matter experts and in order to insure optimum seed germination and growth, the areas crossed by the Projects were divided into four Revegetation Units (RU).*" On NFS lands, seeding shall be based on the NFS seeding document filed with the FERC on December 16, 2016 (Docket # CP15-554-000, CP15-554-001) and fertilizing and liming shall be based on Order 1 Soil Survey data. This information needs to be incorporated into a NFS Lands-specific section where Order 1 data is described and discussed.
F-14	5.7.3.1 Steep to Very Steep Slope	"*Although the Steep to Very Steep Slope RU includes areas with greater than 15 percent slope located anywhere along the Projects, most of these areas are located within the mountainous areas of the western Piedmont Physiographic RU and the Mountain Physiographic RU (see Figure 5.7.3-1). To a much lesser extent, the Steep to Very Steep Slope RU may also be found in smaller, site-specific areas along the pipeline rights-of-way where the steepness of the local terrain increases the erosion potential. These areas in this RU require appropriate seed mix prescriptions, erosion control measures, and BMPs that are able to quickly stabilize the disturbed areas to minimize erosion and sedimentation*." There needs to be a separate section discussing slope percentages, elevation, etc. on NFS Land. Within this section there needs to be specific detail from Order 1 soil survey data along with discussion of the NFS Lands seeding document filed with the FERC on December 16, 2016 (Docket # CP15-554-000, CP15-554-001)
F-18	5.7.3.2 Mountain Physiographic Region	"*The proposed Mountain Physiographic Region Seed Mix P-MUDW01 (Tables 5.7.5-1 and 5.7.5-2) was designed to be compatible with the Mountain Physiographic Region RU in areas with slopes of 15 percent or less. The mix is based on selected native grass and forb species suitable for the restoration of excessively to moderately well-drained mountainous areas in West Virginia*." The USFS has provided specific guidance for seed mix development on NFS Lands. This document, along with results from the Order 1 Soil Survey, will provide the appropriate detail for seeding in NFS Lands.
F-18 to F-26		""5.7.5.2 Mountain Physiographic Region Seed Mixes" On NFS Lands, Order 1 Soil Survey data needs to be used when addressing any soil physical, chemical, or characteristic properties. This section displays seed mixes based on steep slopes, drainage class, etc. on NFS Lands, the USFS is requiring that ACP use the Order 1 Soil Survey in conjunction with the USFS seeding document to accurately choose the appropriate seed mix, fertilizer and lime rate based on the parameters listed in this section.
F-27	5.7.6 Seeding Methods	"*In rocky soils or where site conditions may limit the effectiveness of this equipment, other alternatives may be appropriate (e.g., use of a chain drag) to lightly cover seed after application, as approved by an EI. Broadcast or hydroseeding at double the recommended seeding rates may be used in lieu of drilling (see Appendix B for recommendations)."* On NFS Lands, where there are steep slopes and rocky soils, hydroseeding and a soil conditioner will need to be used to accomplish successful seeding on steep slopes.
F-27	5.7.6 Seeding Methods	"*Hydroseeding is the preferred method of seed dispersal on steep slopes greater than 60 percent, where site conditions require seed adherence to the disturbed soil. Prior to hydroseeding, Atlantic and DTI will scarify the seedbed to facilitate lodging and germination of seed. Tackifiers will be applied where necessary so that seed adheres to soil. Polymer binders, if selected, will be used in accordance with manufacturer's specifications to ensure proper compatibility with fertilizers and to avoid foaming that might otherwise result from*

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		excessive agitation. All chemical components will be mixed and administered in accordance with manufacturer and applicable agency guidelines." All hydroseed mix components will need to be approved by USFS prior to application. Chemicals that are not biodegradable or not environmentally safe and could lead to contamination shall not be used on NFS Lands.
F-14	5.7.3.2 Mountain Physiographic Region	"*The ACP Project area extends across the Mountain Physiographic Region RU in West Virginia and western Virginia (see Figure 5.7.3-1). In West Virginia, the RU encompasses the Western Allegheny Plateau, Central Appalachians, and Ridge and Valley ecoregions.* *The soils in the Mountain Region RU generally consist of shallow soils with a loamy surface and subsoil texture. Steep slopes with shallow, stony, droughty soils are common throughout the area, and many mountainous soils have been severely eroded due to steepness. In less steep areas, the soils are deep and stable (less erodible*)." Data from the Order 1 needs to be incorporated into a NFS Lands-specific section within this section. These results will provide a more accurate representation of soil texture, moisture, and depth.
F-27	5.8.1 Lime and Fertilizer Application	"*In upland areas without specific fertilization requirements, Atlantic and DTI will:* • *apply 150 pounds per acre of 10-20-20 (or similar) fertilizer;* • *apply phosphorus or potassium during the same installation, if required;* • *avoid fertilizer drift through restricted application times that exclude periods of high winds or heavy rains; and* • *store and mix all fertilizers in upland areas and away from karst features, where contamination of wetlands, waterbodies, or karst features will be avoided*." Liming and fertilization rates on NFS Lands will be based on Order 1 Soil Survey data. Include a NFS Land-specific section addressing Order 1 data and discussing appropriate rates based on these results.
F-28	5.8.2 Mulching	"*Mulch materials will be anchored to the soil with stakes or liquid mulch tackifiers. No tackifiers will be used within 100 feet of wetlands and waterbodies or within 300 feet of karst features*." Mulch materials used on NFS lands must be pre-approved by the FS prior to application. The use of material that may result in contamination is prohibited on NFS Lands. On steep slopes, the use of soil conditioners or binders are necessary. ACP will provide to the FS the material composition of all mulch to be used on NFS lands.
F-29	5.8.2 Mulching	"*Straw or hay that has been certified as weed-free will be used to preserve the soil base in areas where native salvaged material is not available*." The use of hay shall not be permitted on NFS Lands.
F-31	5.10 Wetland Restoration	"*Seeding of wetlands is not anticipated as wetlands are expected to naturally revegetate*." Seeding of wetlands will occur on NFS lands. A list of recommended species for wetland seeding on NFS lands is located in the USFS seed mix document.
F-31 to F-32	5.13 Upland Forest	Timber harvesting on steep slopes (40% or greater) would need to be done in a manner that ensures slope stability and complies with MNF LRMP standard SW07 from the time the timber is harvested until pipeline construction begins. Winter logging must meet MNF LRMP standard SW09 as well as all other erosion control plans and LRMP standards.

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		Options include helicopter logging, use of overland equipment that does not require skid road development, and other non-ground disturbing methods as approved by FS personnel. Sediment and erosion control features are to be employed on these slopes as outlined in the COMP. Short term erosion control measures are to be utilized as directed in the COMP prior to the start of disturbance for the construction of the pipeline. All timber harvest roads are to be fully reclaimed and restored according to MNF LRMP standards (RF07, RF12, RF13, and RF15).
F-33	8.1 Monitoring	"*Atlantic and DTI will inspect disturbed areas after the first and second growing seasons to determine the success of revegetation*" On NFS lands, Atlantic and DTI will inspect and monitor disturbed areas after restoration for 3 years after construction. At this time the success of revegetation will be determined.
F-34	9.1 Environmental Inspectors	"*EIs will have the authority to stop activities that violate environmental conditions of Federal or State/Commonwealth environmental permits and landowner agreements and to order appropriate corrective action*." On NFS lands, the Forest Service representative will promptly notify the EI of any situation that requires corrective action. Upon receipt of such notification, whether oral or written, the EI shall immediately stop work in the affected area until the situation has been corrected to the satisfaction of the Forest Service representative.
F-35	9.2 Documentation	"*In accordance with the Plan, Atlantic and DTI will maintain post-construction records of activities performed and will submit quarterly activity reports to the FERC*." For NFS land, the USFS is requiring that Atlantic submit weekly reports that can be reviewed by USFS personnel.
F-47	List of Attachments	"*Summary of Seed Mixes by County for the Atlantic Coast Pipeline and Supply Header Project*" Seed mixes should not be dependent on county. A County line is an arbitrary boundary not based on climatic changes. This mix should be based on soil characteristics and on NFS lands, this mix should be based on Order 1 Soil Survey data in conjunction with the FS seed mix guidance document.
F-48	2.1.1	"***Harrison, Lewis, Randolph, and Upshur Counties***" The seed mixes listed in this document are not the seed mixes that will be applied on FS lands. The USFS has provided a guidance document for the development of seed mixes that are tailored to the unique environments the pipeline could cross on NFS lands. ACP will be required to use mixes that conform to this guidance on NFS lands.
F-48	Table 2.1.1-1	"*Birdsfood Trefoil*" This species is not included in the USFS seed mix guidance document and will not be allowed on NFS lands.
F-49	Table 2.1.1-3	"*Fertilizer and Lime Application*" Fertilizer and lime application rates on NFS Lands will be based on the Order 1 soil survey data. ACP will be required to provide the calculations used to determine the fertilizer and liming application rates.
F-49	2.1.1 Planting Recommendations	"*For unprepared seedbeds or seeding outside the optimum timeframes*:" To prepare for the possibility of winter construction, the Forest Service considers it prudent to develop contingency plans and erosion control procedures that do not depend upon immediate reseeding and revegetation. ACP should note that when construction is halted due

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		to weather or dangerous operating conditions during the winter, seeding at normal or increased rates alone will not meet Forest Service requirements for stabilization. Therefore: -To the maximum extent practicable, ACP shall complete construction in areas identified as susceptible to slope instability or erosion (e.g., steep slopes) at a time in the construction cycle that maximizes the available growing season length for revegetation, while complying with other timing commitments related to TES species. ACP shall address this aspect of construction sequencing in the COM plan for National Forest land. - Soil conditioner applications shall be permitted year-round for pipeline restoration. West Virginia Department of Environmental Protection vegetative ground cover requirements (70 percent cover) shall be met in spring even if hydroseeding and soil conditioner applications are made during late fall or winter. If ground cover requirements are not met because the seed sowed during the dormant season became nonviable, additional seeding and soil amendments shall be applied. Reseeding and soil amendment application shall be required at the start of the spring. The timing for reseeding and other amendments shall be in accordance with manufacturer's recommendations for both the seed mix and the application for soil conditioners. ACP will coordinate with the Forest Service by March 15th to determine if reseeding or other amendments are necessary in areas that were seeded during late fall or winter and are on the schedule for early inspection in the spring. Temporary erosion control for work stoppages during the winter shall be required where soil disturbance has occurred but pipeline construction or reclamation has not been completed. Temporary erosion control shall require treatment of soil materials and the soil surface to reduce the potential for soil movement, as well as installation of erosion control treatments to further ensure sediment transport is controlled. Rough surfacing shall be used to increase the potential for water infiltration and reduce the potential for sheet erosion. Soil protection shall be provided to rough surfaced areas to enhance temporary erosion control during the dormant season. Protection will be in the form of soil conditioners (e.g., polyacrylamides, polysaccharides, etc.) or weed-free mulch or similar soil cover determined to be suitable by the Forest Service. Weed-free mulch or similar soil cover may be used as a substitute for, or augmentation to, soil conditioners. These forms of soil protection may be applied with or without seed application. The soil conditioners that are used shall be identified by ACP and be suitable for the soil chemical conditions. The Forest Service must approve the selected conditioner(s) prior to application. Different soil conditioners may be needed at different locations along the pipeline route because soil chemistry varies along the route. The expected life of the soil conditioner shall be a consideration in the selection; if the expected effective life of the soil conditioner is less than the time until work resumes, additional applications of the soil conditioner shall be required. For mulches, at a minimum, the type of mulch and application method shall be capable of preventing erosion by raindrop impact and interrill and rill flow. The type, application rate, and application method must be approved by the Forest Service prior to application.

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		Tackifiers that are used for retention of mulch on the site must be approved by the Forest Service. Use of asphalt emulsion tackifiers shall not be permitted on National Forest land. Additional sediment control treatments, such as barriers, shall be used in addition to other winter-work stoppage temporary erosion controls in case the other erosion controls (e.g., soil conditioner, mulch, etc.) are not fully effective.
F-50	Table 2.1.2-1	"*This table has a list of species proposed for replanting in Pocahontas County*" Crown vetch will not be allowed on NFS Lands. ACP will utilize the USFS seed mix document.
F-50	Table 2.1.2-2	"*This table discusses recommended lime and fertilizer rates*" On NFS lands, ACP will be required to use the results of the Order 1 Soil Survey to inform lime and fertilizer rates. This table states that lime will be incorporated via disking. Include a NFS land-specific section that explains how disking will occur on steep slopes and forested areas on NFS lands.
F-51	Chemical mulchers, soil binders, and tackifiers recommendation	"*Determine mulch type and appropriate rate*" On NFS Lands, ACP will be required to provide the chemical composition of any material proposed for use on NFS lands prior to application for USFS approval. The USFS will require the use of microbially active soil amendments.
Summary of Seed mixes by County	Attachment A	As previously stated, on all NFS lands, the USFS guidance document will be used to develop seed mixes.
Appendix F	Appendix A: Major Soil Drainage and Slope Classes Crossed by the Projects	For areas on NFS Lands, the results from the Order 1 Soil Survey should be included in this table.
G-16	Table 2.1.1-1	The access road along Laurel Run is still being listed as a permanent access road on National Forest, although DEIS page 4-196 states that "*Atlantic has committed to eliminate the access road along Laurel Run*".
G-23	2.1.1.4	*New Access Road 36-014.AR3 would follow an un-numbered jeep trail for 1.2 miles on the GWNF between Highway 614 (Muddy Run Road) and the pipeline right-of-way near MP 94.1. The jeep trail, which runs along Laurel Run and crosses the creek several times, would require substantial new construction…"* DEIS page 4-196 states that "*Atlantic has committed to eliminate the access road along Laurel Run*". However, this road is still found in table 4.8.9-3 (DEIS page 4-344), table E-1 in Appendix E (Access roads), Appendix K (waterbody crossings), shapefile ACP_Rev11b_CIF_without_corridor_20170210, and discussed in detail in Appendix G on page 23 and in table 2.1.1-1. It is confusing and unclear exactly what is proposed.

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G-78	7.3	Correct the document throughout to reflect the full name of the document: United States Department of Agriculture (USDA), Forest Service, Guidelines for Road Maintenance Levels. This document is a guideline only for maintenance standards. All traffic control and signage on NFS roads is subject to the Manual on Uniform Traffic Control Devices (MUTCD), and any FHWA approved state supplement (state supplement takes precedence).
G-80	7.5	Road closures should be coordinated well in advance to allow implementation of formal temporary road closure orders.
G-79	7.4	"Road maintenance will conform to the USDA Forest Service Guidelines of Road Maintenance Levels, add: any forest specific road maintenance standards or specifications, as well as any standard contained in the LRMPs of the MNF or the GWNF. Note: The GWJ routinely provides forest specific road maintenance specifications as an attachment to permits. Any widening or reconstruction, including culvert replacement or gravel resurfacing, should be performed in accordance applicable sections of FP-03, **Standard Specifications For Construction Of Roads And Bridges On Federal Highway Projects.**
G-86	8.3.3	"3 new roads are proposed to be constructed on NFS lands". Section 2.1.1.4 and Table 4.8.9-3 indicates that 4 new roads are proposed. Page 2-25 indicates 5. Please clarify.
G-105	8.6	Access road maintenance through the construction sequence may include grading, insert: culvert and ditch cleaning, and the addition of gravel or stone when necessary.
H2-7	App H2	Figure 1 Plan View shows a non-existent strip of private land between the dark green NFS land containing the orange ANST and the purple NPS land containing the BRP. Also, "National Forest Service" in the legend is incorrect.
K-1	Appendix K-1	UNT to ~~Warwick Run (~~Townsend Draft~~)~~ --According to the USGS quads it is Townsend Draft. Please update for each listed incorrectly, MP 85-85.4
L-1	Appendix L	Appendix L does not reflect the same amount of wetlands reported in the Jan 2017 wetlands survey report for the GWJNF. There were nine wetlands and nine seep points documented. Please update table to reflect most current surveys.
P-1	Appendix P	The RUSLE2 equation is used to evaluate potential erosion rates at specific sites – specific sites that are important to the USFS are receiving streams and watersheds for impact analysis on water quality and sensitive aquatic biota. Please include an analysis. Please include comparisons of scenarios by load, such that % increases in sediment yield are accurately described.
P-1	Appendix P	Summary of RUSLE2 Computer Model Inputs and Outputs for Selected Soil Map Units in Bath County, VA. Please clarify why only two soil map units in Bath County were chosen and why the full sediment analysis is not complete. The critical data outputs should be loads and % increase over baseline for receiving waterbodies and watersheds, not just map unit calculations.
Appendix R	Appendix R	Many of the species determinations in these tables are still "pending" because of incomplete surveys or analysis. Effects determinations cannot be evaluated until these are complete.
R-2, R-24	Table R-2	Migrant Loggerhead Shrike is listed as a 3 on the OAR ranking, but it is documented in the Migratory Bird Plan, Appendix E, Table 3.1.4-1 on the GWNF in Augusta county by the plant survey crew. Please change the OAR ranking to 5 and evaluate effects of proposed actions on this species in the Biological Evaluation.
R-1, R-41	Attachment R-1	West Virginia Northern Flying Squirrel: During an on-site meeting with FS, Dominion, and ERM staff on November 4, 2016, a slight realignment of a proposed access road off of Forest Service road 1026 was agreed upon to minimize direct impacts on spruce trees, was flagged on the ground (including workspace area) by Dominion staff, and was GPS located by ERM. It was also agreed upon to relocate spruce saplings in the path of impact as well as some off of adjacent private property that will also otherwise be destroyed. This proposed reroute has only been depicted as an estimated (dashed) arc on a map (file "Access_Road_Maps_2017_01_12_Part01", sheet 8) with the

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		original route still shown below it. These maps are not yet incorporated in the official files that are available for FS review. We need to see the actual access road realignment, the shapefile to overlay with our habitat layers, and the final conservation measures in the official files and in order to make a call on determination of effect. Also, during the same on-site meeting, the FS was assured that no road improvements were needed on this road, but road widening and other improvements are now being proposed. We need details of how the work is to be done and shapefiles showing the exact areas of the work in order to overlay with habitat layers. This issue needs to be addressed again to determine any effect on spruce habitat before a determination of effect can be made for the WVNFS.
R-2	Attachment R	Allegheny Woodrat: An on-site meeting was held on November 4, 2016 with FS, Dominion, and ERM staff because of FS concerns over road improvements near Allegheny woodrat habitat. During the meeting, we were assure by Dominion staff that no road improvements were needed, which alleviated our concerns. Mitigation measures were also decided upon for normal operations. Now, road widening and other improvements are being proposed for this access road (Forest Service road 1026), which reinitiates our concerns. We have been sent maps ("Access_Road_Maps_2017_01_12_Part01"), which are not in the official files, but we need shapefiles showing the exact areas of impact to overlay with our habitat layers before we can make a determination of effects. Also before we can make a determination, we need the details of the road work clarified, which may require another onsite visit with those proposing the road improvements and the conservation measures finalized in the official files.
R-2	Attachment R	All bat species: Before determinations of effects can be made, outstanding surveys need to be completed and avoidance, mitigation, and conservation measures need to be finalized.
R-2	Attachment R	All remaining MNF RFSS and MIS species: We are still unable to provide determinations of effects without a finalized BE and MIS report, completed analyses, and finalized conservation measures.
R-6	Amphibians	*Pending MNF review of sedimentation analysis and conservation measures.* The inconclusive nature of this Determination of Effects is indicative of the incomplete status of the analysis of potential effects on aquatic resources including eastern hellbender. This condition further elucidates the rationale for reservations concerning concluding statements within the DEIS about potential project impacts.
R-6	Fish	*Pending MNF review of sedimentation analysis and conservation measures.* The inconclusive nature of this Determination of Effects is indicative of the incomplete status of the analysis of potential effects on aquatic resources including candy darter, New River shiner, Appalachian darter, and Kanawha minnow. This condition further elucidates the rationale for reservations concerning concluding statements within the DEIS about potential project impacts.
R-7	Bivalves	*Pending MNF review of sedimentation analysis and conservation measures.* The inconclusive nature of this Determination of Effects is indicative of the incomplete status of the analysis of potential effects on aquatic resources including elktoe and green floater. This condition further elucidates the rationale for reservations concerning concluding statements within the DEIS about potential project impacts.
R-10	Insects (Dragonflies)	*Pending MNF review of sedimentation analysis and conservation measures.* The inconclusive nature of this Determination of Effects is indicative of the incomplete status of the analysis of potential effects on aquatic resources including rapids clubtail dragonfly, green-faced clubtail dragonfly, and brook snaketail dragonfly. This condition further elucidates the rationale for reservations concerning concluding statements within the DEIS about potential project impacts.
R-40	Table R-3	"Potential Impacts from ACP Construction and/or Operation" and "Conservation Measures and Conclusion" for wild brook trout appear to be exclusive to proposed activities within and immediately adjacent to brook trout streams while being dismissive of other proposed actions that have the potential to be equally or more damaging to brook trout ecosystems. This narrative seems to expose an over-simplification of potential effects to brook trout ecosystems from actions being proposed in the DEIS.

Page #	Section #	Comment
T-7	1.1.2 Proposed Actions	"*The ACP would cross approximately 5.5 miles of USFS-owned land within the MNF, as well as 14.6 miles of USFS-owned land within the GWNF*." There are some inconsistencies with the approximate miles on MNF lands. In this document it states 5.5, in Volume I it states 5.1 miles on MNF lands. Please address and correct throughout all documents for consistency.
T-7	1.1.2	Proposed Action: This section should include a description of the proposed action. Since this appendix addresses scenery and the appearance of the project, it would be appropriate to provide a brief description here that includes the proposal for a 42" pipe, 125' wide construction right-of-way, 53.5' wide permanent right-of-way that will be converted from forest to herbaceous groundcover on the national forests.
T-10	1.2.1	SMS Distance Zones – Add the following sentence to the description of foreground zone: Details are important and individual forms are dominant. Add the following sentence to the end of the description of middleground zone: At this distance, people distinguish individual tree forms, large boulders, and small openings in the canopy. Form, color and texture remain dominant and pattern is important. Add the following to the end of the last sentence for the description of background zone: and landform, ridgelines and horizontal lines are the dominant visual characteristics.
T-15	2.0	SIA Methods: I recommend that the bullets describe the intent of each step in addition to the action, as follows: • Identify potentially visible areas based on terrain only by preparing "seen area" analysis, and establish Key Observation Points (KOPs); • Conduct field surveys to determine extent to which existing natural and human-made features either do or do not block views from the KOPs to the ACP project; • Prepare simulation or other form of visual analysis to determine whether post-ACP visual condition will meet Scenic Integrity Objectives (SIOs); • Prepare SIA report, summarizing visual conditions and impacts.
T-5 & Supplemental Information filed January 10, 2017, p. 1	1.1.1	Seen Area Analysis and KOPs: More detail is needed regarding how the analysis was conducted in such a way that ACP derived which mileposts on the centerline generated the portion of the "seen area" that covers individual KOPs (example the "seen area" is approximately MP 152-154). Was the "seen area" (viewshed) generated as a continuous line or were points created? If points, describe the distance intervals. If viewshed analysis was run from each KOP to determine the ACP mileposts that are potentially visible, insert that part of the process.
T-7 & Supplemental Information filed January 10, 2017, pp. 1-2	1.1.2	Proposed Action: This section should include a description of the proposed action. Since this appendix addresses scenery and the appearance of the project, it would be appropriate to provide a brief description here that includes the proposal for a 42" pipe, 125' wide construction right-of-way, 53.5' wide permanent right-of-way that will be converted from forest to herbaceous groundcover on the national forests.

Page #	Section #	Comment
T-9 to T-11 & Supplemental Information filed January 10, 2017, pp. 2, 5	1.2 to 1.2.2	The Scenery Management System – This section describes only the distance zone piece of the SMS inventory. It should also include a brief summary of the concern levels and scenic attractiveness. Add the following information about the SMS: Concern Levels are a measure of the degree of public importance placed on landscapes viewed from travelways and use areas. Concern levels are divided into three categories: 1, 2, and 3, with 1 being the highest level of concern for valued landscape scenery and 3 being the lowest. Protocols for assigning concern levels to travelways and use areas are provided in the SMS Handbook. Scenic Attractiveness is the primary indicator of the intrinsic scenic beauty of a landscape and of the positive responses it evokes in people. It helps determine landscapes that are important for scenic beauty based on commonly held perceptions of the beauty of landform, vegetation pattern, composition, surface water characteristics, land use patterns, and cultural features. The combination of these valued landscape elements are used in determining the measure of Scenic Attractiveness. Scenic Attractiveness classifications in the SMS inventory include Class A – Distinctive, Class B – Typical, and Class C – Indistinctive.
T-10 And Supplemental Information filed January 10, 2017, p. 5	1.2.1	SMS Distance Zones – Add the following sentence to the description of foreground zone: Details are important and individual forms are dominant. Add the following sentence to the end of the description of middleground zone: At this distance, people distinguish individual tree forms, large boulders, and small openings in the canopy. Form, color and texture remain dominant and pattern is important. Add the following to the end of the last sentence for the description of background zone: and landform, ridgelines and horizontal lines are the dominant visual characteristics.
T-15 and Supplemental Information filed January 10, 2017, p. 11	2.0	VIA Methods: I recommend that the bullets describe the intent of each step in addition to the action, as follows: • Identify potentially visible areas based on terrain only by preparing "seen area" analysis, and establish Key Observation Points (KOPs); • Conduct field surveys to determine extent to which existing natural and human-made features either do or do not block views from the KOPs to the ACP project; • Prepare simulation or other form of visual analysis to determine whether post-ACP visual condition will meet Scenic Integrity Objectives (SIOs); Prepare VIA report, summarizing visual conditions and impacts.
T-15 & Supplemental Information filed January 10, 2017, p. 11-12	2.1	VIA PROCESS - The process undertaken by ACP in consultation with the FS to identify viewpoints may not have found the "worst scenario" locations (on federal and private lands within five miles) where viewers might see the pipeline for a long distance or see multiple sections of the pipeline from one location. The "seen area" analysis did not include identifying where the **viewsheds** for multiple points along the pipeline **overlap at single locations – a "times seen" analysis**. If these locations with views to multiple sections of the pipeline include higher elevation roads, trails, or communities, there may be a view to multiple "notched" mountaintops and striped sideslopes stretching out for miles. The VIA process needs to determine if and where these types of viewpoints exist. Please provide this information so that FERC and the FS can include this information should be included in the FEIS.
T-21-22 &	2.3.2	Full Visual Simulations –

Page #	Section #	Comment
Supplemental Information filed January 10, 2017, p. 22		It is essential that the FS (and the public) fully understands and trusts the accuracy of the methods used to prepare the photo simulations for assessing the impacts to scenery. • Please provide additional details about how the terrain model is matched to the photograph using known surveyed locations within the field of view, and identify the source and sites of these known survey locations. • Please provide the contour interval, and/or other unit of measure, for the "detailed topographic mapping," and include the locations where LIDAR data was available and used to generate photo simulations. o An example of where this level of data is important is the photo simulation for KOP 40 ANST Bee Mountain. The vegetation depicted in the photo doesn't appear dense enough to completely screen from view the corridor located in a situation considered to be one of the most visible and toughest in which to incorporate a new feature without it beginning to dominate the landscape character– middleground view on a steep slope facing toward the viewer. For the view from the ANST on Bee Mountain toward Piney Mountain, did ACP use detailed topographic mapping that reveals the terrain does not slope toward the viewer on the AT as seems to be indicated by USGS topo at 20' contour intervals? This reviewer is skeptical that the pipeline corridor would not be visible in the photographic simulation for this KOP given the distance, aspect, and vegetative screening. • Please describe how the color for the post-construction herbaceous groundcover in the corridor was determined for the photos. Explain whether the color varies by location (same of different color for valley vs. side or top of mountain). The photo simulations are somewhat disappointing overall. Some photos are too dark and the major landform in the image is backlit. Examples are Torry Ridge Trail 1 and BRP Three Ridges. Lacking quality lighting in the photos eliminates our ability to see existing landscape elements of color, texture and pattern, without which we cannot assess the degree of contrast introduced by the proposed project.
T-23 & Supplemental Information filed January 10, 2017, Info p. 23	3.2	USFS Full Visual Simulations (Proposed Action): Simulations for the GWNF and the BRP are included together in this section. Section 4.1.3, later in the chapter, includes both units in its sub-section heading, and I recommend that this section be named in a similar fashion as follows: Full Visual Simulations for the GWNF and BRP (Proposed Action)
T-23 & Supplemental Information filed January 10, 2017, p. 23	3.2.1	KOP 34: Torry Ridge Trail 1 – the text states that the permanent right-of-way is outlined in yellow. However, the photos for Torry Ridge Trail 1 in the DEIS do not include the yellow line on the permanent r-o-w photo; the line is included on the contingency plan photo. VIA Supplemental Info – KOP 34: The yellow outline of the r-o-w does not appear in any of the photos. The dark quality of the photograph used for this simulation is not sufficient. To assess the contrasts of texture, color, form, line and pattern introduced by the proposed action, we must have a good quality photograph for the existing condition.
T-39 & Supplemental Information filed January 10, 2017, p. 39, A-13	3.2.6 3.2.6 in the Supp Info	KOP 64 Shenandoah Mountain South Terminus: The single photograph taken to represent potential views for the Shenandoah Mountain Trail is insufficient for the FS to verify that vegetation screens all views to the pipeline corridor except at the crossing only. Aerial photography was used by ACP to make this determination; however a view can be obtained from beneath the canopy layer if certain conditions exist, such as a rock outcrop.

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T-85 to T-87 & Supplemental Information filed January 10, 2017, p. 39, 41-44	3.3.2 3.2.5 in the Supp Info	KOP 40 Bee Mountain Photos: Some of the texture on the mountain is visible in the photographs. It seems that the proposed powerline corridor would be noticeable in the photo simulation. The FS agrees that the proposed project will not be visible from this KOP during leaf-off, but additional information is needed about why it is not visible in the leaf-off simulation
T-50 & Supplemental Information filed January 10, 2017, p. 103	4.1.1	Description of Table 4-1 – In the first sentence delete the phrase "both at the KOP itself and generally". Add a sentence that states: "All of the KOPs listed in Table 4-1 have a Concern Level of 1, meaning the users are considered to have a high regard for scenery and they value the natural appearing landscape character."
T-50 & Supplemental Information filed January 10, 2017, p. 104	Table 4-1	Table 4-1: Delete "in GWNF" from the title. The KOPs and viewsheds include a mix of GWNF, BRP, and private locations. As explained in the comment to Section 4.8.9.1 (separate FS comments document), include only the column for "In Viewshed" SIOs; delete the column for "At KOP" SIOs. Existing footnote #2 should be deleted since there will not be a column for the SIO at the KOP. Existing footnote #3 will become footnote #2. It should state "Lands viewed from KOP are not part of the GWNF and therefore are not assigned a SIO." Existing footnote #4 will become footnote #3. The In Viewshed SIO needs to be changed to NA and the footnote text will be the same as footnote #2. Add a footnote (#4) to the KOP 65. The In Viewshed SIO needs to be changed to NA and the footnote text will be the same as footnote #2.
T-51 and Supplemental Information filed January 10, 2017, p. 104	Table 4-2	SIO for GWNF MP 122.4 to 122.7 – Based on the MA prescription and the Scenic Classes inventory, the FS determined that the SIO for this area is Moderate, not High.
Supplemental Information filed January 10, 2017, p. 103	4.1.1	The FS determined that the SIO on the GWNJ from MP 122.4 to 122.7 is Moderate SIO (not High). Therefore 14.2 miles of the proposed pipeline on the GWNF would go through SIO of Moderate, and 0.1 mile would go through SIO of High.
T-51 & Supplemental Information filed January 10, 2017, p. 103	4.1.3.1 in App T 4.1.2.1 in Supp Info	Discussion: Third paragraph – I do not agree with the first sentence that the viewing distance is a factor in the project not dominating the landscape character. The distances between the KOPs and the visible project area are in the middleground, some of them less than one mile. In the middleground, many elements of form, line, color, texture and pattern are visible. Using SMS terminology, I recommend the following change to this sentence: The ACP post-construction project would be noticeable to casual observers at most of the modeled KOPs. The degree of contrast introduced by the project will vary by KOP depending on the distance viewed, the extensiveness of the view and the scale of the right-of-

Page #	Section #	Comment
		way within that view, the angle of view, the aspect of view, and the terrain upon which the pipeline is located. For some KOPs that view a small area at a relatively close distance to the project area, the pipeline corridor would begin to dominate the characteristic landscape. For KOPs that have a relatively expansive view at a greater distance and with other alterations visible on the landscape, the project is not likely to dominate the characteristic landscape.
T-52 & Supplemental Information filed January 10, 2017, p. 104	4.1.3.1 in App T; 4.1.2.1 in Supp. Info.	Discussion: Regarding Raven's Roost KOP, a portion of the pipeline corridor viewed in the valley is on the GWNF. The pipeline right-of-way mimics the road corridor at the base of Torry Ridge, but will be wider. It will be more highly visible than the road as it sweeps to the north through a forested area where there are no other openings in the immediate vicinity. The length of the pipeline that would be visible is substantial. The contrast in color and line will attract the viewer's eye. An explanation for why the northwest portion of the pipeline closest to the KOP is less visible in the photo simulation than the northern portion that is further away.
T-52 & Supplemental Information filed January 10, 2017, p. 105	4.1.3.1 in App T; 4.1.2.1 in Supp Info	Discussion: Regarding the BRP Three Ridges Overlook – Neither the KOP nor the lands viewed from it are on the GWNF. However, given the descriptions provided in this paragraph, I would disagree with the statement that the pipeline "would not dominate the viewshed".
T-52 & Supplemental Information filed January 10, 2017, p. 104-105	4.1.3.1 in App T; 4.1.2.1 in Supp Info	Discussion: Regarding the Shenandoah Mountain Trail – In the sentence, "The viewing area for these changes would be relatively small, limited to the area immediately near each intersection of the corridor…". The single photograph provided is not sufficient for the FS to verify that vegetation screens all views from the Shenandoah Mountain Trail. Additional photographs are needed.
T-32 to T-34 Supplemental Information filed January 10, 2017, p. 32-34	Photos	KOP 34 Raven's Roose: I have to question the accuracy of the simulation for the 75' wide corridor. From this superior vantage (view angled down), it is unlikely that the corridor running across the bottom of Torry Ridge would be so screened by the vegetation along the edge of the r-o-w. The scale of houses visible in the valley indicate that the width of the corridor throughout this simulation is under-stated. Additional explanation is needed.
T-52 & Supplemental Information filed January 10, 2017, p. 105	4.1.3.2 in App T; 4.1.2.2 in Supp Info	Summary: Regarding views of the ACP corridor from Raven's Roost, a portion of the pipeline corridor viewed in the valley is on the GWNF. In the near middleground there are only a few alterations, not "many", as stated. I need to question the accuracy of the visibility of the corridor at the base of Torry Ridge and extending around the north. See other comments pertaining to the photos. The text in this section may need to be modified based on the outcome of resolving questions related to the photo simulation.
T-53 & Supplemental Information filed January 10, 2017, p. 106	4.1.3.2 in App T; 4.1.2.2 in Supp Info	Summary: Regarding views from ANST on Bee Mountain (KOP 40), the lands visible from this KOP are not GWNF lands and therefore do not have an assigned SIO. Delete the phrase "be consistent with SIO designation from this location."

Page #	Section #	Comment
T-53 & Supplemental Information filed January 10, 2017, p. 106	4.1.3.2 in App T; 4.1.2.2 in Supp Info	Summary: Paragraph describing impacts to High SIO – The FS has determined that the 0.3 mile area of the GWNF between MPs 122.4 and 122.7 is assigned a Moderate SIO, not High. The only GWNF land with High SIO crossed by the ACP is the 0.1 mile of HDD under the ANST at MP 158 to 158.1.
T-53 & Supplemental Information filed January 10, 2017, p. 106	4.1.3.2 in App T; 4.1.2.2 in Supp Info	Summary: Paragraph describing the Moderate SIO erroneously refers to it as a Medium SIO.
Supplemental Information filed January 10, 2017, p. 51-52 text and pp. 53-56 photos	3.4.1	ANST KOP 02 Humpback Rocks, KOP 03 Battery Cliffs, KOP 04 Laurel Springs: Per the description of the "seen area" being between MPs 152 and 154, none of the visible area is on the GWNF. However, it is unlikely that the views from three different points share the identical potential "seen area". Please verify the accuracy. Also, the description for ANST KOP 02 does not explain why the corridor in the middleground is "minimally perceptible" and "indistinguishable". The open corridor would typically be evident at that distance. An intervening feature, aspect of the viewed area to the viewer, the existing landscape character, or some other explanation needs to be provided for why the corridor is not more visible in the simulation at that relatively short viewing distance.
Supplemental Information filed January 10, 2017, p. 52	3.4.5	ANST KOP 06: Little Raven's Roost – The assessment should explain why the contrasts to existing landscape that would be apparent to the viewer will not dominate the view.
Supplemental Information filed January 10, 2017, p. 71 text and pp. 77-84 photos	3.4.7	ANST KOP 08a Three Ridges Overlook North, and ANST KOP 08b Three Ridges Overlook South – Per the description of the "seen area" being on Piney Mountain south of the HDD, the visible area of the pipeline viewed from these two KOPs is not on the GWNF. Since the format is following the SMS system for these KOPs, the description of the view should describe the contrasts of color, line and texture introduced by the pipeline crossing over the top of a natural appearing mountain covered in forest with no other obvious openings. The pipeline in this location provides potentially the biggest impact to scenery viewed from the ANST and BRP based on the photo simulations prepared by ACP, and should be described as such.
Supplemental Information filed January 10, 2017, p. 71	3.4.8	ANST KOP 08b Three Ridges Overlook South – The distance between the KOP and the proposed pipeline corridor needs to be provided.
Supplemental Information filed January 10, 2017, p. 106	4.1.3.1	Feathering Vegetation Clearing on the R-O-W – In the last sentence, change the word "present" to "visible" …
Supplemental Information filed January 10, 2017, p. 107	4.1.3.2	Replanting the Right-of-Way: 1st paragraph, last sentence is incomplete. In the 2nd paragraph, the word "mange" should be "manage".

Page #	Section #	Comment
Supplemental Information filed January 10, 2017, p. 109	4.2.3	Mitigation of Visual Impacts on the GWNF should be the MNF.
Supplemental Information filed January 10, 2017, p. 110	4.4.2	Visual Impacts of ACP on the ANST – The 2nd paragraph states that views from KOPs ANST 02, 03 and 04 are generally imperceptible and in the background distance zone. That is erroneous. All of the ANST KOPs are in the middleground distance zone; and question was raised in comments above as to why the pipeline was not more evident from KOP 02 in the photo simulation.
Supplemental Information filed January 10, 2017, p. 110	4.4.2	Visual Impacts of ACP on the ANST regarding KOP 06 – The statement that the pipeline will not dominate the view is arguable. There are other openings in the forest canopy further out in the valley, but the pipeline corridor cuts through natural appearing forest on the north end of the view, and information is needed about why the corridor isn't more visible in the western portion of the view which is closer to the KOP.
Supplemental Information filed January 10, 2017, p. 110-112	4.4.2	Throughout this section, the description of KOPs being in High SIOs is atypical of how the Forest Service assesses proposed actions. When the proposed action does not occur in the same management area or SIO as the KOP, it is more appropriate to use the phrasing that the KOPs are located on a Concern Level 1 National Scenic Trail.

USDA United States Department of Agriculture
Forest Service
Monongahela National Forest
200 Sycamore Street
Elkins, WV 26241
304-636-1800

File Code: 1900; 2700
Date: April 6, 2017

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First St., N.E., Room 1A
Washington, DC 20426

Dear Ms. Bose:

Subject: Forest Service's Comments on the Construction, Operation, and Maintenance for the Proposed Atlantic Coast Pipeline Project
OEP/DG2E/Gas 4
Atlantic Coast Pipeline, LLC
Docket No. CP15-554-000 and CP15-554-001

The Forest Service provides comments on the Construction, Operation, and Maintenance Plan (Com Plan) submitted by Atlantic Coast Pipeline, LLC (ACP) for the proposed Atlantic Coast Pipeline Project (ACP Project). The proposed ACP Project would affect National Forest System (NFS) lands on the Monongahela National Forest and George Washington National Forest.

Detailed comments are contained in the attachment. The comments provide guidance to ACP for further developing the COM Plan. We recommend that ACP incorporate our comments into the COM plan and submit a revised draft. We also recommend that the Forest Service and ACP continue to meet and discuss the COM Plan to finalize the COM Plan and ensure that the ACP Project would be implemented on NFS lands in accordance with Forest Service guidelines.

Thank you for the opportunity to review and comment on ACP Project documents. For questions or additional information, please contact Jennifer Adams, Special Project Coordinator, by phone at (540) 265-5114 or by email at jenniferpadams@fs.fed.us.

Sincerely,

CLYDE THOMPSON
Forest Supervisor

cc: Atlantic Coast Pipeline, LLC

FOREST SERVICE COMMENTS

CONSTRUCTION, OPERATION, AND MAINTENANCE PLAN

ATLANTIC COAST PIPELNE PROJECT

Page #	Section	Comment
		COMP-Main Body
n/a	Attachments, General	All Attachments need pages numbered in final version of COM plan, possibly using a format of "attachment number-page number.
n/a	Alignment Sheets and COM plan	Acronyms and terms should be the same in both drawings and word documents. Documents refer to ATWS as additional temporary workspace. Drawings show symbol for extra workspace.
i	TOC	The COM Plan includes many types of plans that are part of construction, such as Section 4.0 Timber Removal Plan, Section 5.0 Fire Prevention and Suppression Plan, Section 6.0 Blasting Plan, Section 7.0 Traffic and Transportation Management Plan, etc.). But the COM Plan does not include a Section Plan for the main part of construction: Excavation and Embankment (Cut and Fill) Construction. Section 2 Project Description is not an Excavation and Embankment (Cut and Fill) Construction Plan. Section 2 and other Sections of the COM Plan make reference to Attachment A as "typical right-of-way configurations". But Attachment A has only two typical construction cross-sections, and neither typical is typical of the construction that would be on NFS lands. In addition, the Cut and Fill Construction configuration has unrealistic and unstable cut-and-fill slope angles. An Excavation and Embankment (Cut and Fill) Construction Plan with a typical for each different combination of construction methods + topographic positions on NFS lands is needed 1) to verify land requirements, 2) to assess the scope and magnitude of the slope modifications and surface and subsurface disturbance on NFS lands, and 3) to assess the potential for project-induced landslides (cut slope failures, fill slope failures, trench spoil failures, temporary spoil failures, topsoil segregation failures), 4) to develop a Slope Stability Plan to design geotechnical measures to avoid or reduce the potential for project-induced landslides. Provide an Excavation and Embankment (Cut and Fill) Construction Plan either as a section within Section 2 or as a new Section immediately following Section 2. For each type of construction configuration on NFS lands, provide a typical construction cross-section perpendicular to centerline, and a typical construction cross-section parallel to centerline for 100 feet up station and down station from the cross-section perpendicular to centerline, including as applicable, such configurations as: 1. Ridgetop construction (temporary ROW 125-foot-wide) requiring cut-and-backfill of ridgetop in addition to trench. 2. Ridgetop construction (temporary ROW 125-foot-wide + ATWS on mid-to-upper slope) requiring cut-and-backfill of ridgetop in addition to trench. 3. Ridgetop construction (temporary ROW 125-foot-wide + ATWS on lower slope near stream crossing) for ridges which extend downslope to stream crossings. 4. Steep sloping ridgetop construction using winch line (temporary ROW 125-foot-wide). 5. Steep sloping ridgetop construction using winch line (temporary ROW 125-foot-wide + ATWS on mid-to-upper slope). 6. Steep sloping ridgetop construction using winch line (temporary ROW 125-foot-wide + ATWS on lower slope near stream crossing) for steep sloping ridges which extend downslope to stream crossings. 7. Planar slope construction perpendicular to contours (temporary ROW 125-foot-wide). 8. Planar slope construction perpendicular to contours (temporary ROW 125-foot-wide + ATWS on mid-to-upper slope).

Page #	Section	Comment
		9. Planar slope construction perpendicular to contours (temporary ROW 125-foot-wide + ATWS on lower slope near stream crossing) for planar slopes on lower slopes near stream crossings. 10. Steep planar slope construction perpendicular to contours using winch line (temporary ROW 125-foot-wide). 11. Steep planar slope construction perpendicular to contours using winch line (temporary ROW 125-foot-wide + ATWS on mid-to-upper slope). 12. Steep planar slope construction perpendicular to contours using winch line (temporary ROW 125-foot-wide + ATWS on lower slope near stream crossing) for steep planar slopes on lower slopes near stream crossings. 13. Side hill construction that is parallel or sub-parallel to contours and uses standard working side/spoil side configuration (temporary ROW 125-foot-wide). 14. Side hill construction (temporary ROW 125-foot-wide + ATWS on mid-to-upper slope) that is parallel or sub-parallel to contours and uses standard working side/spoil side configuration. 15. Side hill construction (temporary ROW 125-foot-wide + ATWS on lower slope near stream crossing) for side hill on lower slopes near stream crossings. 16. Side hill construction that is parallel or sub-parallel to contours and uses two tone working side/spoil side configuration (temporary ROW 125-foot-wide). 17. Side hill construction (temporary ROW 125-foot-wide + ATWS on mid-to-upper slope) that is parallel or sub-parallel to contours and uses two tone working side/spoil side configuration. 18. Side hill construction (temporary ROW 125-foot-wide + ATWS on lower slope near stream crossing) that is parallel or sub-parallel to contours and uses two tone working side/spoil side configuration for side hill on lower slopes near stream crossings. Provide each typical drawing with dimensions (feet) based on lidar or detailed survey. For each typical, state 1) the station(s) on the alignment sheet that was used to create the typical drawing, 2) the stations on the alignment sheet for which the drawing is typical. On each typical, show 1) the original (existing) ground surface, 2) the maximum extent of the cut, fill, spoil, and topsoil segregation during construction, 3) the post-construction reclaimed ground surface. Wherever cut-and-backfill of a ridgetop or a slope is required in addition to trench cut-and-backfill, then the typical cross-section parallel to centerline should include 1) the bottom of the temporary cut and 2) the existing ground surface along the highest point above the temporary cut. Provide a description of the construction operations specific to each typical, including 1) estimated volume of temporary spoil and the percentage of the spoil volume to be transported to and from ATWS, 2) construction of restoration backfill to original profile. In the notes for each typical cross-section) state: 1. State the range of slope inclination to which the typical applies. 2. State the estimated swell factor for the excavated material, and state whether the dimensions of the fill and spoil displayed in the typical reflect the swell factor. If applicable, state what percentage of the loose excavated material would be hauled as temporary spoil to ATWS. 3. State whether the dimensions of the fill (backfill) displayed for post-construction reclaimed ground surface reflect the swell factor and compaction. If applicable, state what percentage of the loose excavated material (spoil and/or fill) from construction is excess and would be hauled to another location. 4. State whether, after trench backfill, any side hill cut upslope from the trench would be excavated or replaced as part of reclamation or recontouring, such as indicated in the notes for configuration "Atlantic Coast Pipeline and Supply Header Projects Cut and Fill Construction" in Attachment A. If additional excavation is part of reclamation, then add this additional cut line to the profile (cross-section). It is important to display a cross-section with site specific dimensions (feet) to demonstrate that the slopes angles for backfill and cut slope prescribed for reclamation or restoration in the Notes can be achieved within the ROW boundaries shown in the cross-section.

Page #	Section	Comment
		The Forest Service has made similar comments (as above) on the first COM Plan (August 2016) and the Resource Reports (2015) about the need for typical drawings specific to the construction on the steep slopes of the NFS lands. But this second COM Plan does not include the requested typical drawings specific to the Excavation and Embankment (Cut and Fill) construction on the steep slopes of the NFS lands. An Excavation and Embankment (Cut and Fill) Construction Plan, as described above, should be a core, fundamental part of the COM Plan, and needs to be provided before the COM Plan can be considered complete.
viii	TofC	Thank you for adding the acronym "ANST" for Appalachian National Scenic Trail as requested in the Draft-1 review.
viii	TofC	Add FR for Forest Road and FT to Forest Trail to the list of Acronyms and Abbreviations, as requested in Draft-1.
viii	TofC	In Footnote 1 at bottom of page: change "George Washington and Jefferson National forest" (sic) to "George Washington & Jefferson National Forests" with Ampersand (&), capital F, plural Forests, as requested in Draft-1.
ix	TofC	Check correct name of SACG –Southern Area Coordination Group. See also Fire Plan.
001	1.0	In the introduction, suggest adding a statement about the purpose of the COM plan. The COM plan is intended to satisfy the Mineral Leasing Act of 1920's requirement that, "the Secretary or agency head, prior to granting a right-of-way or permit pursuant to this section for a new project which may have a significant impact on the environment, shall require the applicant to submit a plan of construction, operation, and rehabilitation for such right-of-way or permit which shall comply with this section. The Secretary or agency head shall issue regulations or impose stipulations which shall include, but shall not be limited to: (A) requirements for restoration, revegetation, and curtailment of erosion of the surface of the land; (B) requirements to insure that activities in connection with the right-of-way or permit will not violate applicable air and water quality standards nor related facility siting standards established by or pursuant to law; (C) requirements designed to control or prevent (i) damage to the environment (including damage to fish and wildlife habitat), (ii) damage to public or private property, and (iii) hazards to public health and safety; and (D) requirements to protect the interests of individuals living in the general area of the right-of-way or permit who rely on the fish, wildlife, and biotic resources of the area for subsistence purposes. Such regulations shall be applicable to every right-of-way or permit granted pursuant to this section, and may be made applicable by the Secretary or agency head to existing rights-of-way or permits, or rights-of-way or permits to be renewed pursuant to this section,"(30 USC 185(h)(2). The COM plan would be attached to and made part of an authorization(s) to construct, operate, maintain, and terminate the ACP project on NFS lands. Also, a disclaimer should be added stating that, in consultation with the Authorized Officer, the COM plan would be updated throughout the term of such authorization(s) as needed to reflect any necessary changes or adjustments to the plan.
002	Figure 1.1-1	Thank you for correcting Figure 1.1-1 by naming the Appalachian National Scenic Trail accurately both on the map and in the legend.
003	2.0	Add at the end of the bullet that describes AP-1, add: "All of the Mainline Pipeline Facilities that are on USFS lands are AP-1."
003	Section 1.1	At the end of Section 1.1, either reword the last paragraph or add a stand-alone statement. "This COM Plan provides detailed information on requirements and standards for the ~21.1 miles of the ACP that is on USFS lands only. It does not apply on non-USFS lands." The current wording is inadequate.
004	2.1.1.1	"*The pipeline route crosses the MNF for a total of 5.2 miles, all within the Marlinton Ranger District*." This COMP states that 5.2 miles are within the MNF. The DEIS Volume I states that 5.1 miles are within the MNF. Volume III-Part 2 states that 5.5 miles are within the MNF. State the appropriate miles on MNF lands and be consistent among documents.
004	2.1.1.1	First paragraph, second line, change to: "On USFS lands, the ACP consists of approximately 21.1 miles of a 42-inch, buried steel pipe across portions of the MNF and GWNF."

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005	2.1.1.1	First paragraph states: "Some CP test stations will be installed on USFS lands." I do not find these locations detailed anywhere in the document or attachments. USFS needs to know where these are planned to ensure they are in acceptable locations. More information is needed.
005	2.1.1.2	"Typical right-of-way configurations are provided in Attachment A 7." Typical right-of-way configurations provided in Attachment A are inadequate for a COM Plan on NFS lands. The first configuration ("Atlantic Coast Pipeline AP-1 (Federal Lands Only) Typical Construction Right-of-Way Non-Agricultural Areas") is a profile (cross-section) with dimensions (feet) but is for flat ground where the only excavation is for the trench. The second configuration ("Atlantic Coast Pipeline and Supply Header Projects Cut and Fill Construction") is a profile (cross-section) for side hill construction but with unknown dimensions ("Additional ROW As Required") and vertical and/or horizontal distortion of configuration. The Cut and Fill Construction configuration has unrealistic and unstable cut-and-fill slope angles. Neither of these two configurations is representative of most of the proposed pipeline ROW construction on NFS lands. In order to verify land requirements, typical cross-sections need to have dimensions (feet) and be based on stable angles for cut and fill slopes. The second configuration ("Atlantic Coast Pipeline and Supply Header Projects Cut and Fill Construction") has neither dimensions nor stable cut and fill angles. See the comments on TOC on the need for several typical drawings in an Excavation and Embankment (Cut and Fill) Plan in order to verify land requirements. "The alignment sheets (Attachment B) provide exact dimensions of the proposed construction right-of-way widths on NFS lands." Because the configurations in Attachment A are not representative of most of the proposed pipeline ROW construction on NFS lands, and because the Cut and Fill Construction configuration has unrealistic and unstable cut-and-fill slope angles, we have concerns about the basis for ACP's determination of the "exact dimensions of the proposed construction right-of-way widths on NFS lands" in the alignment sheets. Attachment A and Attachment B are mismatched in detail. Attachment B provides "exact dimensions of the proposed construction right-of-way widths on NFS lands" but Attachment A provides configurations not representative of most of the proposed pipeline ROW construction on NFS lands, and a cut-and-fill configuration with no dimensions.
005	2.1.1.2	"Additional temporary workspace (ATWS) is proposed at certain locations, such as road crossings, and where additional spoil storage, log landings or equipment staging is needed." This statement is inadequate in describing the scope and magnitude of additional temporary workspace (ATWS) on NFS lands. Section 8.3.2 states, "ATWS measuring 50 by 150 feet will typically be required on both sides of the corridor and both sides of the crossing at wetlands, waterbodies measuring greater than 10 feet in width, two lane roads, and railroads. ATWS measuring 25 by 100 feet will typically be required on both sides of the corridor and both sides of the crossing at waterbodies measuring less than 10 feet in width and single lane roads." Where ATWS adds 50 feet on each side of the 125-feet-wide temporary construction ROW, the results is a 225-feet-wide temporary construction ROW. Where ATWS adds 25 feet on each side of the 125-feet-wide temporary construction ROW, the results is a 175-feet-wide temporary construction ROW. The ATWSs 40 to 80% increase in width is a major increase in temporary construction. So far, more than 80 ATWS are identified on the GWNF, and at least 11 ATWS on the MNF. 80 ATWS would mean about 40 sections where the temporary construction ROW would be 175-feet-wide or 225-feet-wide rather than 125-feet-wide. In order to verify land requirements for ATWS, typical cross-sections with dimensions (feet) and stable angles for cut and fill slopes are needed where ATWS would have cuts or fills including log landings or storage of temporary spoils. See the comments on TOC on the need for several typical drawings in an Excavation and Embankment (Cut and Fill) Plan in order to verify land requirements ATWS.

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		Equally important is that the ATWS for stream crossings in the mountains narrow valleys would be excavated into steep slopes at the base of or on the lower slopes of the mountainside. Stream down cutting and incision in narrow mountain valleys makes these lower slopes near streams susceptible to stream or storm-induced landslides as well as excavation-induced slope failures, such as by a road or pipeline construction. 1. For each ATWS pair (on both side of the pipeline corridor), provide a profile (cross-section) perpendicular to the centerline with dimensions (feet) based on lidar or detailed survey showing the ATWS pair and the 125-feet-wide temporary construction ROW. 2. For each ATWS pair (on both side of the pipeline corridor), provide three profiles (cross-sections) parallel to the centerline with dimensions (feet) showing the ATWS pair and the 125-feet-wide temporary construction ROW: 1) one cross-section along the centerline, 2) a cross-section in each ATWS. 3. For each unpaired ATWS, provide a profile (cross-section) perpendicular to the centerline with dimensions (feet) showing the ATWS and the 125-feet-wide temporary construction ROW. 4. For each unpaired ATWS, provide two profiles (cross-sections) parallel to the centerline with dimensions (feet) showing the ATWS and the 125-feet-wide temporary construction ROW: 1) one cross-section along the centerline, 2) a cross-section in the ATWS. 5. Provide a detailed description of the construction activities and ground disturbance that will occur in each ATWS. 6. Provide a table with basic information for each paired and unpaired ATWS for the GWNF and the MNF. Coordinate and include or reference the ATWS cross-sections and information listed here with the Excavation and Embankment (Cut and Fill) Plan described in the comments on TOC.
005	2.1.1.2	"*All temporary construction work areas outside the permanent right-of-way will be restored in accordance with the Restoration and Rehabilitation Plan*." The USFS had substantial edits to the Restoration and Rehabilitation Plan. This document lacked NFS land-specific direction. Please see the comments from USFS staff to this document.
005	2.1.1.2	Topsoil segregation could require additional construction ROW width as allowed in FERC's *Upland Erosion Control, Revegetation, and Maintenance Plan*. The FS and ACP are still discussing topsoil segregation needs on NFS lands. Revise as needed based on the outcome of these discussions.
005	2.1.1.2	Land Requirements: Delete word "nominal" from the description of the width of the proposed right-of-way. The paragraph goes on to say that this width accommodates construction activities for most pipelines; so this proposal is neither nominal for the industry nor for Forest Service special uses as evidenced by the DEIS. The point being made here is that it is insufficient in places therefore ATWS is required; but it's a subjective word.
006	2.1.1.2	Table 2.1.1-1 Lists GWNF Road 281 as Tower Mountain Road. FS road 281 is Campbell Hollow Road.
006	Table 2.1.1-1	This table shows the same total number of access roads on the GWNF as Draft-1, however one road has been dropped off and one new one added. The road that was a part of Draft-1 that is not on this table in Draft-2 is #06-001-B001.AR7, 1.2 miles long. This is 1.2 miles of riparian area running directly up Laurel Run. However, this access road still shows on Alignment Sheet #127 of 344 in Attachment B, and in the Access Road Improvement Maps received as a part of Attachment F. To minimize any chance for confusion, this road should be removed from all documents, maps, sheets, etc associated with the project, AND a footnote should be added to this table stating that this referenced road is no longer proposed for any construction or use.
006	Table 2.1.1-1	"New Road" 06-001-B001.AR7 at MP 85.3 is indeed truly a new road that was not in Draft-1. Confirm that all required field surveys have been completed.

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006,7	2.1.1.2, Table 2.1.1-1	Planned roads on the GWNF: Please add FDR 1757, which was extended by 0.273 miles in FY16. This road has recently been approved for use during the boring phase of the project. Route 309 is a closed road (meaning it is in storage). Route 449A is a closed road (meaning it is in storage), listed in the system as 3.19 mi. The pipeline is proposing to use 3.0 miles of 449 and 449A, need clarification as to how many miles of 449 and how many miles of 449A? Road 006-001-B001-AR5 appears to end on National Forest (66+00 to +68+40). This is missing from the table. 007-001-AR1.AR6 is listed in the table as 0.8 miles, but only 1392 feet are shown on the map (roughly 0.25 miles). Please clarify.
008	2.1.1.3	Formatting of entire section needs to be revised. Separate each of the 4 "spreads" on USFS lands into its own paragraph. Currently, some are split (stand-alone) and some are lumped. Very confusing. Should be broken into 3 additional paragraphs.
008	2.1.1.3	Please confirm the amount of USFS lands on the GWNF within each spread, and the description of Spread 3A on the GWNF. The description does not match the depiction in Figure 2.1-1 and the length on USFS lands within this spread seems high.
008	Table 2.1.1-2	To be transparent and to assist in considering cumulative effects, add a column to this table to show the Total Construction ROW, which is a compilation of the Permanent ROW and the Temporary Workspace. Using current figures, once verified/confirmed, for the Mon, this is 80.1 ac, for the GWNF = 249.7 ac, total USFS = 329.8 acres.
008 and 85	2.1.1.2 Land Requirements and 8.3.3 Access Roads	*"Some existing roads require minor grading and graveling and/or widening to accommodate construction vehicles."* It appears from the tables above this page 8 statement that <u>all</u> existing roads on USFS will require improvements.
010-11	Table 2.1.1.-3	Need either this table MODIFIED or a new additional table developed to show the information stated in text form in section 2.1.1.3. This table shows the entire 300+ mile long project. We need also a tabular summary of the description shows detail for the Spreads on USFS lands (3, 3A, 4, 4A, and 5) with explicit detail about the ANST-BLR HDD within Spread 5. Also need a column added showing which national forest Is involved in which spreads, and the length of each spread on USFS lands.
011	2.1.1.3	"*Timber removal on the MNF is scheduled to take place between November 1 and April 1 of both construction seasons. For any areas of the right-of-way within 5 miles of known Indiana bat hibernacula, no timber removal will occur before November 16*." Cite LRMP standards within this document. This document needs to include specific direction on NFS Lands for construction, operation, and maintenance. Timber harvesting on steep slopes (40% or greater) would need to be done in a manner that ensures slope stability and complies with LRMP SW07 from the time the timber is harvested until pipeline construction begins. Winter logging must meet LRMP SW09 as well as all other erosion control plans and LRMP standards. Timber harvesting by use of skid trails and landings must comply with SW40. Options include helicopter logging, use of overland equipment that does not require skid road development, and other non-ground disturbing methods as approved by FS personnel. Sediment and erosion control features are to be employed on these slopes as outlined in the COMP. Short term erosion control measures are to be utilized as directed in the COMP prior to the start of disturbance for the construction of the pipeline replacement. All timber harvest roads are to be fully reclaimed and restored according to MNF LRMP standards (RF07, RF12, RF13, and RF15).

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011	2.1.1.3	Timber Removal - Bottom of page, the wording used to restrict timber removal is confusing. Is it restricted to occur during those dates or restricted not to occur during those dates?
011	2.1.1.3 Construction Schedule	*"Based on agency consultations to date, timing restrictions for tree clearing in West Virginia and Virginia are as follows:* *• West Virginia:* *o migratory birds: restricted between April 1 through August 31* *o Indiana bat: restricted between April 1through November 15* *• Virginia:* *o migratory birds: restricted between April 1 through August 15* *o Indiana bat: restricted between April 1 through November 15 (if hibernacula is within 5 miles of right-of-way); otherwise April 15 through September 15."* These restrictions will result in timber removal operations mostly occurring outside what is termed the "normal operating season" for timber harvesting on the GWNF. December 15 to March 15 is considered outside "normal operating season" on the GWNF. This means the FS will have more contractual authority to stop operations due to high soil moisture and increased rutting hazards due to weather than we would during the "normal operating season". The MNF may also have similar designations. Temporary erosion control structures and treatments will be required as some tree clearing will occur outside normal seeding seasons. The identified seasonal restrictions on timber removal operations may also conflict with current Forest Plan standards addressing slope stability concerns when working in areas with steep slopes, as well as other aquatic T&E and sensitive species concerns of soil movement and stream crossings that restrict timber removal activities during winter months. Conflicting seasonal restrictions concerning T&E and Migratory Bird species have been brought to the attention of the FWS.
012	2.1.1.3	"*Stream and Wetland Crossings* *At streams containing sensitive fisheries and other sensitive aquatic organisms, crossings utilizing dry crossing methods will be scheduled to occur during the least sensitive periods, determined in consultation with federal and state/commonwealth agencies, including the USFS.*" Incorporate USFS LRMP standards for construction, operation, and maintenance on stream and wetland crossings on NFS Lands. ACP must meet the LRMP guidelines and standards (SW37).
012	2.1.1.3	*"If additional bald eagle nests or occupied bald or golden eagle winter roosting habitat are identified ahead of or during construction, Atlantic will follow the National Bald Eagle Management Guidelines for work within 660 feet of bald eagle nests."* Comment: To the end of this sentence needs to be added, "except on USFS lands, where the agency-specific buffers listed above (Table 5.2.1-2) will be followed". We have also made this comment on the Migratory Bird Plan.
012	2.1.1.3	"For tree clearing that occurs during the winter roosting or nesting season, a qualified biological monitor will accompany the clearing crews for work conducted in areas **where golden and bald eagles are believed to be present** on USFS lands." Comment: The phrase "where….believed to be present" sounds like the biological monitor will only survey in certain areas. Please remove the phrase "for work conducted in areas where golden and bald eagles are believed to be present on USFS lands". Given the large home range sizes of wintering bald and golden eagles, they can be present anywhere during the winter season along the proposed route that crosses National Forest lands. Therefore, a biological monitor will need to be present while clearing crews are working in the proposed pipeline route. In addition, bald eagles start nesting activities early in the calendar year, well before the normal breeding season of most migratory birds.

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012	2.1.1.3	Document states: "Timber removal on the GWNF is scheduled to take place between November 1 and April 1 of both construction seasons." This statement is repeated throughout the document. From previous COM plan comment number 57: This includes a time of year that is normally outside the normal operating season for FS timber sale contracts. Please continue to consult with the FS regarding the timing of timber removal to ensure consistency with requirements for wildlife. In addition, As previously discussed between the FS and FWS, this bat and TOYR for migratory birds may be in conflict with erosion and sediment control standards limiting harvest activities during the winter and spring freeze/thaw, in addition to TOYR for aquatic species. A prioritization of the TOYRs needs to be agreed upon among management agencies. These TOYR conflicts need to be addressed and reconciled.
012-15	Tables 2.1.1-1, 2.1.1-2	These 2 tables continue to do a poor job of defining UNT – a person must scour the fine print of the footnotes to find out what UNT is. Made this comment in D-1.
013	2.1.1	Table 2.1.1-2 - formatting needs changes for flow regime column.
013	2.1.1.3	Table 2.1.1-2 lists Stoutameyer Branch as a coldwater stream. As such, it should have a TOYR of March 1 – June 30th (as stated in DEIS Table 4.6.1-2)
016	2.1.1.4	Similar to the comment about the format of section 2.1.1.3, above, the text in this section needs to be reformatted. Each new access road needs to be its own paragraph.
016	2.1.1.4	Similar to prior comment about former planned Access Road 36-014.AR3; a statement needs to be made in this section, either in main text or as a footnote, that this previously planned 1.2 mile long access road up Laurel Run is no longer planned for use. Also need to correct it in the Alignment Sheets (remove from sheet 127 of 344) and in the Access Road Maps.
016	2.1.1.4	Bottom Paragraph. Change ASHTO to AASHTO, give the full name in its first usage, and add it to the Acronyms and Abbreviations page of this document.
016	2.1.1.4	FS roads proposed for access, may not be entirely located on NFS lands or easements held by the FS. Alignment sheets for access roads must show ownership and boundary data as it relates to each proposed access road. ACP will need permission/easement from actual landowner where road needing improvement is on private lands. An example of this situation is along FS road 124 (ACP project access name 36-014.AR2) and FS roads 1026 and 55 on the Monongahela (ACP project access name 05-001-C009-AR1 and 05-001-E064AR2). ACP should check all USFS roads in similar situations.
016	2.1.1.4	*"Maps showing locations of access road improvements on USFS lands are provided in Attachment F."* Comment: Attachment F has no maps yet. However, four files, named "Access_Road_Maps_2017_01_12_Part01", "Access_Road_Maps_2017_01_12_Part02", "Access_Road_Maps_2017_01_12_Part03", and "Access_Road_Maps_2017_01_12_Part04" were provided to the USFS, but they do not provide the detail needed for impact analyses. We have requested shapefiles of the impact footprint and further details about the proposed access road improvements.
016	2.1.1.4	*"A number of new roads will be required."* *"Most of the existing USFS roads to be used for pipeline construction will require minor grading and graveling and/or widening to accommodate construction vehicles."* All proposed new roads, improvements to existing roads, and the total area of impact for such work, plus a buffer on either side of 150 feet, will need to be surveyed for TES plants and an analysis of the results will need to be incorporated into the EIS and Biological Evaluation. Appropriate avoidance, minimization, and mitigation measures will need to be determined if TES populations are found.
017	2.1.1.4	First word on page says Dominion when it should read Atlantic.
017	2.1.1.4	"Dominion will provide the USFS proposed design details for access road construction and improvements after civil surveys have been completed."

Page #	Section	Comment
		Comment: Four files, named "Access_Road_Maps_2017_01_12_Part01", "Access_Road_Maps_2017_01_12_Part02", "Access_Road_Maps_2017_01_12_Part03", and "Access_Road_Maps_2017_01_12_Part04" were provided to the USFS, but they do not provide the detail needed for impact analyses. We have requested shapefiles of the impact footprint and further details about the proposed access road improvements.
017	2.1.2	Document states: "Wetland boundaries and other environmentally sensitive areas will also be marked at this time." Wetlands and environmentally sensitive areas should have already been identified and marked by qualified individuals. Please describe what is meant by environmentally sensitive areas and how the surveyors will know if they are in them.
017	2.1.3	Prior to beginning ground-disturbing activities, existing populations of NNIS will need to be controlled to prevent spreading them via project activities.
019	2.1.3	"*In accordance with the Upland Erosion Control Plan, in areas where topsoil segregation is required Atlantic will segregate at least 12 inches of topsoil in deep soils (more than 12 inches of topsoil) and the entire topsoil layer in shallow soils (less than 12 inches of topsoil). Excavated topsoil will be placed on the edge or edges of the construction right-of-way as shown in the typical drawings provided in Attachment A*." Describe locations and techniques for topsoil segregation. For NFS lands, the default is segregation over the trench area for the top 6 inches of material, or all actual topsoil as identified by the FS, whichever is deeper, throughout all areas of National Forest land, including forested areas.
019	2.1.3	"*In areas where topsoil segregation is conducted, subsoil from trench excavations will be placed adjacent to the topsoil in a separate pile to allow for proper restoration of the soil during backfilling and restoration*." Dominion must provide an option for preventing erosion of the piles and/or preventing the soil from becoming too saturated to backfill. Control options may include the use of temporary seeding and mulching as well as an accelerated backfill schedule along portions of the project, which will reduce the amount of time between initial excavation and backfilling.
019	2.1.3	"Topsoil will be segregated in accordance with the Upland Erosion Control Plan." "In areas disturbed by grading, and as required by the Upland Erosion Control Plan, temporary erosion and sediment controls will be installed…" Please add, "and the Non-Native Invasive Plant Species Management Plan," or "and other applicable plans" or something like that, given that there are more specific guidelines to protect specific resources that the Upland Erosion Control Plan does not cover.
019	2.1.3 Clearing and Grading	*"In accordance with the Upland Erosion Control Plan, in areas where topsoil segregation is required…."* *"Atlantic will conduct topsoil segregation in accordance with the FERC Upland Erosion Control, Revegetation and Maintenance Plan."* ACP will segregate topsoil according to FS requirements, which are being developed.
019	2.1.3 and Elsewhere	Paragraph 4 is the first of many references to weed-free materials for erosion and sediment control and revegetation throughout the document. The Forest Service has been unable to require certified weed free materials for other permittees and cooperators due to lack of availability. Please confirm that viable options exist for obtaining and using weed-free materials for this project.
019	2.1.4	First paragraph, last sentence: "…..or result in heavily silt-laden water flowing into……" Remove the word "heavily." Any silt-laden water is unacceptable.
019 and 20	2.1.4 and 2.1.5	Table 2.1.4-1 dealing with trench dimensions is shown within section 2.1.5. In D-1 of COM plan it was in section 2.1.4. Confirm appropriate location (I think 2.1.4) and move.

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020	2.1.5	"*Following welding and after inspection, pipe weld joints will be coated with an epoxy coating in accordance with required specifications. If the coating is sprayed on, it will be contained within semi-automatic application rings that ensure little or no overspray of coating into the environment. The coating will be inspected for defects, and repaired, if necessary, prior to lowering the pipe into the trench*." All coating must be pre-applied to pipes prior to being brought on to NFS lands. Where welds need to be made, epoxy coating may be applied on site in the trench area. Epoxy coating being applied in the trench at weld sites is to be applied by hand, no epoxy application shall be sprayed or splattered onto the surrounding environment. Any mixing of materials would need to be done in a specialized area where any spill or potential contamination can be contained and not have contact with the soil.
020	2.1.6	"*As necessary, trench breakers (stacked sand bags, bags of ready mix concrete or foam) will be installed in the trench around the pipe where necessary to prevent movement of subsurface water along the pipeline.*" No foam shall be permitted on MNF lands. Trench breaker material may consist of sand bags, bags of concrete mix, or earthen bags (earthen material must be free from contaminates and pre-approved by FS personnel). Intervals will be based on soil type and slope. Trench plug spacing in the FERC Upland Erosion Control Revegetation and Maintenance Plan (May 2013 version) is acceptable to the Forest Service and shall be employed on National Forest lands by Dominion. Closer trench plug spacing will be allowed where Dominion determines a need due to slope steepness.
021	2.1.7	*"No water will be withdrawn **or discharged** from sources on either the MNF or the GWNF. ~~No hydrostatic discharge locations are anticipated to be required on either the MNF or the GWNF~~."* No hydrostatic discharge will be approved on National Forest Lands. As, such edit this first sentence and strike other.
022	2.1.8	"*If seasonality or timing prevent the use of vegetative erosion control measures, physical measures such as matting, silt fences, etc. will be used in the short term and inspected and maintained regularly to ensure proper functioning until seeding occurs and revegetation becomes effective*." Erosion control matting will not be used on NFS lands. Soil conditioners or hydraulic mulches shall be permitted instead (FS-approval required). Silt fence shall not be used at locations of concentrated overland flow, whether the flow is natural or constructed. Compost filter socks or other controls designed to filter or chemically remove sediment from water shall be used in those locations, subject to FS approval.
022	2.1.8	Very bottom of page states, "No aerial markers will be installed on USFS lands." Please explain whether any marking indicators are needed on NFS lands.
022	2.1.8	The 5th and 6th paragraphs dealing with pipeline markers are unclear, especially when compared to the wording in the original D-1 of the COM plan. Suggest changing to: *"Two types of pipeline markers showing the location of the pipeline will be installed after construction – "Line-of-Sight markers and "Crossings" markers. These markers will convey emergency information in accordance with applicable government regulations, including USDOT safety requirements.* *"Line-of-Sight" pipeline markers will be installed intermittently along the pipeline right-of-way according to ACP specifications. These "Line-of-Sight" pipeline markers will be flat fiberglass stakes (wands) at least XX high, with markings/wording on both sides of the marker.*

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		"Crossings" markers will be installed on both sides of all road, rail, and trail crossings, and at fencelines. These "Crossings" pipeline markers will be round posts (3" in diameter and 5' in height) with markings/wording on at least one side facing the roadway, railway, or trailway, and away from the fenceline. *Both types of markers will contain markings/wording required by law, including:* (continue with the 5 bullet points). Include that bottom sentence about no aerial markers on USFS lands. Ensure that trails are given equal status as travelways for marking as roads and railroads throughout this section.
022	2.1.8	Cleanup and Restoration – Include Visual Resources Plan to first sentence: "Revegetation measures will be implemented in accordance with the Restoration and Rehabilitation Plan *and the Visual Resources Plan*." On USFS lands, clearing the entire permanent right-of-way in all upland areas could mean clearing areas that were revegetated with native plants for wildlife habitat restoration and visual aesthetics purposes. As stated in our previous comments on the COM plan, per the USFS's conversation with FERC, and in order to reduce the effects of forest fragmentation on NFS lands and also reduce effects on visual resources, the permanent right-of-way should maintained consistent with FERC's Wetland and Waterbody Construction and Mitigation Procedures (Procedures), for the length of the entire right-of-way on both the MNF and GWNF. Therefore, the ROW would not be cleared for the width of the right-of-way; the permanent right-of-way would be maintained in an herbaceous state for a 10-foot-wide corridor centered over the pipeline. The remainder of the corridor should be replanted with shrubs or shallow-rooted trees as approved by the USFS and in accordance with FERC's Procedures.
022	2.1.8	"Segregated topsoil will be spread over the surface of the right-of-way" please add, "with the exception of topsoil infested with NNIS" "Revegetation measures will be implemented in accordance with the Restoration and Rehabilitation Plan" Please add, "and the Non-Native Invasive Plant Species Management Plan (Section 11)."
023	2.1.9	In the first sentence, change "…wetlands, roads, highways…." to "….wetlands, roads and trails, highways," to match the sub-header of the sub-section on "Roads and Trails" on page 27.
023	2.1.9.1	"*…and any additional requirements contained in federal or state/commonwealth waterbody crossing permits, including applicable permits and approvals from the U.S. Army Corps of Engineers and various state/commonwealth agencies*." "*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 USFS lands*." "*Clearing adjacent to waterbodies will involve the removal of trees and brush from the construction right-of-way and ATWS areas. Woody vegetation within the construction right-of-way will be cleared to the edge of each waterbody. Sediment barriers will be installed at the top of the bank if no herbaceous strip exists. Initial grading of the herbaceous strip will be limited to the extent needed to create a safe approach to the waterbody and to install temporary bridges.*"

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		All activities taking place in or near streams or bodies of water on MNF Lands must comply with LRMP SW37, SW07, SW40, SW51, and SW52.
023	2.1.9.1	Regarding the reference to the HDD crossing of the ANST and BRP within this section on "Waterbody Crossings" perhaps add: "For information on the HDD crossing of the ANST and BRP, refer to subsection 2.1.9.10, and Attachment O.
023	2.1.9.1	4th paragraph in this section states that AWTS will be located at least 100' from water's edge at each waterbody on USFS land. However, Attachment A (Right-Of-Way Configurations) shows only a 50' distance on multiple sheets. All of these sheets in Attachment A need to be changed. On the GWNF, the buffer is a minimum of 100 feet, and it increases with slopes > 10%
024	2.1.9.1	Vehicle and equipment refueling and lubricating at waterbodies will take place in upland areas that are a minimum of 100 feet ~~or more~~ from the edge of the waterbody and adjacent wetlands, and the buffer distance increases with slopes >10%.
024	2.1.9.1	Document states: "Any non-biodegradable fabric used for bank stabilization will be removed when vegetation is re-established." Only biodegradable fabric should be used and it should be material and of the size that does not cause a hazard to snakes or other animals getting trapped in the mesh. See page 144 of COM plan for description.
025	2.1.9.2	*"Spoil excavated from the waterbody trench will be placed and stored on the bank above the high water mark and a minimum of 10 feet from the edge of the waterbody."* Spoils 10ft away does not meet Forest Plan standards. Even if the crossing construction will take place within 48 hours with silt fence, spoils directly next to the stream pose a hazard. On USFS spoils will be stored outside of the riparian corridor, meaning 100ft or more depending on slope.
025	2.1.9.2	"Additionally, fish trapped in the dewatered area will be removed and returned to the flowing waterbody." As we commented previously, other aquatic species, including but not limited to frogs, toads, mussels, crayfish, and salamanders, also need to be removed and relocated along with the fish. This detail is stated for the various dewatering methods in section 2.4 of the draft Biological Assessment as "fish and other aquatic species". Any species that are visible need to be removed and relocated along with the fish.
025	2.1.9.2	*"Silt-laden trench water will be discharged into an energy dissipation/sediment filtration device, such as a geotextile filter bag or straw bale (weed-free) structure or a well-vegetated upland area."* Such discharges need to go through an appropriate filtration structure in all cases, and then be discharged into a well-vegetated upland area. On NFs lands, the FS will not allow discharge in upland areas without a filtration device, and preference is for use of the geotextile filter bag rather than straw bales.
025	2.1.9.3	*"Prior to dewatering the streambed, a fish relocation procedure will be implemented to remove fish from the section of the waterbody to be dewatered."* As we commented previously, other aquatic species, including but not limited to frogs, toads, mussels, crayfish, and salamanders, also need to be removed and relocated along with the fish. This detail is stated for the various dewatering methods in section 2.4 of the draft Biological Assessment as "fish and other aquatic species". Any species that are visible need to be removed and relocated along with the fish.
026	2.1.9.4	Two wetlands are proposed to be crossed by 2 roads on the GWNF. The total area affected by these two roads combined is 0.6 acres, shown in Table 2.1.1-1 on page 6, and here the total area of wetland crossed is 0.1 acres. Please clarify whether all possible reasonable alternatives to the construction of these two roads have been fully explored.

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026	2.1.9.4	"…two are crossed in the GWNF." We recall 3 locations on the GWNF; the MP 99.3 location is missing. Please also discuss locations and construction methods for all the wetlands crossed by access roads or ATWS.
026	2.1.9.4	*"…non-essential equipment will be allowed to travel through wetlands once."* On NFS lands, non-essential equipment will avoid travel through the wetland. The wetlands are typically very small in size and therefore can be easily avoided by going around.
026	2.1.9.4	*"Silt-laden trench water will be discharged into an energy dissipation/sediment filtration device, such as a geotextile filter bag or straw bale (weed-free) structure or a well-vegetated upland area."* Such discharges need to go through an appropriate filtration structure in all cases, and then be discharged into a well-vegetated upland area. On NFs lands, the FS will not allow discharge in upland areas without a filtration device, and preference is for use of the geotextile filter bag rather than straw bales.
026	2.1.9.4	Document states: *"ATWS will be located in upland areas a minimum of 50 feet from the wetland edge."* ATWS will be located a minimum of 100 feet away from the water's edge at each waterbody on NFS lands. On the GWNF, the buffer distance increases with slopes >10%.
027	"Road and Trail Crossings" (unnumbered header)	2nd paragraph, change to: "All roads and trails, with the exception of the ANST, that are crossed by the ACP…"
027	"Road and Trail Crossings" (unnumbered header)	Bottom line on page – the section referenced for the ANST crossing is not the correct section.
027	2.1.9.4	Road and Trail Crossings – • This sub-section is found within the Wetlands Crossings section. This is out of place. • Road crossings are listed in Section 7.4, but the COM Plan does not identify the trails crossed. A list of FS system trails should be added. • A reference to Section 2.1.9.11 for ANST is erroneous. The correct reference is Section 2.1.9.10.
027-33	2.1.9	Beginning on page 27 with the unnumbered sub-section header "Roads and Trails", the formatting of section 2.1.9 falls apart, with some bold headers being numbered and some not. ALL should be numbered. In addition, some numbered bold headers have no spaces between the number and the wording. Please see our previous comments on the COM Plan.
028	2.1.9.5	"*The BIC Program Team will convene in a series of design workshops to examine the identified hazards and supporting information along the pipeline alignment. The hazards will be initially identified by studies such as the "Geohazards Assessment" (which may include geotechnical or hydrotechnical investigations) or the karst study, and/or by other targeted studies such as the soil survey. These studies identify and assess or support the review of the hazard, and provide a basis to select the most applicable and robust BIC mitigation response to minimize or eliminate the hazard, and then monitor the hazard through ongoing operations. Atlantic intends to submit to the USFS supplemental drawings associated with steep slope design and will include these drawings in Attachment A*." Provide detail on sections along the ROW on NFS Lands where specific BIC controls will exist and provide the effectiveness of the selected BIC Controls.

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		Identify all slopes along the ROW on NFS lands that are greater than 40% slope. For mechanized equipment operation on slopes greater than 40% on the MNF, compliance with MNF LRMP SW07 needs to be demonstrated. All areas greater than 40% slope will require site-specific stabilization measures. On slopes greater than 30 percent, bleeder drains shall be spaced no farther apart than every other trench plug. Closer spacing may be used where ACP determines a need due slope steepness, discharge volume, or other factors. Bleeder drains may be needed on slopes less than 30 percent if subsurface flow or seeps are encountered during trench excavation. The Forest Service representative and ACP's environmental inspector will consult to determine the need for bleeder drains on slopes less than 30 percent. Protect bleeder drain outlets using rip-rap or other FS-approved material. The FS may specify alternate materials in certain locations if necessary for protection of resources. The FS will require post-construction water quality testing at selected bleeder drain outlets. Locations will be selected by the FS based on nearby sensitive resources, and the FS will provide the chemical parameters to be included in the testing.
028	2.1.9.5	Incorporate site specific design of steep slope stabilization measures into this section by reference. Add the design sheets and narratives to Attachment C. (reference: 10/24/2016 USFS letter to FERC, Request for Site Specific Design…)
028	2.1.9.5	The FS has not received the project-specific Erosion and Sediment Control Plan. Please clarify when we can expect to receive this plan. Site-specific information, rather than typical drawings, is needed to determine adequate mitigation measures and impact analysis.
028	2.1.9.5	Documents states: *"Atlantic intends to submit to the USFS supplemental drawings associated with steep slope design and will include these drawings in Attachment A."* Attachment A includes very general typical drawings, not specific to USFS. They do not include the correct buffers around streams as required by Forest Plans.
029	2.1.9.8	For snow plowing on unpaved roads on the MNF, the SUP will require leaving 2 inches of snow above the gravel surface to prevent excess road base removal. This is in the operation plan for every special use road permit. This requirement will also apply where similar language occurs in Attachment D Winter Construction Plan.
031-32	2.1.9.10	Several comments on this section: • Reformat header to include spaces. • Bottom paragraph says the HDD will take 12 months. It says 6 months several places elsewhere in the document. • Need to add language to state clearly that the USFS and FERC are requiring that the ANST-BLP HDD crossing portion of Spread 5 must be completed before any work is done on any other Spread on USFS lands (affects Spreads 3, 3A, 4, 4A, and 5). • Define and describe specifically which is the Entry Side and which is the Exit Side for the HDD. Use cardinal directions and county names. • Change the last paragraph to state that ACP has also developed a contingency plan for the HDD crossing of the ANST and BRP, and it includes an initial contingency plan of utilizing alternative HDD paths and an alternative contingency plan using Direct Pipeline trenchless technology. And that all this is detailed in Attachment P.
031-32	2.1.9.10	ANST and BRP Crossing: The EIS discloses that users of the ANST will be able to hear the HDD construction and provides a decibel level at the ANST's tread. A reasonable decibel threshold should be established in the COM Plan, and the decibel level should be

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		monitored during HDD construction. If the threshold is exceeded, the HDD should cease until the noise level can be mitigated through installation of sound walls at the entry and exit sites or other means.
032	2.1.9.11	Reformat to add spaces in header.
033	2.1.9.11	Last paragraph of this section. Change to: "..., any road or trail closures or detours,…..
033	2.2.1	*"The pipeline facilities will be inspected by qualified personnel from the air (quarterly) and on foot (yearly) in accordance with the applicable regulations. This will allow for adequate viewing of the right-of-way… Foot patrols are conducted by staff trained to identify potential issues such as erosion, slips, and leaks."* This is not sufficient to adequately survey for or allow for treatment of non-native invasive species, which Atlantic has stated it will control as in accordance with the MNF LRMP. Appendix J of the COM plan describes each NNIS species and its optimal treatment timeframe and method, with timeframes ranging from early spring to late fall. Please use this to develop a plan to conduct annual NNIS monitoring for each occurrence of NNIS along the pipeline route on NFS lands, so as to discover populations before they go to seed, to develop a plan for treating those populations in the same growing season before they go to seed, and to follow up after treatment the next year to ensure eradication was successful. Ensure that monitoring visits will be conducted by staff trained to identify the relevant NNIS. Please also ensure that inspectors' clothing (including boots) is clean of mud, seeds, and other plant parts prior to entering NFS lands to prevent introduction or spread of NNIS.
034	2.2.1	Top paragraph – refers to foot travel (yearly). If any UTV or ATV use is anticipated or desired during operations and maintenance over the lifetime of the proposal, it should be documented here. If not, that should be stated.
034	2.2.1	In 2nd paragraph on page It should be stated that "Integrity of the pipeline" includes reporting to the USFS on observed trespasses and encroachments, including those by OHV and others.
034	2.2.1	Routine Maintenance: • The guidance on vegetative maintenance should include routine maintenance of the edges of the corridor that will be purposefully designed to undulate and be "feathered" to avoid straight and/or parallel edges where visible from roads, trails, other use areas, and communities. If natural succession is allowed to occur at these locations, vegetation will eventually fill these areas in to a uniform density and height which will defeat the purpose. • Insert a reference to Section 20 (Visual Resources Plan) here.
034	2.2.1	4th paragraph: States that clearing equipment will be pre-approved by the USFS. Describe what equipment ACP plans or intends on using.
034	2.2.1	*"Vegetation along the right-of-way will be cleared periodically…in accordance with the Upland Erosion Control Plan and Stream and Wetland Crossing Procedures"* Please add, "and the Non-Native Invasive Plant Species Management Plan."
034	2.2.1	*"In uplands, trees and brush will be cleared over the entire width of the permanent right-of-way on an as-needed basis not to exceed once every 3 years"* On USFS lands, clearing the entire permanent right-of-way in all upland areas could mean clearing areas that were revegetated with native plants for wildlife habitat restoration and visual aesthetics purposes. As stated in our previous comments on the COM plan, per the USFS's conversation with FERC, and in order to reduce the effects of forest fragmentation on NFS lands and also reduce effects on visual resources, the permanent right-of-way should maintained consistent with FERC's Wetland and Waterbody Construction and Mitigation Procedures (Procedures), for the length of the entire right-of-way on both the MNF and GWNF. Therefore, the ROW would not be cleared for the width of the right-of-way; the permanent right-of-way would be maintained in an herbaceous state for a 10-foot-wide corridor

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		centered over the pipeline. The remainder of the corridor should be replanted with shrubs or shallow-rooted trees as approved by the USFS and in accordance with FERC's Procedures. Please also ensure that equipment and workers' clothing (including boots) is clean of mud, seeds, and other plant parts prior to entering NFS lands to prevent introduction or spread of NNIS, and that NNIS infestations are treated prior to setting seed so that any clearing does not spread them.
034	2.2.1	*"DTI will monitor the right-of-way for infestation of non-native invasive species that may have been created or exacerbated by its construction activities, and may utilize USFS-approved herbicides to treat such infestations, in accordance with the Non-Native Invasive Plant Species Management Plan."* Please change the word "may" to "will," as DTI and ACP have committed to treat NNIS as part of the necessary compliance with the MNF LRMP. Also, please add that DTI and ACP will treat infestations both prior to and after construction, as specified in the Non-Native Invasive Plant Species Management Plan. Also, monitoring and treating just the ROW is not sufficient to control NNIS. All areas of impact, including the ROW, access roads, access road improvements, ATWS, and permanent above ground facilities need to be monitored and treated for NNIS.
035	2.2.2	Major Maintenance Work – Once initial construction is complete, the temporary construction area permit would terminate and only the long-term right-of-way would be available for any maintenance work. If any maintenance work is proposed to extend beyond the long-term right-of-way, a new temporary construction permit (and appropriate level of NEPA analysis) would be required. Sensitive resources would need to be avoided, damage to restored habitats would need to be minimized, and the affected areas would need to be restored again. Add a statement that Atlantic will seek appropriate temporary authorization(s) from the USFS in the event work areas are required outside of the permanent right-of-way boundary for major maintenance work.
035	2.2.3	In the event of an emergency repair, after the emergency is remedied and safe operations have resumed, that the site will be restored to the conditions originally agreed upon with the Forest Service.
038	2.3	Key Contacts – Recommend adding: Special Project Coordinator, George Washington and Jefferson National Forests Ecosystems Group Leader, Monongahela National Forest Lands Program Manager, George Washington and Jefferson National Forests Site Compliance Monitor, George Washington and Jefferson National Forests Site Compliance Monitor, Monongahela National Forest
038	2.3	Below is an excerpt from FSM 2716.72. Incorporate the requirements below into section 2.3, (perhaps as a separate section labeled 2.3.1): "Forest Service Manual 2716.72 - Operating Plan Requirements: Include the provisions enumerated in paragraphs 1 through 3 in all operating plans for special use authorizations. 1. Incident Notification. Require the holder to contact the authorized officer as soon as practicable after the following incidents occur on National Forest System lands covered by a special use authorization: a. An incident resulting in death, permanent disability, or personal injuries that are life-threatening or that are likely to cause permanent disability; b. A structural, mechanical, or electrical malfunction or failure of a component of a facility designed for passenger transport or any operational actions that impair the function or operation of such a facility in a way that could affect public safety; c. A search and rescue operation to locate a person; or

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		d. Any incident that has high potential for serious personal injury or death or significant property, environmental, or other natural resource damage, including avalanches, landslides, flooding, fire, structural failures, and release of hazardous materials. 2. Method of Notification. Specify the method of incident notification. The authorized officer shall determine how incident notification must be made. The means of incident notification may be tailored to the characteristics of the authorized use or occupancy, as needed. 3. Contents of Notification. Require the holder to specify when, where, and how the incident occurred and who was present or affected by the incident." Paragraph 2 above (Method of Notification) – Atlantic will notify the AO (or his or her delegated agent) by phone as soon as possible. Atlantic will follow-up within 48 hours of notifying the AO by phone with a written incident report that meets Paragraph 3 above.
040	3.5	"*Due to the two-season construction schedule, as well as the need to complete certain surveys, conduct treatment at cultural resource sites, etc., Atlantic anticipates requesting from both the FERC and the USFS partial NTPs covering those segments of the Project that are ready to commence construction and for which pre-construction conditions have been satisfied. Any such requests will document the reasons for the request of a partial NTP, as well as documentation that pre-construction conditions have been satisfied for the requested segment(s).*" The Forest Service will not grant partial NTP's. NTP's will only be granted when full environmental analysis, mitigation, and LRMP compliance has been completed, and a special use permit has been issued for the entire portion of the route on National Forest lands.
041	3.6.10	Please also ensure the Environmental Inspector(s), in conjunction with the Environmental Monitors, would be responsible for: • Implementing the NNIS plan, including a policy of clean clothing, boots, and equipment prior to each entry on NFS lands. The EI should also ensure appropriate treatment prior to any soil disturbance or timbering, post-construction monitoring several times a year or as necessary depending on the species, and same-season treatment of NNIS populations in perpetuity, for the life of the project on USFS lands, as is stated in Section 10, the Restoration and Rehabilitation Plan. • Implementing the Restoration and Rehabilitation Plan, including erosion control plantings and wildlife plantings, monitoring for plant survival and spread and overall species composition, and ensuring follow-up treatments where establishment is not initially successful.
041	3.6.2	"*The USFS AO will have environmental compliance oversight over the portion of the project on USFS lands, and is responsible for determining overall environmental compliance with the COM Plan, Record of Decision, and terms of the right-of-way grant. The AO has stop work authority on all USFS lands. The AO manages the Field Compliance/Monitoring Officers. The AO is responsible for issuing NTPs on USFS lands and for approving requested project changes on USFS lands using the variance request process described in Section 3.9 below.*" On NFS lands, the USFS AO will have Forest Service representatives on the ground who will communicate directly with the EI and the Field Compliance/Monitoring Officers. The Forest Service representative will promptly notify the EI and/or the Field Compliance Monitoring Officers of any situation that requires corrective action. Upon receipt of such notification, whether oral or written, the EI and/or Field Compliance Monitoring Officers shall immediately stop work in the affected area until the situation has been corrected to the satisfaction of the Forest Service representative. Per our comment on the previous version of the COM plan, please change the language in the second sentence to indicate that the Forest Service ultimately has stop-work authority for all project-related activities on NFS lands.
041	3.6.3	Field Compliance/Monitoring Officers – As noted in the comment above, the USFS AO will have Forest Service representatives on the ground who will communicate directly with the EI and the Field Compliance/Monitoring Officers. The Forest Service representative will promptly notify the EI and/or the Field Compliance Monitoring Officers of any situation that requires corrective action. Upon receipt of

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		such notification, whether oral or written, the EI and/or Field Compliance Monitoring Officers shall immediately stop work in the affected area until the situation has been corrected to the satisfaction of the Forest Service representative. We are concerned that the text seems to indicate that the Field Compliance Monitoring Officers are restricted from communicating directly with the contractor. This may cause delays in relaying stop work instructions to the contractor.
042	3.6.6	Third Party Compliance Monitor – We are concerned that the Third Party Compliance Monitor appears to be restricted from communicating directly with the contractor. This limits the potential for immediate corrective action. Also, the text states that the Third Party Compliance Manager will be responsible to approve or deny Level 2 variance requests. This statement is not correct. Only Forest Service personnel can approve variances on National Forest land, regardless of the level of the variance.
042	3.6.7	"*Atlantic's Project Manager will be responsible to Atlantic and is responsible for overall management of construction activities*." Atlantic's Project Manager will be responsible to Atlantic and is responsible for overall management of construction activities not existing on NFS Lands.
046	3.9	On USFS lands, Level 1 variances will be site specific and must be approved in writing by the USFS Field Compliance/Monitoring Officer~~, unless the USFS delegates this authority to the FERC Compliance Monitor~~.
046	3.9	On USFS lands, Level 2 variance requests will be site specific and must be approved in writing by the USFS Field Compliance/Monitoring Officer.
046	3.9	On USFS lands, Level 3 variance requests will be site specific and must be approved in writing by the AO.
047	4.1	The Com plan states "This Timber Removal Plan has been written to conform to the standards and guidelines contained within the LRMPs of both National Forests". This is not accurate as timber removal on steep slopes on the MNF may require a Forest Plan project specific Forest Plan Amendment.
047	4.1	Third paragraph – First sentence. Consider changing to: "The ACP will cross under the ANST on USFS lands administered by the GWNF.
047	4.3	Please make the edits to this section in bolded italics below: Timber located on National Forest Service (NFS) lands will be paid for and disposed of through the ***use of the 2400-6T or 2400-4 Forest Service Timber Sale Contract forms. The appropriate contract form will be determined*** at the discretion of the Timber Sale Contracting Officer's. The volume of merchantable timber to be removed for pipeline construction will be determined by a timber cruise complying with a cruise plan provided by the Forest Service. The cruise will evaluate ***forest products*** within the Project's footprint and provide a volume estimate for merchantable timber. The Forest Service will perform a timber appraisal based upon this cruise to determine the value of the merchantable timber to be removed ***and will provide Atlantic with a Forest Service Timber Contract(2400-6T or 2400-4) for review and execution***. Atlantic will reimburse the Federal government based on that valuation ***by executing the provided Forest Service Timber Contract and paying for merchantable timber***, prior to any cutting taking place.
047	4.3	First sentence – improper use of …..National Forest Service (NFS) lands…… Consider changing to "…USFS lands….." See Also Acronyms and Abbreviations pages near Table of Contents.
047	4.4	The timber cruise and extraction plan will NOT identify dollar value of the timber to be removed. That will be determined in the appraisal. Please remove "the dollar value of the timber" from the list in section 4.4.
048	4.5	Please add the phrase "(a.k.a. skyline yarding)" after the first instance of the phrase "high line yarder logging." This will tie to more common terminology in the Forest Service. We only need to make this tie once.

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048	4.5.1	"*Forwarders, skyline, or other advanced harvesting system may be utilized on slopes from 35-50 percent as approved by the USFS on a case-by-case basis. Skyline systems or helicopters may be used on slopes steeper than 50 percent*." Cite LRMP standards within this document. This document needs to include specific direction on NFS Lands for construction, operation, and maintenance. Timber harvesting on steep slopes (40% or greater) would need to be done in a manner that ensures slope stability and complies with MNF LRMP SW07 from the time the timber is harvested until pipeline construction begins. Winter logging must meet MNF LRMP SW09 as well as all other erosion control plans and LRMP standards. Timber harvesting by use of skid trails and landings must comply with MNF LRMP SW40. Options include helicopter logging, use of overland equipment that does not require skid road development, and other non-ground disturbing methods as approved by FS personnel. Sediment and erosion control features are to be employed on these slopes as outlined in the COM plan. Short term erosion control measures are to be utilized as directed in the COM plan prior to the start of disturbance for the construction of the pipeline replacement. All timber harvest roads are to be fully reclaimed and restored according to MNF LRMP standards (RF07, RF12, RF13, and RF15).
049	4.6.1	The COM plan states "Timber removal on the MNF and the GWNF is scheduled to take place between November 1 and April 1 of both construction seasons, which will minimize the potential to take nesting migratory birds. For any areas of the right-of-way within 5 miles of known Indiana bat hibernacula, no timber removal will occur before November 16." Be aware that timber sale contracts identify a normal operating season. This is from March 15 to December 15 on the GWNF and generally mid-April through November on the MNF. . The November 1 – April 1 time frame for harvest may also conflict with time-of-year restrictions for aquatic species. Timber removal outside of the normal operating season may be permitted by contract so long as soil moisture is not excessive and resource damage is not occurring. However, operations outside of the normal operating season likely will be halted periodically per standard contract provisions to prevent unacceptable resource damage. Discussions are ongoing among the Forest Service, U.S. Fish and Wildlife Service, and state wildlife management agencies to determine prioritization of the various time of year restrictions.
049	4.6.1	*"The training program will focus on the FERC Upland Erosion Control, Revegetation, and Maintenance Plan (Plan) and Wetland and Waterbody Construction and Mitigation Procedures (Procedures), other Project-specific construction, restoration, and mitigation plans; and applicable permit conditions."* Please ensure the training covers the Restoration and Rehabilitation Plan and the Non-Native Invasive Species Management Plans (Sections 10 and 11 in this document), as timber removal has the potential to be a major source of sediment and erosion, and a major vector for the spread of non-native invasive species such as Japanese Stiltgrass. To prevent the spread of NNIS as a result of timbering, known populations of NNIS will need to be treated prior to timber removal, and all equipment, clothing, and boots will need to be cleaned both prior to entering NFS lands and after working in areas of NNIS infestation before moving to areas without NNIS.
050	4.6.1	"*Slash may be chipped and blown off the right-of-way outside wetlands or stream channels. If approved by the CO, slash may be burned. Stumps will be cut as close to the ground as possible and left in place, except over the trench line, or where grading is necessary to create a safe and level work surface. The top of the stumps will be ground flush to grade within the majority of the rights-of-way. All stumps excavated from the trench line that cannot be ground to mulch onsite will be placed along the edge of the construction rights-of-way or in temporary extra workspaces. Stumps will be hauled from the extra workspaces to a pulp mill, a permitted disposal facility, used on the rights-of-way for restoration purposes, burned, or disposed of according to land managing agency or landowner specifications.* "

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		Further coordination with the USFS is needed prior to approval of these methods. Chipped material may not be blown off of the ROW on NFS lands.
051	4.7.1	"*Soil quality standards will be maintained and detrimental soil disturbance will be avoided. Proper skid roads will be constructed if needed to ensure safe operations and protection of resources on site. Use of skid roads will not cause soil movement resulting in erosion and sedimentation. Since skid roads will lie within the limits of the pipeline construction work area, such areas will be restored as part of the pipeline construction restoration effort*." No new disturbance shall take place without Forest Service approval (skid roads/trails included). Mechanized equipment shall not operate on slopes greater than 40 percent without interdisciplinary team review and line officer approval of mitigation measures that are capable of maintaining soil/slope stability (MNF LRMP SW07).
051	4.7.2.1	Add a bullet stating that no mechanized equipment shall operate on slopes greater than 40%, or on wet soils, without interdisciplinary team review and line officer approval of mitigation measures that are capable of maintaining soil/slope stability (MNF LRMP SW07). Provide the alternative solution to meet this standard.
052	4.7.2.1	All MNF LRMP direction that is applicable to timber harvesting shall be followed, not only the direction listed within this section. SW34, SW37, SW40, SW51, SW52, etc.
053	4.7.2.2	4th and 10th bullets on page refer to "Forest CO." On page 47, same broad header, section 4.3, it refers to Timber Sale Contracting Officer. Please use consistent terminology and state is correctly on the Acronym page.
056	5.3.1	Determine correct reference for acronym SACG and use consistently here and in Acronym and Abbreviations page. I believe it is simply Southern Area Coordination Group. Please consult with the GWJNF FMO.
058	5.3.2	Under the header "Fire Authorized Officer (FAO), the first sentence is unclear. The section is under "ACP Responsibilities" and the sentence says that the FAO may include dispatch centers and staff from land managing agencies. Please see our previous comments on the COM plan and consult with the Forest Service if clarification is needed.
066	6.1	"*Based on an analysis of the Natural Resource Conservation Service's Soil Survey Geographic Database, approximately 5.0 miles of the proposed ACP pipeline route on the MNF and 12.8 miles on the GWNF will cross areas with bedrock at depths of less than 60 inches. Some of this bedrock is considered paralithic (soft) and may not require blasting during construction*." Depth to bedrock needs to come from seismic refraction test results and the Order 1 Soil Survey. These results will provide the most detailed and accurate depth to bedrock along the ROW. Order 1 Soil Survey data should provide whether bedrock will be paralithic or lithic. The areas where blasting will be required should be designated on route maps for NFS Lands and provided to the USFS prior to construction.
066	6.1	Section does not do a good job of giving realistic info on extent of blasting anticipated on USFS lands. At end of first paragraph under 6.1, add a chart similar to: National Forest — Pipeline Length — Bedrock <60" — Hard Bedrock <60" MNF — 5.1 mi — 5.0 mi — 3.6 mi GWNF — 15.9 mi — 12.8 mi — 7.9 mi Total — ~21.0 mi — 17.8 mi — 11.5 mi This means it is highly likely that blasting will be needed on at least 55% of the length of the pipeline on USFS lands – this appears significant and misleading understated as currently written.

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066	6.3	"*Blasting for grade or trench excavation will be used where deemed necessary by the Contractor, and approved by an Atlantic representative, after examination of the site*." Areas where blasting is known will be provided to the USFS prior to construction.
069	6.7.1	*"Removing fish from blasting area and relocating them downstream (will only be used in smaller streams)."* As we commented on the previous version, other aquatic species, including but not limited to frogs, toads, mussels, crayfish, and salamanders, also need to be removed and relocated along with the fish. This detail is stated for the various dewatering methods in section 2.4 of the draft Biological Assessment as "fish and other aquatic species". Any species that are visible need to be removed and relocated along with the fish.
071	6.7.2	Draft-1 of the COM Plan, in this section on Protection of Personnel, included a bullet: • Stopping vehicular and/or pedestrian traffic near the blast site This bullet does not exist in D-2. Please include information in D-2 to address how ACP plans to ensure the protection and safety of off-trail and off-road users of USFS lands near the pipeline (hunters, bushwhackers, etc).
073	6.8	*"If rock removal intercepts an open void, channel, or cave, construction activities will cease in the vicinity of the void, channel, or cave until a remedial assessment is performed by a qualified geologist or engineer with experience in karst terrain."* As we commented on the previous version, a qualified biologist should also be consulted. The opening should be investigated by a qualified biologist to determine if bats or other species are present in the structure, if the feature is suitable for bats (large enough, suitable microclimate), and how remediation will affect the microclimate upon which bats and other species depend. A biologist should investigate the entire biotic environment and be consulted on remediation in addition to the geologist/engineer. *"If the track drill used to prepare drill holes for explosive charges encounters a subsurface void larger than 6 inches within the first 10 feet of bedrock, or a group of voids totaling more than 6 inches within the first 10 feet of bedrock, then explosives will not be used until a subsurface exploration is conducted to determine if the voids have connectivity to a deeper karst structure. The subsurface exploration will be carried out with track drill probes, coring drill, electrical resistivity, or other techniques capable of resolving open voids in the underlying bedrock. If a track drill or coring rig is used, then all open holes will be grouted shut after the completion of the investigation. "* As we commented on the previous version, a qualified biologist should also by consulted. The opening should be investigated by a qualified biologist to determine if bats or other species are present in the structure, if the feature is suitable for bats (large enough, suitable microclimate), and how remediation will affect the microclimate upon which bats and other species depend. A biologist should investigate the entire biotic environment and be consulted on remediation in addition to the geologist/KS. Please define how the voids will be measured (e.g., longest dimension, shortest dimension, average diameter, etc.). A 6 inch diameter crack is too large to serve as a trigger for cessation of blasting. Use a 1 inch diameter.
078	7.3	Access to the Right-of-Way: Minor edit – delete the word "may" in the 1st sentence – "Some of the existing USFS roads identified for access to the pipeline right-of-way ~~may~~ require improvement… " Table 2.1.1-1 lists the USFS roads that require improvement.
079	7.3	Last paragraph in section 7.3 – "maintence" is a misspelling. It was also misspelled in Draft-1.
080	7.4	Table 7.4-1 USFS Roads Crossed by the ACP: The list doesn't include GWNF Road 468B or GWNF Road 1757. It appears to me when viewing the route in our GIS inventory that both of these GWNF roads are crossed.

Page #	Section	Comment
080	7.5	*"Once on the right-of-way, construction equipment will move in a linear manner along the right-of-way as work progresses, minimizing traffic on local roads."* This emphasizes the importance of treating NNIS along the right-of-way prior to construction, to avoid spreading NNIS along the right-of-way as construction progresses.
080	Table 7.4-1	Please see our previous comments on the COM plan and change the title to Roads and Major Travelways. Please also add the ANST info.
081	7.6.1	Specific Federal Guidelines: This is guidance pertaining to access roads. The naming of the section should be more informative as to its specific content.
081	7.6.1.1	Because installation and maintenance of new roads is a primary vector for the spread of species such as Japanese stiltgrass and garlic mustard, the following MNF LRMP Goals and Standards are also applicable: • "VE 19 a) Work to prevent new infestations of NNIS, with emphasis on areas where species have a high probability for establishment and spread. • VE 19 b) Work with WVDNR, utility companies, and special use operators to control NNIS in openings, rights-of way, and other use areas. • VE 22: Projects that may contribute to the spread or establishment of noxious weeds shall be designed to include measures to reduce the potential for spread and establishment of noxious weed infestations." Please describe how the above will be addressed in order for the project to remain in compliance with the MNF LRMP.
082	7.6.1.1	All applicable MNF LRMP must be followed, not only the standards and guides listed in this section. SW35, SW45, **SW51**, etc.
083	8.0	Provide a Slope Stability Plan section immediately before Section 8.0 the Upland Erosion Control Plan. The Upland Erosion Control Plan is described as an Erosion and Sediment Control Plan (ESCP). A Slope Stability Plan is needed to: 1) to assess the scope and magnitude of the slope modifications and surface and subsurface disturbance on NFS lands, 2) to assess the potential for project-induced landslides (cut slope failures, fill slope failures, trench spoil failures, temporary spoil failures, topsoil segregation failures), 5) to develop geotechnical design and construction measures to avoid or reduce the potential for project-induced landslides as well as to mitigate for natural landslides. The Slope Stability Plan is the foundation for site stabilization, and should appear before an ESCP in the COM Plan. The Slope Stability Plan includes but is not limited to; 1) implement the BIC Program with the site and slope stability hazard mitigation plans including BIC design and construction practices and best management practices. 2) provide design and construction measures for slope stability of large masses of loose excavated material such as trench spoils and temporary spoils in the temporary ROW and ATWS. 3) provide design, construction, maintenance and monitoring measures to provide for the short term and long term stability of the restoration fills which are temporary spoils backfilled to original contour. 4) inform the slope stability plan mitigation measures with a debris flow hazard and risk assessment assessing the project-induced debris flow potential of failure of 1) trench spoils and temporary spoils in the temporary ROW and ATWS, and 2) restoration fills which are temporary spoils backfilled to original contour. The risk assessment would consider risks to public safety, resources and infrastructure downslope on NFS lands and non-federal lands. 5) provide surface and subsurface design measures to prevent surface and subsurface flows from destabilizing cut slopes and fill slopes.

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		6) consider the potential for temporary cuts to become potential slip surfaces for failure of overlying restoration fills, and provide control measures. 7) provide design and construction measures for slope stability on lower slopes in temporary ROW and ATWS near stream crossings. 8) provide design and construction measures for access roads and log landings. Select 9) select BIC incremental controls for stabilizing cut and fill slopes. 10) consider the potential for surface and subsurface drainage from the ROW to destabilize slope outside the ROW, and use this information in the design of surface and subsurface drainage. 11) approval signatures and identification of the geotechnical engineer(s) and engineering geologist(s) who are part of the team that developed the Slope Stability Plan. The Slope Stability Plan includes surface and subsurface measures needed for slope stability. Surface measures, such control of surface drainage, are part of the geotechnical design for slope stability. Because the Slope Stability Plan is the foundation for site stabilization it is important that the ESCP be developed in harmony with the Slope Stability Plan and does not inadvertently undermine the surface and subsurface measures in the Slope Stability Plan. The Slope Stability Plan should include a requirement that a geotechnical engineer be part of the review and approval of 1) the ESCP in the COM Plan, 2) any change in the ESCP during construction. Move the 8.7.2 Steep Terrain and Best in Class (BIC) Program section to the Slope Stability Plan section. Incorporate in the Slope Stability Plan and refer to the Slope Stability Policy and Procedure for Pipeline Design, Construction and Right of Way Maintenance (Attachment C). The Slope Stability Plan would become the new Section 8.0. The Upland Erosion Control Plan would become the new Section 9. The remaining Section numbers would be adjusted accordingly. Up to now, it would be difficult to have a complete Slope Stability Plan because of the lack of an Excavation and Embankment (Cut and Fill) Construction Plan in the COM Plan (see comments on TOC). So now, another major task will be for ACP to develop a Slope Stability Plan that considers each typical drawing in the Excavation and Embankment (Cut and Fill) Construction Plan and provides the relevant design and construction measures for slope stability.
084	8.3.1	"*In areas where full width topsoil segregation is required (e.g., agricultural areas), an additional 25 feet of temporary construction workspace will be needed on the working side of the corridor to provide sufficient space to store topsoil*." In all areas of excavation and/or stump removal on National Forest land, including the pipe trench and areas of the work space that require cut and fill, the principal means for maintaining and restoring soil productivity is to segregate and stockpile topsoil during construction and replace it upon completion of construction. For the purposes of this project, the material to be segregated is defined as the top 6 inches of the soil, or all actual topsoil, whichever is deeper. We recognize that ACP has identified potential operational constraints related to topsoil segregation in areas of mountainous topography. ACP has indicated that the typical 125-foot-wide construction right-of-way (ROW) is not sufficient in this type of topography to accommodate stockpiled topsoil, and that topographic constraints may not allow stockpiling beyond the 125-foot-wide area. The Forest Service asks that ACP address the following in the COM Plan that would justify and specify the circumstances that would dictate use of alternative methods to protect soil productivity: • Provide drawings or other descriptions depicting the uses that are currently planned for the 125-foot construction ROW. Include typical dimensions of each use and volumes of stockpiled materials;

Page #	Section	Comment
		• Evaluate the potential for accommodating the anticipated volume of segregated topsoil within the 125-foot ROW and currently planned additional temporary workspace (ATWS); • Where the 125-foot ROW and planned ATWS does not provide sufficient space for stockpiling topsoil in a separate pile, evaluate the potential for "stacking" segregated topsoil beneath stockpiles of other material, with appropriate markers such as mulch, fabric, or other material to indicate the boundary between topsoil and other material; • Where the 125-foot ROW and planned ATWS cannot accommodate separate or stacked segregated topsoil, evaluate the need for and feasibility of additional space to accommodate topsoil segregation; and • In areas where it is not possible to segregate topsoil, provide alternative methods for restoring soil productivity, which may include the use of commercially produced organic material and nutrient supplements. With these circumstances disclosed in the COM Plan, the Forest Service would evaluate actual site conditions during construction on a case by case basis and determine whether alternative soil mitigation measures are to be employed as a variance to the standard soil segregation practice. Segregated topsoil and spoil piles must be protected from erosion. The use of filter socks may be used in conjunction with temporary seeding of the topsoil and spoil piles if material will be left out of the trench and bare for greater than seven days.
084	8.3.1	Document states: *"In areas with steep terrain, construction personnel will be required to work in the trench to weld the pipeline. In these areas, the top of the trench will typically be 30 feet wide to provide sufficient space for construction personnel to work in the trench safely. The additional spoil from excavation of a wider trench will be stockpiled in the temporary construction right-of-way and ATWS."* Page 66 states that about 7.9 miles on the GWNF may require blasting. Much of that is on steep slopes. The intersection of steep slopes, blasting, and much wider trenches is a concern for stabilization and downstream effects. Site specific plans for steep slopes should be developed and adequately address stabilization and the downstream effects. The effects of blasting on T&E species, sensitive species, wildlife, etc. need to be evaluated in the EIS.
088	8.5.3	"*erosion control fabric*;" Erosion control fabric will not be permitted on NFS Lands. Alternatives may be used with USFS approval.
088	8.5.3	"*Reseed/replant work areas with native and pollinator species as provided in the Restoration and Rehabilitation Plan (Section 10) and the Visual Resources Plan (Section 20).*" USFS Seed Mix guidance document shall be followed on NFS Lands.
088	8.5.4	Signs and highly visible flagging will also be used to mark the boundaries of sensitive resource areas, including waterbodies and wetlands, and/or areas with special requirements" Please also mark any areas adjacent to or upslope of occurrences of TES plants as high priority for erosion and sediment control measures, and maintenance of such, to ensure no impact to those populations. Do not identify the species of any TES plants, publicize the existence of TES plants in that area, or create any visible trails to the plants for any reason. Please also mark areas downslope from known NNIS populations that are within the construction area of impact. These should be high priority areas for sediment control and for monitoring, to ensure no NNIS within the construction area are spread via sediment movement either within or beyond the construction area boundaries.

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089	8.5.5	"The construction entrance must function to remove mud from vehicles and equipment leaving the right-of-way. …The mud will be returned to the right-of-way." Keeping mud off public roadways is an important goal. This methodology has the potential to mix mud from multiple parts of the construction zone and redistribute that mixed mud in other areas, which, if the mud contains NNIS seeds, would spread NNIS seeds up and down the pipeline. Atlantic would then be responsible for treating all those new areas of infestation. This highlights the importance of pre-treating known NNIS infestations, and cleaning vehicle tires on site immediately after working in an area of NNIS prior to entering any non-infested area either within or outside the project area. At the very minimum, vehicles need to be washed in accordance with Section 11.4.1.2 of this document, and NNIS monitoring and treatment will need to be conducted along all routes to and from such wash stations.
091	8.5.7	"*Install temporary sediment barriers at the base of slopes greater than 5 percent where the base of the slope is less than 50 feet from a road crossing, waterbody and/or wetland until revegetation is complete. Leave adequate room between the base of the slope and the sediment barrier to accommodate ponding of water and sediment deposition. For silt fencing, an effort should be made to locate the fencing at least 5 feet to 10 feet beyond the toe of the slope*." Sediment barriers need to be established where needed, even if slope is <5 %, and not limited to places closer than 50 feet to a road or waterbody. It should be recognized that multiple barriers might be necessary to contain sediment, and basins or sediment traps will need to be maintained and cleaned out as they fill up. Silt fence shall not be used at locations of concentrated overland flow, whether the flow is natural or constructed. Compost filter socks or other controls designed to filter or chemically remove sediment from water shall be used in those locations, subject to FS approval.
091	8.5.7	TES plant populations need to be protected from erosion and overland sediment flow. Please add a bullet point describing how and where sediment barriers will be installed upslope of TES plant populations, and how they will be inspected and maintained. In the process of marking and protecting these areas, do not identify the species of any TES plants, publicize the existence of sensitive plants in that area, or create any visible trails to the plants for any reason. Areas downslope of NNIS populations need to be protected from erosion and overland sediment flow. Please add a bullet describing how and where sediment barriers will be installed downslope of NNIS plant populations, how they will be inspected and maintained, and how sediment suspected to contain NNIS seeds will be handled.
094	8.5.9	"*A temporary ridge of compacted soil constructed at the top of a sloping disturbed area will be used to divert stormwater runoff from upslope drainage areas away from the unprotected slope*." Compacted soil used to create diversion dikes will not consist of segregated topsoil on NFS Lands.
094	8.5.9	"*Where channel slope is greater than 2 percent, Rolled Erosion Control Product (RECP) will be used to stabilize soil until vegetation is established*." RECP will not be used on NFS Lands. Hydraulic mulches or soil conditioners shall be used upon approval by the USFS.
095	8.5.10	"*The temporary sediment trap will be stabilized immediately following installation with temporary or permanent vegetation*." Vegetation seeded on NFS Lands will be free of weeds, invasive species, and other contaminates.

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096	8.5.10	"*Remove accumulated sediments when sediment reaches ½ the design storage volume. Sediment removed will be deposited in a disturbed area in a manner that it will not erode and cause sedimentation problems*." The sediment will be relocated onto spoil piles with the ROW.
096	8.5.12	"*Because of the increased need for additional right-of-way width and loss of additional forestland, and need to remove stumps, which would increase topsoil mixing with the subsoil and the increase the potential for erosion, topsoil segregation is generally not conducted in forested areas*." In all areas of excavation and/or stump removal, including the pipe trench and areas of the work space that require cut and fill, the principal means for maintaining and restoring soil productivity is to segregate and stockpile topsoil during construction and replace it upon completion of construction. For the purposes of this project, the material to be segregated is defined as the top 6 inches of the soil, or all actual topsoil, whichever is deeper. We recognize that ACP has identified potential operational constraints related to topsoil segregation in areas of mountainous topography. ACP has indicated that the typical 125-foot-wide construction right-of-way (ROW) is not sufficient in this type of topography to accommodate stockpiled topsoil, and that topographic constraints may not allow stockpiling beyond the 125-foot-wide area. The Forest Service asks that ACP address the following in the COM Plan that would justify and specify the circumstances that would dictate use of alternative methods to protect soil productivity: • Provide drawings or other descriptions depicting the uses that are currently planned for the 125-foot construction ROW. Include typical dimensions of each use and volumes of stockpiled materials; • Evaluate the potential for accommodating the anticipated volume of segregated topsoil within the 125-foot ROW and currently planned additional temporary workspace (ATWS); • Where the 125-foot ROW and planned ATWS does not provide sufficient space for stockpiling topsoil in a separate pile, evaluate the potential for "stacking" segregated topsoil beneath stockpiles of other material, with appropriate markers such as mulch, fabric, or other material to indicate the boundary between topsoil and other material; • Where the 125-foot ROW and planned ATWS cannot accommodate separate or stacked segregated topsoil, evaluate the need for and feasibility of additional space to accommodate topsoil segregation; and • In areas where it is not possible to segregate topsoil, provide alternative methods for restoring soil productivity, which may include the use of commercially produced organic material and nutrient supplements. With these circumstances disclosed in the COM Plan, the Forest Service would evaluate actual site conditions during construction on a case by case basis and determine whether alternative soil mitigation measures are to be employed as a variance to the standard soil segregation practice. ACP shall make every attempt to segregate topsoil from subsoil as best as they can. The FS agrees that it is worth segregating topsoil even if mixing occurs from stump removal for the benefits of salvaging organic material and mineral horizons for revegetation. Ditch plus spoil side segregation can occur on MNF lands, if ACP can provide an alternative soil amendment that meets the intent of the MNF LRMP for soil stabilization and to provide topsoil for revegetation.
096	8.5.12	*"Atlantic will conduct topsoil segregation in accordance with the FERC Upland Erosion Control, Revegetation and Maintenance Plan."*

Page #	Section	Comment
		There is nothing in the FERC plan that mentions segregating topsoil infested with NNIS. Please add that topsoil segregation will also be conducted in accordance with Section 11, the Non-Native Invasive Plant Species Management Plan.
097	8.5.12	"*Topsoil shall be uniformly distributed to a minimum compacted depth of 2 inches on 3:1 slopes or steeper slopes and 4 inches on flatter slopes.*" No intentional compaction of topsoil shall occur on any areas with NFS Lands. On steep slope areas it is important to avoid compaction to allow for infiltration, soil porosity, and ultimately revegetation and slope stabilization.
097	8.5.12.1	These bullet points are very thorough, but it is not clear what they apply to. Please add a heading or explanatory sentence to the preceding paragraph.
099	8.5.14	Document states: *"Atlantic has not proposed, and does not currently anticipate the use of riprap for streambank stabilization on USFS lands."* According to the one site specific steep slope design on the GWNF that was provided in the Jan 10, 2017 Revised Site Specific Geohazard Mitigation Design Drawings, this statement is incorrect; there is riprap planned at the base of the slope along the stream channel.
099	8.5.15	On slopes <5 percent gradient, slope breakers often do not function properly; therefore, slope breakers are not required on slopes less than 5 percent unless field conditions are such that a slope breaker would enhance the temporary or permanent water control. The ACP environmental inspector and the Forest Service representative will coordinate to determine where this is desirable in the field. On slopes between 5 and 30 percent gradient, spacing between slope breakers shall not exceed 100 ft. On slopes having 30 to 40 percent gradient that ACP has identified as moderate to high risk areas for slope failures (based on the Phase 1 and 2 Geohazard Analysis Reports), spacing between slope breakers shall not exceed 50 ft. On all slopes >40 percent gradient, spacing between slope breakers shall not exceed 50 ft. Spacing wider than the requirements stated for any of the above situations requires prior approval from the Forest Service. Conversely, closer spacing of slope breakers is permitted without Forest Service approval where ACP believes additional drainage control is needed.
099	8.5.15	"*Direct the outfall of each slope breaker to a stable, well vegetated area or construct an energy-dissipating device (silt fence, staked weed-free straw bales, erosion control fabric) at the end of the slope breaker.*" Silt fence shall not be used at locations of concentrated overland flow, whether the flow is natural or constructed. Compost filter socks or other controls designed to filter or chemically remove sediment from water shall be used in those locations, subject to FS approval.
102	8.5.17.2	"*Permanent sacks of sand, polyurethane foam, bentonite clay, or possibly cement bags (in areas of steep terrain) installed around the pipe will remain in the trench to prevent subsurface channeling of water along the trench.*" No foam shall be used on NFS Lands. Trench Breakers shall be made of sand, bags of concrete mix, or earthen materials (free of contaminates) on NFS Lands.
102	8.5.17.2	Needs a space between the section number and the title of the section.
103	8.5.17.6	Needs a space between the section number and the title of the section.
104	8.5.17.7	Needs a space between the section number and the title of the section.
104	8.5.17.8	Needs a space between the section number and the title of the section.
105	8.5.17.11	*"Permanent slope breakers will be installed during final grading…to…prevent sediment deposition into sensitive resources."*

Page #	Section	Comment
		The transport of water with NNIS seeds would lead to the spread of NNIS which Atlantic would then be responsible for treating. Please describe how NNIS upslope of slope breakers will be treated, how slope breakers and areas downslope of slope breakers will be monitored and treated for NNIS, and/or how slope breakers will be installed in relation to known infestations of NNIS.
106	8.5.17.11	On slopes <5 percent gradient, slope breakers often do not function properly; therefore, slope breakers are not required on slopes less than 5 percent unless field conditions are such that a slope breaker would enhance the temporary or permanent water control. The ACP environmental inspector and the Forest Service representative will coordinate to determine where this is desirable in the field. On slopes between 5 and 30 percent gradient, spacing between slope breakers shall not exceed 100 ft. On slopes having 30 to 40 percent gradient that ACP has identified as moderate to high risk areas for slope failures (based on the Phase 1 and 2 Geohazard Analysis Reports), spacing between slope breakers shall not exceed 50 ft. On all slopes >40 percent gradient, spacing between slope breakers shall not exceed 50 ft. Spacing wider than the requirements stated for any of the above situations requires prior approval from the Forest Service. Conversely, closer spacing of slope breakers is permitted without Forest Service approval where ACP believes additional drainage control is needed.
106	8.5.17.12 & 8.5.17.13	Soil stabilization blankets and matting will not be used on NFS Lands. The use of alternatives such as hydraulic mulches, soil tackifiers, soil conditioners, etc. may be used upon FS approval.
108	8.5.18	5 feet per second (ft./sec.). Velocity is measured in cubic feet per second (cfs). Update.
108	8.5.18	Document states: *"Any non-biodegradable fabric used for bank stabilization will be removed when vegetation is re-established."* Erosion control fabric should be biodegradable material and of the size that does not cause a hazard to snakes or other animals getting trapped in the mesh. See page 144 of the COM plan.
108	8.5.18 – 8.5.19	mechanical protection such as rip-rap. USFS may also require more natural materials, such as logs, root wads, boulders, to be incorporated in addition to just riprap and gabions.
109	8.6	*"The only access roads that can be used in wetlands, other than the construction right-of-way, are those existing roads requiring no modification or improvements, other than routine repair, and posing no impact on the wetland."* Evaluate any potential impacts from use and repair of existing roads.
110	8.6	*"Where access roads in upland areas do not provide reasonable access, limit all other construction equipment to one pass through the wetland using the construction right-of-way."* The best management practice is actually to take equipment back out and around, and approach the project from the next available access point/opposite direction and not have to cross at all.
110	8.6	Do not side-cast fill material if there is a chance that it will enter a stream, or if side slope exceeds 60 percent. Ensure this meets Forest Plan standards and modify as needed.
111	8.6	"Virginia Requirements" is an unnumbered bold header. Please number and format consistent with other sections.
111	8.6	10th bullet point under "Virginia Requirements" – change "facility" to "facilitate."
113	8.7.2	Move the 8.7.2 Steep Terrain and Best in Class (BIC) Program section to the Slope Stability Plan section. (See comment on Section 8.0, page 083)
113	8.7.2.1	"*drainage improvement that may include providing subsurface drainage at seep locations through granular fill and outlet pipes, incorporating drainage into trench breakers using granular fill, and/or intercepting groundwater seeps and diverting them from the right-of-way*;"

Page #	Section	Comment
		Please specify in more detail what type of granular fill will be utilized and how it will be utilized.
113	8.7.2.1	• "*using alternative backfill;* • *chemical stabilization of backfill*;" Alternative backfill material will need to have FS approval prior to use on NFS Lands. Chemical stabilization material will need to have FS approval prior to use on NFS Lands.
114	8.7.2	Document states: *"The locations where the BIC Program will be implemented are identified on the construction alignment sheets (Attachment A) and on plans developed for a select group of the most challenging and unique steep slopes requiring site-specific designs (Attachment G)."* Attachment A is typical drawings of ROW configurations, not alignment sheets. Attachment G is soil survey, not site specific designs.
114	8.7.2.1	Need to add a space in "…(see FiguresA-1/2 through….."
115-116	Figures A-1/2, A-3, and A-4	Unreadable as currently displayed. Reformat on landscape orientation, and please use only one Figure per page. Consider changing some text/background color combinations for better readability.
117	8.7.3	After 8.7.3, add back into this version of the COM plan several of the items from pages 101-102 of Draft-1 – references to where other Special Construction Practices are discussed within this documents. In particular, list the ANST HDD crossing, and Roads and Trails Crossings and give current references. This is an important feature in order to make this COM document useful in the field over the life of the construction phase.
119	8.11.2	Reformat the bold text and spacing of this subsection header to make it make sense.
119	8.11.2	Bottom bullet point on page. Change "to control unauthorized off-road vehicle use" to "to control all types of off-highway vehicle use" for consistency with the Acronyms and Abbreviations page, including the footnote definition on that page.
119	8.11.2	*"In no case shall routine vegetation mowing or clearing occur during the migratory bird nesting season between April 15 and August 1 of any year unless specifically approved in writing by the responsible land management agency or the FWS."* The mowing/clearing restriction is April 1 – August 31 for West Virginia and March 15 – August 15 for Virginia, as stated on pages 24 and 28 of the Migratory Bird Plan. State the restrictions by state or give a single, encompassing range of March 15 – August 31.
119	8.11.2	*"In uplands, trees and brush will be cleared over the entire width of the permanent right-of-way on an as-needed basis not to exceed once every 3 years"* On USFS lands, clearing the entire permanent right-of-way in all upland areas could mean clearing areas that were revegetated with native plants for wildlife habitat restoration and visual aesthetics purposes. As stated in our previous comments on the COM plan, per the USFS's conversation with FERC, and in order to reduce the effects of forest fragmentation on NFS lands and also reduce effects on visual resources, the permanent right-of-way should maintained consistent with FERC's Wetland and Waterbody Construction and Mitigation Procedures (Procedures), for the length of the entire right-of-way on both the MNF and GWNF. Therefore, the ROW would not be cleared for the width of the right-of-way; the permanent right-of-way would be maintained in an herbaceous state for a 10-foot-wide corridor centered over the pipeline. The remainder of the corridor should be replanted with shrubs or shallow-rooted trees as approved by the USFS and in accordance with FERC's Procedures.

Page #	Section	Comment
		Please also ensure that equipment and workers' clothing (including boots) is clean of mud, seeds, and other plant parts prior to entering NFS lands to prevent introduction or spread of NNIS, and that NNIS infestations are treated prior to setting seed so that any clearing does not spread them. "permanent right-of-way. stateIn no case"—typo noted.
120	8.12.1 and 8.12.2	*"…the areas disturbed will be returned to their pre-development condition."* This statement is incorrect. The current condition is forested, whereas the final condition would be herbaceous cover or in many places likely riprapped. Stormwater management would be substantially changed and this change is accounted for by engineers in the design of bleeder drains and other erosion and sediment control plans to manage runoff. Update sections substantially and prepare stormwater management plans for permitting requirements. On NFS lands, state permit standards or higher level of conservation measures will be required, and post-construction monitoring, including water quality monitoring, will be needed.
120	8.13	Virginia Erosion and Sediment Control Law Minimum Standard 16a is in place to minimize erosion and sedimentation, and it will need to be followed. On NFS lands, construction schedules will have to accommodate for this perceived limitation and not get ahead of disturbing areas ahead of schedule to minimize disturbance. The GWNF does not anticipate any variance, due to past issues resulting in major resource damage. A variance would be approved only if it is demonstrated to be in the best interests of the Forest resources. Any such variances would be site specific and very limited in scope, and must be approved on an individual basis by the Forest Service.
120	8.13	Describe whether or not a variance to open trench length would apply to or be sought on NFS lands.
123	8.14.2	case=by-case basis – formatting needs
124	8.14.2	The last 4 bullets are Forest Plan Standards, not Desired conditions, as labeled.
125	9.1.1	*"Only two wetlands are crossed; both on the GWNF."* This statement is incorrect. Refer to the GWNF and MNF Wetland and Waterbody Survey Reports **(**Jan 2017), and subsequent USFS filed comments on those reports, for the most up to date information. Update accordingly.
125	9.2	Forest plan standards require a 100ft buffer for perennial waterbodies and thus wetlands. "Site-specific justifications for extra work areas that would be closer than 50 feet from a waterbody or wetland;" are not acceptable to the Forest Service.
126	9.4	*"The GWNF specifies that construction of crossings is completed on all channeled ephemerals as soon as possible after work has started on the crossing. Permanent and temporary roads on either side of crossings within the channeled ephemeral zone are to be graveled* ***(MNF LRMP SW-24)."*** This is actually GWNF LRMP SW-24, not MNF
127	9.4.2.3	*"These buffer widths are 100 feet for perennial streams, and large intermittent streams (i.e. >50 acre drainage areas), 50 feet for small intermittent streams (i.e. <50 acre drainage area) and 25 feet for ephemeral streams."* These buffer widths come from the MNF LRMP. On the GWNF, buffer widths for perennial and intermittent streams increase with slope as per Forest Plan Appendix A.
128	9.4.2.3	These buffer widths are the minimum and may be adjusted…
128	9.4.2.3	*"…dry or frozen and notflowing."* Frozen conditions would require winter construction methods, not standard upland techniques.

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128	9.4.2.3	case=by=case basis – correct formatting
128	9.4.2.4	"… at least 10 feet from the water's edge…" Even for construction crossing, spoils shall be controlled outside of the riparian corridor, at a minimum of 100ft. On the GWNF, this distance increases with slope >10%.
130	9.4.2.7	Document states: *"Unless approved otherwise by the appropriate federal or state agency, Atlantic will install the pipeline using one of the dry-ditch methods outlined below for crossings of waterbodies up to 30 feet wide (at the water's edgeat the time of construction) that are state-designated as either coldwater or significant coolwater or warmwater fisheries, or federally- designated as critical habitat."* This implies dry ditch method will only be used on coldwater, coolwater, and T&E streams. The DEIS states that dry ditch method will be used at all crossings on FS land. Update COM plan.
131	9.4.3	Document states: *"Use clean gravel or native cobbles for the upper 1 foot of trench backfill inall waterbodies that contain coldwater fisheries."* Clean gravel or native cobbles should be used in all waterbodies, not just those with coldwater fisheries. Describe what is proposed for non-coldwater fishery waterbodies. Explain why it would only be used in upper 1 foot of trench backfill, which would seem to be insufficient in the event of scour. Base the depth on the scour analysis for stream crossings.
133	8.4.4	*"Time of year restrictions specified in section VII.A.5 of the Plan (April 15 – August 1 of any year) apply to routine mowing and clearing of riparian areas."* The mowing/clearing restriction is April 1 – August 31 for West Virginia and March 15 – August 15 for Virginia, as stated on pages 24 and 28 of the Migratory Bird Plan. State the restrictions by state or give a single, encompassing range of March 15 – August 31.
136	9.5.3	*"Time of year restrictions specified in section VII.A.5 of the Plan (April 15 – August 1 of any year) apply to routine mowing and clearing of wetland areas."* The mowing/clearing restriction is April 1 – August 31 for West Virginia and March 15 – August 15 for Virginia, as stated on pages 24 and 28 of the Migratory Bird Plan. State the restrictions by state or give a single, encompassing range of March 15 – August 31.
136	9.5.3	*"In uplands, trees and brush will be cleared over the entire width of the permanent right-of-way on an as-needed basis not to exceed once every 3 years"* On USFS lands, clearing the entire permanent right-of-way in all upland areas could mean clearing areas that were revegetated with native plants for wildlife habitat restoration and visual aesthetics purposes. As stated in our previous comments on the COM plan, per the USFS's conversation with FERC, and in order to reduce the effects of forest fragmentation on NFS lands and also reduce effects on visual resources, the permanent right-of-way should maintained consistent with FERC's Wetland and Waterbody Construction and Mitigation Procedures (Procedures), for the length of the entire right-of-way on both the MNF and GWNF. Therefore, the ROW would not be cleared for the width of the right-of-way; the permanent right-of-way would be maintained in an herbaceous state for a 10-foot-wide corridor centered over the pipeline. The remainder of the corridor should be replanted with shrubs or shallow-rooted trees as approved by the USFS and in accordance with FERC's Procedures. Please also ensure that equipment and workers' clothing (including boots) is clean of mud, seeds, and other plant parts prior to entering NFS lands to prevent introduction or spread of NNIS, and that NNIS infestations are treated prior to setting seed so that any clearing does not spread them.

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136	9.5.3	"non-native invasive species and noxious weeds are absent, unless they are abundant in adjacent areas that were not disturbed by construction." The measure of success should be the net change in NNIS density and diversity in and adjacent to the work zone, pre-construction to post-construction. A zero or negative delta means success. An increase in NNIS means a negative impact has occurred. If new NNIS are found outside the work zone only subsequent to installation, it is likely that construction had something to do with their introduction, be it through overland flow of seed-containing sediment, workers and animals walking through disturbed areas and carrying seed to undisturbed areas, etc. Also, construction disturbance creates the perfect opportunity for existing NNIS infestations outside the work area to seed into the work area. By the current criteria in the COM plan, a new infestation in the work area adjacent to an existing one outside the work area would be considered an NNIS control success. This defies logic.
138	10.3.1.1	and seeding ~~(where needed).~~
140	10.3.1	Similar to 8.11.2, please reformat the bold text and spacing of this subsection.
140	10.3.1.14	10.3.1.5Measures – needs space
140	10.3.1.4	"*In areas where topsoil segregation occurs, plowing with a paraplow or other deep tillage implement to alleviate subsoil compaction will be conducted before replacement of the topsoil. In rocky or heavily rooted soils, a representative compaction measurement may be difficult to obtain. If compaction testing is impeded by rock or roots, Atlantic will investigate the use of other methods to measure compaction (e.g., use of pocket penetrometer) or may conclude that there is a suitable amount of large material in the soil to rectify potential compaction. Soil compaction will be remediated prior to re-spreading of salvaged topsoil*." Employ timber mats or trench spoil to protect underlying soil where possible. Limit the use of heavy equipment on steep slopes to the minimum amount necessary. Use a cone penetrometer to measure compaction on the construction ROW prior to and following completion of construction activities. Post-construction compaction that exceeds pre-construction compaction indicates the need for compaction remediation. On ROW slopes <20% where compaction remediation is needed, use de-compaction techniques such as a ripper, harrow disk, backhoe bucket teeth, chisel plow, or other FS-approved techniques to de-compact travel lanes and any other compacted areas. On ≥20% slopes where compaction remediation is needed and can be accomplished safely and effectively without causing further resource damage, use backhoe bucket teeth, or another safe, FS-approved method, to break up compacted soils.
140	10.3.1.5	Needs a space between the section number and the title of the section.
140	10.3.1.6	"*Areas with steep slopes along the pipeline route may make the establishment of vegetation more difficult due to the increased potential for erosion by water. Slopes greater than 35 percent will be restored to natural contours to the extent practicable, or in accordance with specific requests from the USFS*." This needs to be more specific. Please specify if "steep slopes" pertain to the side of the slope that construction will take place on OR the flat surface at the peak of a mountain or summit once the top has been removed for pipe installation. This needs to be identified when discussing steep slopes and restoration.

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141	10.3.1.6	"*engineering of the backfill around or within steep slope areas to dry the backfill, add compaction, improve backfill soil strength, and reduce saturation*;" More internal discussion needs to occur before a decision is made on compaction with backfill material. However, specific information is needed on depth, location, and degree of compaction are needed to arrive at a decision on this issue on MNF Lands.
141	10.3.1.6	"*installation of targeted structures to stabilize backfill using engineered fill, retaining walls, bagged concrete mix, key trenches, and/or shear trenches; and*" More information on the location of where these structures will be utilized is required before a decision can be made on MNF Lands. However, the use of concrete mix and/or retaining walls is not favorable on MNF Lands.
141	10.3.1.7	"*Instead, materials may include clean straw, wood or paper fiber, coconut fiber, synthetic mulch, or other USFS-approved material that is not likely to contain seeds or viable parts of invasive plants*." The use of synthetic mulch on MNF Lands is not favored.
142	10.3.1.8	"*Unless otherwise specified by the USFS, the seedbed will be prepared in disturbed areas to a depth of 3 to 4 inches using appropriate equipment (e.g., cultipacker roller) to provide a seedbed that is firm, yet rough. Atlantic will imprint exposed soils with a sheepsfoot, landfill compactor, tractor with studded tires, or land imprinter equipment*." The use of a cultipacker roller, sheepsfoot, landfill compactor, tractor with studded tires, or land imprinter equipment will not be used on MNF Lands. This equipment could result in compaction and hindering revegetation in disturbed areas. On steep slopes, leaving the ROW in a rough grade will be acceptable on MNF Lands in addition to other restoration practices such as seeding, mulching, fertilizing, liming, etc.
142	10.3.1.8	"*In compacted areas, additional measures such as chisel plowing or disking may be necessary to improve water infiltration and soil aeration necessary to prepare an adequate seedbed*." Employ timber mats or trench spoil to protect underlying soil where possible. Limit the use of heavy equipment on steep slopes to the minimum amount necessary. Use a cone penetrometer to measure compaction on the construction ROW prior to and following completion of construction activities. Post-construction compaction that exceeds pre-construction compaction indicates the need for compaction remediation. On ROW slopes <20% where compaction remediation is needed, use de-compaction techniques such as a ripper, harrow disk, backhoe bucket teeth, chisel plow, or other FS-approved techniques to de-compact travel lanes and any other compacted areas. On ≥20% slopes where compaction remediation is needed and can be accomplished safely and effectively without causing further resource damage, use backhoe bucket teeth, or another safe, FS-approved method, to break up compacted soils.
142	10.3.1.9	"*Provide soil nutrient additions where suggested by soil chemistry or soil fertility data. However, in absence of this data, the USFS recommends the application of 600 – 800 pounds per acre of 10-20-10 (Nitrogen, Phosphorous, and Potassium), 400 pounds per acre of*

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		15-30-15, or 800 -1,000 pounds per acre of10-10-10 fertilizer. Lime will be applied at the rate of 1,500 - 4,000 pounds per acre (pelletized or dust) or 4,000 pounds per acre as hydro Lime." Documentation of where these came from is needed or this bullet needs to be removed. If data is available from the Order 1 Soil Survey, ACP should always utilize this information for fertilizer application rates.
142-152	10.3.1.9 and 10.3.1.10	Please reformat and organize the sub-headers in these two sections to add numbering.
143	10.3.1.9	"*Weed-free straw will be used to preserve the soil base in areas where native salvaged material is not available. In areas that are seeded by drill, Atlantic will apply one bale of clean straw per 1,000 square feet. Where broadcast seeding is used, Atlantic will apply two bales of clean straw per 1,000 square feet, or in accordance with requirements specified by the USFS*." If straw is going to be utilized in certain areas, ACP needs to utilize chopped straw in conjunction with whole straw over top of the chopped straw. This will provide protection against erosion from overland flow and raindrop impact protection.
145	10.3.1.5	**10.3.1.5Measures to prevent….Management Plan. Re-Contouring"** Re-format
147	Table 10.3.12	Thank you for following guidance provided by USFS in developing this mix. Please ensure this mix is used in conjunction with temporary erosion control species as was recommended in the USFS documents from which this was drawn, and that initial erosion control seeding contains at least 100lbs of seed per acre, as specified in section 10.3.1.10 on p. 145. Many of the natives are not, on their own, suitable for erosion control, and are only meant to be installed after slope stabilization has been achieved, and then only on areas where slope allows for seeds to be drilled, which enhances native germination. Please ensure this is clarified in the document.
148	Table 10.3.1-3	This mix does not reflect the species recommended by the FS in documents submitted in Nov/Dec 2016. Some species are what FS recommended, some are what FS recommended for different types of sites, and some aren't on any list FS provided. Please work directly with FS contacts to resolve discrepancies. Maintaining the integrity of native genetic stock is a recognized priority in the MNF LRMP, as demonstrated in Goal VE09: *Work with researchers, ecologists, geneticists and other interested parties to develop seed zones or breeding zones for native plants.* All species that the FS recommended to Atlantic were available in local genotypes from a reputable provider. If different species are to be used other than what was recommended, to ensure consistency with the LRMP, please ensure and demonstrate that they are sourced from local genotypes as per the following: When using native seed, use as local an ecotype as is available, in the following order of preference: • from within state • from the mountain regions of an adjoining state from within 100 miles, as long as it is within the Appalachian mountain ecosystem
149	Table 10.3.1-4	This mix does not reflect the species recommended by the FS in documents submitted in Nov/Dec 2016. Some species are what FS recommended, some are what FS recommended for different types of sites, and some aren't on any list FS provided. Please work directly with FS contacts to resolve discrepancies.

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		Maintaining the integrity of native genetic stock is a recognized priority in the MNF LRMP, as demonstrated in Goal VE09: *Work with researchers, ecologists, geneticists and other interested parties to develop seed zones or breeding zones for native plants.* All species that the FS recommended to Atlantic were available in local genotypes from a reputable provider. If different species are to be used other than what was recommended, to ensure consistency with the LRMP, please ensure and demonstrate that they are sourced from local genotypes as per the following: When using native seed, use as local an ecotype as is available, in the following order of preference: • from within state • from the mountain regions of an adjoining state from within 100 miles, as long as it is within the Appalachian mountain ecosystem
151	Table 10.3.1-6	This mix is closer than "FS03" and "FS04", but still does not totally reflect the species recommended by the FS in documents submitted in Nov/Dec 2016. Please work directly with FS contacts to resolve discrepancies. Maintaining the integrity of native genetic stock is a recognized priority in the MNF LRMP, as demonstrated in Goal VE09: *Work with researchers, ecologists, geneticists and other interested parties to develop seed zones or breeding zones for native plants.* All species that the FS recommended to Atlantic were available in local genotypes from a reputable provider. If different species are to be used other than what was recommended, to ensure consistency with the LRMP, please ensure and demonstrate that they are sourced from local genotypes as per the following: When using native seed, use as local an ecotype as is available, in the following order of preference: • from within state • from the mountain regions of an adjoining state from within 100 miles, as long as it is within the Appalachian mountain ecosystem
152	10.3.1.10	Revegetation and Visual Resource-Related Plantings: • I do not understand the intention behind the second sentence. Restructure, reword, or delete this sentence. It doesn't look like it is really needed. • Process/Timing Question – There is a future tense for coordination and development of the final revegetation plan pertaining to reducing impacts to scenery. At what stage in this planning process will that occur? Will that take place prior to the COM Plan finalization or will it be developed later (as late as during construction)?
152 & 196	10.3.1.10 & 20.0	**REVEGETATION & SCENERY: Additional coordination is needed with the USFS regarding the sections of the EIS and COM Plan related to revegetation options to reduce impacts to scenery.**
153	10.3.2.2	Additional Restoration/Mitigation on the GWNF: I'm glad to see the inclusion of monitoring of revegetation in perpetuity for the life of the project on USFS lands. Please include an interval such as at least once every five years; and written reports that include photographs will be submitted to the USFS.
153	10.3.3	"Atlantic will restore the banks of waterbodies…" Restore floodplains also.
153	10.3.3	"…restore stream bank integrity, including both shore crossings up to the ordinary high water mark;…" The streambank includes the area above the OHWM. This section is call riparian restoration – as such it should include the area extending outwards from the streambank a minimum of 100ft, according to the Forest Plans, and often goes far beyond that distance depending on the stream channel type and vegetation type. Restore the floodplain and riparian functioning.

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153	10.3.3	*"…in accordance with permit requirements..."* Follow recommendations from the geohazard analysis program (hydrotechnical section) also.
154	10.3.4	*"In accordance with the Procedures…"* Follow USACE permit requirements also.
154	10.3.4	right-of-way Scrub-shrub. Capitalize or check grammar, doesn't read clearly.
154	10.3.5	*"In areas with exposed bedrock or bedrock, Atlantic will restore the area using crushed rock rather than attempting to revegetate the area."* There is substantial exposed bedrock with partial vegetated/shallow overburden on the GWNF, due to steepness of the slopes crossed by ACP. USFS was told that a Best in Class Program would be implemented to stabilize these areas. Expand this section further to describe BIC options other than addition of crushed rock. Clarify what constitutes exposed bedrock. Once the trench/ROW corridor is initially constructed, much of the area will have exposed bedrock. This is concerning, as could this could imply a significant change in existing condition.
155	10.4.1	Restoration Monitoring: • Add to final bullet a timeframe of 5-10 years to check on survival of plants. • Add similar bullet as found at 10.3.2.2 that monitoring for revegetation will be conducted in perpetuity, for the life of the Project on USFS lands. Monitoring activities need to have a stated interval, such as at least once every five years; and written monitoring reports that include photographs need to be provided to the USFS.
155	10.4.1.2	"*Lack of erosion at a site provides evidence that the soils have been adequately stabilized."* This statement needs to be more specific in that lack of erosion can indicate surficial topsoil particle stabilization due to adequate vegetation establishment. Lack of erosion does not indicate slope stabilization or that subsurface stabilization is occurring.
155-156	10.4.1.1 to 10.4.2	Revegetation Performance and Monitoring: Include monitoring of elements provided to reduce impacts to scenery such as vegetative plantings, screenings, feathering techniques, etc.
156	10.4.1.2	"*Recommendations could also include waiting another year or two prior to any remediation to allow for favorable re-establishment conditions*." This will be based off of the severity of the situation that is rendering remediation.
156	10.4.1.4	"Reports, including a summary of corrective actions proposed, will be submitted within three months of identifying these conditions. Areas where control applications for noxious weeds are needed will be reported." Three months is too long to delay if monitoring is going to be truly useful for catching and correcting problem areas. There are multiple other places in this document where it is stated that monitoring for erosion control devices etc. will take place on a much more frequent basis and that any problems will be corrected on a much shorter time frame. Restoration monitoring should be conducted so as to be equally effective. Please revise this reporting protocol so that issues observed in the field can be corrected in the same field season, with reasonable time allowed for application and germination of re-seeding, for example, or for treatment of invasive species before they go to seed or senesce.
156	10.4.2	"Atlantic will use mechanical mowing or cutting along their right-of-way for normal vegetative maintenance."

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		Comment: Incorporate time of year restrictions for migratory bird nesting: April 1 – August 31 for West Virginia and March 15 – August 15 for Virginia, or a single, encompassing date range of March 15 – August 31.
156	10.4.2	"In uplands, trees and brush will be cleared over the entire width of the permanent right-of-way on an as-needed basis not to exceed once every 3 years" On USFS lands, clearing the entire permanent right-of-way in all upland areas could mean clearing areas that were revegetated with native plants for wildlife habitat restoration and visual aesthetics purposes. As stated in our previous comments on the COM plan, per the USFS's conversation with FERC, and in order to reduce the effects of forest fragmentation on NFS lands and also reduce effects on visual resources, the permanent right-of-way should maintained consistent with FERC's Wetland and Waterbody Construction and Mitigation Procedures (Procedures), for the length of the entire right-of-way on both the MNF and GWNF. Therefore, the ROW would not be cleared for the width of the right-of-way; the permanent right-of-way would be maintained in an herbaceous state for a 10-foot-wide corridor centered over the pipeline. The remainder of the corridor should be replanted with shrubs or shallow-rooted trees as approved by the USFS and in accordance with FERC's Procedures. Please also ensure that equipment and workers' clothing (including boots) is clean of mud, seeds, and other plant parts prior to entering NFS lands to prevent introduction or spread of NNIS, and that NNIS infestations are treated prior to setting seed so that any clearing does not spread them.
160	11.4	"prevent the introduction and spread of non-native invasive plants from construction equipment moving along the right-of-way;" Please revise to say, "along the right-of-way, ATWS, staging areas, pipe/contractor yards, and temporary access roads." MNF LRMP Goal VE13 states, "For management actions that have been identified by the Forest as likely to cause a negative effect on RFSS populations, negative effects shall be avoided or minimized to the maximum extent practical while still accomplishing the purpose of the project or action. Unavoidable negative effects shall be mitigated to the extent practical and consistent with the project purpose." MNF LRMP Goal VE19 a) states "Work to prevent new infestations of NNIS, with emphasis on areas where species have a high probability for establishment and spread. As stated in ACP's documents, "federal agencies shall not authorize, fund, or carry out actions likely to cause or promote the spread of invasive species… [unless the benefits outweigh the potential harm] and that all feasible and prudent measures…will be taken to minimize the risk of harm." The 64 rare plant species on the MNF, including both known and undiscovered populations along the project corridor, will not receive benefit from the proposed project; therefore it is important that risk of harm be minimized to the maximum extent possible. Therefore to stay in compliance with the MNF LRMP, please demonstrate that all areas on the MNF affected by this project will be covered by plans to control NNIS.
160	11.4	"Prior to construction, the EIs will mark areas of [NNIS] plant infestations…Atlantic will…determine whether soil disturbance can reasonably be avoided within infested areas…[ID of these locations] will alert EIs and construction personnel to implement control measures during construction." Please revise to say, "to implement control measures before, during, and after construction."

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		Timber clearing is a major vector for the spread of NNIS, even if there is no additional soil disturbance planned during construction itself. All NNIS infestations in areas that will be cleared need to be treated prior to and following clearing.
160	11.4.1.1	"Prior to clearing and grading operations, pre-treatment of non-native invasive plant infestations may be conducted if it will aid in controlling the spread of non-native invasive plants during construction." Please change the word "may" to "will," as DTI and ACP have committed to treat NNIS as part of the necessary compliance with the MNF LRMP.
161	11.4.1.1	"Mechanical control (e.g., mowing or disking) can also be an effective control measure for annual species. The efficacy of mechanical control measures is dependent upon proper timing to cut the vegetation prior to the maturation of seed and may require multiple treatments during the growing season." Comment: Same comment as above – Incorporate time of year restrictions for migratory bird nesting: April 1 – August 31 for West Virginia and March 15 – August 15 for Virginia, or a single, encompassing date range of March 15 – August 31.
161	11.4.1.1	"Mechanical control (e.g., mowing or disking) can also be an effective control measure for annual species." Potentially true, but soil disturbance can also stimulate germination of disturbance-adapted invasives, especially those with long-lived seed banks such as Japanese stiltgrass. Please only conduct mechanical control on USFS lands in coordination with USFS.
161	11.4.1.2	"Atlantic will install wash stations for construction equipment near the entrance and exit points of each contiguous USFS tract, outside the Forest boundaries." Thank you. Please ensure the routes to the wash stations (that dirty machinery would have taken) are marked for post-construction NNIS follow-up and treatment.
162	11.4.1.3	COM Plan says: "and to treat areas of the right-of-way where, in comparison to adjacent areas, non-native invasive plant species form a significant portion of the vegetation community." Comment: It is not clear how the ROW will be compared to the adjacent areas, and what constitutes a "significant portion" of the vegetation community. What metrics will be used? It would be better to treat non-native plant species in the ROW regardless of the status of adjacent areas. In fact, if there are sources of infestation near the ROW, those should be treated also and before construction occurs.
162	11.4.1.3	COM Plan says: ongoing revegetation and monitoring efforts will ensure adequate vegetative cover to discourage the establishment of non-native invasive plant species. The USFS will make the determination of adequate cover on NFS lands.
162	11.4.1.3	"Following construction, the ACP Project area will be monitored in accordance with the Plan and Procedures." Taken together, the Non-Native Invasive Plant Species Management Plan (COM Plan Section 11), the Restoration and Rehabilitation Plan (COM Plan Section 10), and the Upland Erosion Control, Revegetation, and Maintenance Plan ("the Plan") state the following plans for NNIS monitoring: • post construction monitoring and treatment will continue until the density and cover of non-NNIS species is similar to nearby non-forested, undisturbed lands, and until NNIS and noxious weeds are absent unless they are abundant in adjacent undisturbed areas. (Non-Native Invasive Plant Species Management Plan) • "post-construction and post-disturbance monitoring should be conducted in perpetuity, for the life of the project on USFS lands", "Qualitative monitoring will be conducted in years 1 to 5", and quantitative monitoring (via random quadrat sampling in

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		consultation with USFS) would be done in year 3. "Reports, including a summary of corrective actions proposed, will be submitted within three months of identifying these conditions. Areas where control applications for noxious weeds are needed will be reported." (Restoration and Rehabilitation Plan) • "Conduct follow-up inspections of all disturbed areas, as necessary…at a minimum…after the first and second growing seasons." (Upland Erosion Control, Revegetation, and Maintenance Plan) Early and effective treatment is the most cost-efficient approach to deal with existing invasives. However, the sum of the guidance provided by these documents is insufficient for effective control. Invasive species need to be treated in the same growing season as the infestation is discovered, in sufficient time to apply treatment(s) such that plants are prevented from setting seed that season. For some species, this means treatment before flowering (as early as April for garlic mustard). Other species such as Japanese knotweed and Japanese stiltgrass require a minimum of two treatments in the same growing season for effective control. Herbaceous species also emerge at different times of the growing season, some as early as March, others as late as June. A once annual monitoring visit and a 3-month delay in reporting is inadequate to effectively treat invasive species. Appendix J of the COM plan describes each NNIS species and its optimal treatment timeframe and method, with timeframes ranging from early spring to late fall. Please use this to develop a plan to conduct annual NNIS monitoring and treatment at appropriate times of the year for each species. Please model the NNIS reporting and monitoring plan after the ESCP plan, section 8.10 of this document, the monitoring and reporting plan for wetlands, section 8.11.2, and the quantitative monitoring methods for restoration, section 10.4.1.3. Please provide more details re: how often monitoring and reporting will be conducted for the remainder of the life of the project on USFS land, after year 5. When a sufficiently detailed plan for monitoring and treatment is developed, please add those details to COM plan sections 10 and 11, the SWP Evaluation report, the BA, and the DEIS. These important details need to be accessible to the reader in one place in order to understand and evaluate Atlantic's NNIS strategy.
163	11.4.1.3	"Mechanical treatments will be conducted prior to seed maturation where required." Comment: Same as above – Incorporate time of year restrictions for migratory bird nesting: April 1 – August 31 for West Virginia and March 15 – August 15 for Virginia, or a single, encompassing date range of March 15 – August 31.
163	11.4.1.3	COM Plan says: Applications will be controlled to minimize impacts on surrounding vegetation. Herbicide treatment methods will be based on species-specific and area-specific conditions as described above and will be coordinated with the USFS as applicable. Use of herbicides is not currently a proposed action of this project on Forest Service lands. Types of herbicides proposed to be selected and effects of herbicide use has not been analyzed in the EIS or related BA, BE, or locally rare reports. Any use of herbicide or pesticide on Forest Service lands requires NEPA analysis. Present NEPA documents covering herbicide/pesticide use on Forest Service lands do not include this proposed project. Comment: delete "as applicable", treatments will be coordinated with the USFS.
163	11.4.1.4	COM Plan says: NNIS control measures shall be considered successful if upon visual survey the density and cover of non-NNIS are similar in density and cover to nearby non-forested, undisturbed lands. NNIS and noxious weeds are absent, unless they are abundant in areas that were not disturbed by construction.

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		Comment: This implies that if there are non-native invasive plant species in the vicinity of the ROW then no action will be taken. This is unacceptable. ROWs are potential corridors for the spread of non-native invasive plants. Infestations in the ROW will be treated.
163	11.4.1.4	COM Plan says: Atlantic will continue NNIS monitoring and treatment until the conditions articulated above are achieved. Atlantic's operations staff will monitor and treat non-native invasive plant species as part of its normal operations and maintenance activities in accordance with applicable USFS regulations. Comment: The FS will determine when the treatments are adequate.
163	11.4.1.4	"Following construction, non-native invasive plant infestations will be monitored as part of Atlantic's restoration monitoring activities as described in the Restoration and Rehabilitation Plan." The Restoration and Rehabilitation Plan states: "post-construction and post-disturbance monitoring should be conducted in perpetuity, for the life of the project on USFS lands", "Qualitative monitoring will be conducted in years 1 to 5", and quantitative monitoring (via random quadrat sampling in consultation with USFS) would be done in year 3. "Reports, including a summary of corrective actions proposed, will be submitted within three months of identifying these conditions. Areas where control applications for noxious weeds are needed will be reported." A once annual monitoring visit and a 3-month delay in reporting is inadequate to effectively treat invasive species. See comments re: 11.4.1.3.
163	11.4.1.4	"NNIS control measures shall be considered successful if…NNIS and noxious weeds are absent, unless they are abundant in areas that were not disturbed by construction." The measure of success should be the net change in NNIS density and diversity in and adjacent to the work zone, pre-construction to post-construction. A zero or negative delta means success. An increase in NNIS means a negative impact has occurred. If new NNIS populations are found outside the work zone subsequent to construction, it is likely that construction had something to do with their introduction, be it through overland flow of seed-containing sediment, workers and animals walking through disturbed areas and carrying seed to undisturbed areas, etc. Also, construction disturbance creates the perfect opportunity for existing NNIS infestations outside the work area to seed into the work area. By the above-stated criteria in the COM plan, a new infestation in the work area adjacent to an existing infestation outside the work area would be considered an NNIS control success. Please revise.
163	11.5.1	COM Plan says: Herbicide application will be conducted in accordance with applicable laws and regulations by a licensed contractor. Use of herbicides is not currently a proposed action of this project on Forest Service lands. Types of herbicides selected and effects of using herbicides has not been analyzed in the EIS. Any use of herbicide or pesticide on Forest Service lands requires NEPA analysis. Present NEPA documents covering herbicide/pesticide use on Forest Service lands do not include this proposed project. Comment: add "LRMP Standards" to applicable laws and regulations
164	11.7	"Atlantic will provide USFS with a treatment schedule once the Project nears the construction timeframes." It is neither necessary nor desirable to wait that long. The timing of monitoring and treatment for NNIS depends on species' biology, not construction timeframes. Pre-clearing and pre-construction treatments may need to begin months in advance to be effective. Waiting to develop an NNIS treatment schedule may mean that treatment windows are missed, and Atlantic will need to spend more money later on follow-up applications.

Page #	Section	Comment
		Appendix J of this COM plan describes each NNIS species and its optimal treatment timeframe and method, with timeframes ranging from early spring to late fall. This is sufficient to develop an annual NNIS monitoring and treatment schedule for each species that could start being applied even before exact construction timeframes are finalized. Please develop this plan and provide it with the next iteration of the COM plan.
166	12.4.1	Staging areas and facility sites for hazardous materials storage, overnight parking, and refueling and servicing of machinery, etc., should not be located upslope of any TES plants where runoff or spills could possibly impact them.
170	12.6	The FS previously commented on the following, but no change was made in the COM Plan: "*Atlantic's environmental team will report the spill to the MNF or GWNF, as appropriate, as well as the applicable state regulatory agencies if the spill meets or exceeds a reportable threshold. Table 12.6-1 lists the Federal and State/Commonwealth agencies that would be contacted if a spill meets or exceeds a reportable threshold*." Any and all spills on USFS lands, regardless of whether they meet a 'reportable threshold' will be reported to the MNF or GWJNF. Consult with the USFS for reporting requirements.
170	12.6	"Atlantic's environmental team will report the spill to the MNF or GWNF, as appropriate…if the spill meets or exceeds a reportable threshold." Please report all spills to the MNF or GWNF, as appropriate, that occur upslope of a marked location of a TES plant population.
182	14.0	The COM plan should address Forest LEI concerns involving Post-Construction issues. These issues overlap with cultural resource concerns in that several archaeological sites once protected from collecting will now have uncontrolled access via the pipeline corridor if proposed construction occurs. Furthermore, LEI concerns involving poaching, illegal ATV-OHV usage, ARPA violations, dumping, and other illegal activities will increase utilizing the pipeline corridor. A plan for monitoring involving both USFS LEI and Heritage personnel will be provided by the USFS and included in the COM plan. For Heritage an incremental or phased monitoring plan of the archaeological resources located adjacent to the proposed corridor is necessary and will be implemented by USFS archaeologists to meet SHPO and THPO programmatic agreement demands. LEI concerns covering a constant monitoring of the areas will need to be implemented to ensure public safety and protection of forest resources. Monitoring of forest and cultural resources will be conducted by the USFS and funded through cost recovery.
184	15	COM Plan says: Information on threatened and endangered plants and animals as well as USFS species of concern is contained within the Biological Evaluation submitted to the USFS in November, 2016 and an updated report is scheduled to be filed in February, 2017. The Biological Evaluation is incorporated by reference into this COM Plan. Comment: The Biological Evaluation will analyze effects to species on the Regional Forester's Sensitive Species list. Federally listed species will be analyzed by a Biological Assessment. Please clarify the difference between the two documents. This comment has been made before.
188	17.4	"Prior to construction, ACP will work with both Forests to identify specific road or trail closures or detours necessary… On roads and trails that cross the pipeline right-of-way, ACP will post temporary signs informing road and trail users of any closures, detours, or other restrictions associated with crossing the construction zone." No trails should be routed in a way that will direct the public near TES plant populations, and no sign should contain information about sensitive botanical resources.
190	18.3	Add "and trails" after "roads" in this paragraph. Please see our previous comments on the COM Plan.
191	Table 18.3-1	Add GWNF trails (total of 5 trails) into this chart. These are known required OHV blocking locations.

Page #	Section	Comment
192	18.4	Blocking Measures for ATVs/OHVs: • I do not understand how the "utilize existing vegetation" blocking method would work – if it allows for the passage of maintenance vehicles, it seems it would allow for the passage of ATVs and/or OHVs. Please improve on the description or provide a simple graphic that demonstrates how this would work. • For gated areas that allow for foot traffic (hunting and other dispersed recreation), a clear passage for wheelchairs is required to meet federal accessibility guidelines.
192	18.5	OHV monitoring should be ongoing by ACP personnel with reporting of findings to USFS for the life of the permit/project.
192	18.5	Post-Construction Monitoring: In the second paragraph, add the phrase "in perpetuity: "After two years, the locations will be monitored periodically, in perpetuity, by USFS and pipeline operations staff…."
193	19.0	Atlantic will install stream crossings in accordance with the FERC Procedures and USACE permitting requirements
193	19.0	The purpose of this plan is to describe how water quality monitoring activities will be conducted on USFS lands where stream crossings are planned. Please also address water quality monitoring at bleeder drain outlets.
193-195	19.1-19.6	Only West Virginia has numeric standards applicable to turbidity. Consider also Virginia's benthic macroinvertebrate standards. That is in essence a surrogate for turbidity impacts. Update the following sections to account for macroinvertebrate standards as well.
194	19.4	Document states: "Measurements of turbidity will occur at all stream crossings that are state-designated as either coldwater or significant coolwater or warmwater fisheries." The Water Quality monitoring plan only includes turbidity monitoring and only "at all stream crossings that are state-designated as either coldwater or significant coolwater or warmwater fisheries" for 4 days following construction. This does not address chronic impacts. Downstream turbidity monitoring during and following construction is good, but Monitoring needs to include the physical and biological stream condition post construction for a number of years. It also needs to include streams other than those designated as cold water or significant cool and warm water fisheries. It is unclear exactly which streams will be included in this monitoring. Please provide a list. Several streams that are crossed on FS land are tributaries to coldwater streams and should be included in this list.
196	20.2	"Atlantic is also considering active replanting of the outer most 20 feet…with a combination of indigenous tree and shrub seedlings (Figure 20-2). If replanting is conducted, tree and shrub species [and] seed stocks…will be selected based on availability within the project area, as well as with consultations with USFS staff." Thank you for considering this restoration measure. If done correctly it has the potential to benefit many resources. Figure 20-2 only shows a diagram of the planting layout, and does not provide any species lists. In keeping with the MNF LRMP, please do consult with USFS to develop lists of site-appropriate native species, sourced from genetically local stock, that are likely to thrive with minimal to no follow-up care. "Atlantic would monitor the planted area…but would not plan to actively monitor or mange…" Fix typo.
196-199	20.1 to 20.2 and Figures 20-1 & 20-2	Feathering Vegetation Clearing on the Right-of-Way: The definition of feathering needs to include that it results in a mixed density and mixed height of trees and shrubs to reduce the strong contrast of the vegetative edge of the corridor. I do not agree that this technique, particularly if only employed in the construction r-o-w, will be sufficient to reduce impacts to scenery at certain road crossings, trails, and areas visible in the middleground viewed from the ANST. Additional coordination is needed with the USFS regarding the sections of the EIS and COM Plan related to revegetation options to reduce impacts to scenery.
		Attachment A: ROW Configurations

Page #	Section	Comment
n/a	Attachment A	The configuration "Atlantic Coast Pipeline and Supply Header Projects Cut and Fill Construction" contains this Note: "1. TWO-TONE THE RIGHT OF WAY TO LIMIT THE NEED FOR DEEP CUTS AND ADDITIONAL RIGHT OF WAY ON STEEP SOILS." Provide a detailed description of the Two Tone configuration and how it differs from standard working side/spoil side configuration. A FERC DEIS displays a Typical Two-Tone Construction Right-of-Way (FIGURE: 2.3.2-2, page 2-22, FERC, 2006b, Draft Environmental Impact Statement for the Carthage to Perryville Project, May 26. Available at http://www.ferc.gov/industries/gas/enviro/eis/2006/05-26-06.asp.). The FERC DEIS Typical Two Tone has a different configuration from the ACP Two Tone configuration. Explain the reason for the difference. The FERC DEIS states, "The two-tone construction technique would likely require extra workspace areas to accommodate the additional volumes of fill material generated by this technique (see Section 3.8). Following pipeline installation and backfill of the trench, excavated material would be placed back in the cut and compacted to restore the approximate original contours." Provide site specific locations where ACP would use the two tone method on NFS lands, including every location where ATWS would be needed. Provide a set of profiles (cross-sections) with dimensions (feet) based on lidar or detailed survey for each two tone segment on each Alignment Sheet in Attachment B. Another Note states, "4. USE BACKHOE TO ASSIST BULLDOZERS WITH REPLACING CUTS. RECONTOUR TO MAXIMUM 1:3 GRADE UNLESS OTHERWISE DIRECTED BY GEOTECHNICAL ENGINEER." Clarify if this note refers to recontouring cuts to a maximum 1:3 or maximum 3:1. If it is meant to recontour to 3 horizontal to 1 vertical, justify the use of such low-angle to recontour a vertical cut as deep into the mountainside as shown in two tone configuration in Attachment A. Since Note 1 justifies the two tone method for use on steep slopes, explain the circumstances when "recontouring" a cut into a 3 horizontal to 1 vertical slope would be justified for the two tone configuration displayed in Attachment A. The excavation for a 3:1 slope would extend upslope beyond the additional ROW boundary, regardless of whether the 3:1 "recontour" begins at the base of the vertical cut or far to the left at the intersection of the natural grade and the horizontal workspace and regardless of using a combination of cut-and-fill to create a 3:1 slope. The excavation for a 3:1 slope would extend upslope beyond the additional ROW boundary, regardless of whether the 3:1 "recontour" begins at the base of the vertical cut or far to the left at the intersection of the natural grade and the horizontal workspace and regardless of using a combination of cut-and-fill to create a 3:1 slope. Explain how a 3:1 slope could be justified in the two tone configuration displayed in Attachment A. The left side of the configuration shows a spoil and fill placed on a 60% natural slope grade. The fill slope has an unrealistically steep slope grade (overall slope of about 65 degrees or 200% or 1/2:1) with a vertical slope as the base of the fill slope. The fill slope shown would be unstable and likely to result in a massive fill slope failure. The instability of the fill slope is increased by placing the added weight of a spoil pile on top of the fill. If the fill slope were drawn at a realistic slope grade, such as 1.5:1 or 2:1, the fill would extend downslope far beyond the additional ROW boundary. The same type of unstable fill slope is shown perched above the top of the cut on the right side of the configuration. If one uses the "Standard R.O.W. Width" as a scale for 125 feet, there are other distortions, such as a 22 feet deep trench. While Note 4 directs recontouring, there is no profile showing the reclaimed ground surface. For example, does the fill on left side remain in place as part of reclamation or does equipment scoop the fill up and use it as backfill over the cut as part of reclamation. What is the practicality and extent of reach to retrieve fill placed on a 60% natural slope grade?

Page #	Section	Comment
		Overall, the two tone configuration in Attachment A is a misleading and erroneous conceptual configuration. Replace this configuration in Attachment A with a profile (cross-section) with dimensions (feet) based on a lidar or ground survey and display 1) the original ground surface, 2) the maximum extent of the cut, fill and spoil during construction, 3) the post-construction reclaimed ground surface. Provide a description of the sequence of construction operations and reclamation operations.
04-10	Attachment A	These 7 diagrams show a 50' dimension as distance from live streams to ATWS areas. Per page 23, section 2.1.9.1, 4th paragraph, this dimension should be a minimum of 100' either side of all live streams.
		Attachment B – Alignment Sheets
n/a	Attachment B	Attachment B provides the alignment sheets for the pipeline route. Within these sheets, there is a list of notes 1-7. Number 6 states that, "These drawings are not intended to provide erosion and sedimentation control requirements. See erosion and sediment control plans for complete requirements and BMP location." The FS has not seen the erosion and sediment control requirement plans for construction which include the placement of E&S controls and BMP control locations along the pipeline route on NFS Lands. These plans should include identification of areas that are > 40% slope, wetlands, streams, riparian areas, mileposts, environmentally sensitive areas, construction entrances, sensitive species locations and buffers, and all E&S controls and BMP controls (i.e., trench plug locations, timber mats, ATWS, temporary workspaces, permanent workspaces, filter socks, slope breakers, bleeder drain outlets, etc.) drawn to scale.
n/a	Attachment B	Attachment B is the Alignment Sheets for the proposed pipeline route. Several comments: • Similar to the Access Road Improvement Map Sheets of Attachment 5, use of the fall-color and leaf-off background imagery is confusing and distracting. • Property boundaries and property ownerships are difficult to identify. • Mileposts (location of this sheet within the broader context of the overall pipeline) are difficult to see. • Ownership information does not include identification of landowner by name, and it needs to, at least for the USFS. • Diagrams in this attachment refer to "Extra Work Space" – clarify if this is the same as or different than "Additional Temporary Work Space (ATWS)" as labelled and described everywhere else throughout the COM plan and attachments • All sheets show certain areas of "Extra Work Space", presumably for topsoil segregation. As previously stated – please determine whether full topsoil segregation is required on all USFS lands or on all GWNF lands and revise diagrams accordingly – including corridor width and ATWSs. • ALL Alignment Sheets need to be modified to include readable Road Numbers (US-##, VA-##, SR-##, FR-##, etc). This comment was made on Draft-1 and not incorporated. • Alignment Sheets need to show and identify all Forest Trails (Name and Forest Trail ## (FT-##) crossed by and adjacent to the proposed pipeline route. Total of 5 Forest Trails on the GWNF. This comment was made on Draft-1 and not incorporated. • Sheet 127 of 344 shows 2 proposed access roads, including one (36-014.AR3) that runs right up Laurel Run, is unacceptable to the USFS, and which ACP has promised not to use. Please remove this from all sheets to avoid confusion. • These Alignment Sheets appear to show ATWS in many locations at 50' from live streams. Per page 23 of COM Plan, all ATWS must be a minimum of 100' from live streams. Revise / change this throughout. • Sheets 198 and 199 of 344, change "Appalachian Trail" to "Appalachian National Scenic Trail" throughout. • Sheet 198 of 344: label Blue Ridge Parkway.
n/a	Attachment B	• If it doesn't already exist (I didn't find it, but maybe missed it), provide a crosswalk table or index that shows Alignment Sheet Drawing Numbers, PI Stations and ACP Mileposts. • Add the MNF and GWNF boundaries to the alignment sheets.

Page #	Section	Comment
		• Add name labels to all public roads that appear on the alignment sheets.
n/a	Alignment Sheets (General)	1) Provide vicinity map(s) for alignment sheets either as insets into map sheets or as separate overview maps in order to more easily find where the alignment sheets are located. 2) Add milepost references to alignment sheets in order to match up locations described in the COM plan with where they are on the alignment sheets. 3) Add Forest Service tract numbers to the property ownership labels. 4) update alignment sheets with accurate NFS boundaries based on field boundary surveys and locations (reference: 12/19/2016 USFS letter to FERC regarding Surveys of Property Boundaries on NFS Lands). 5) provide alignment sheets for new access roads and existing roads proposed for reconstruction/ improvement.
n/a	Attachment B Alignment Sheets	Most people do not use county tax maps to locate themselves. Maps should clearly show MNF lands. Map groups should be separated by the MNF and GWJNF.
		Attachment C – Slope Stability Policy and Procedure
n/a	Attachment C	The Slope Stability Policy and Procedure for Pipeline Design, Construction and Right of Way Maintenance (Appendix C, Sept 28, 2016) refers to a DTI Project Team/field engineer and DTI Engineering Management as every stage of the process but does not state what professionals are on the Team. Landslides (or slips) are geologic hazards. An engineering geologist is essential to every phase of Slope Stability Policy and Procedure for projected-induced landslides as well as natural landslides. Revise the Slope Stability Policy and Procedure to state specifically that an engineering geologist experienced in landslide avoidance, identification, prevention, and remediation will be a core member of the team at each phase of Pipeline Siting, Design, Construction and Right of Way Maintenance. The Slope Stability Policy and Procedure focuses on a few factors, such as slope inclination, which while important, are not sufficient to characterize the many geologic factors (such as different geologic materials, geologic structures, and geologic processes) relevant to assessing natural and project-induced landslide hazards. The Slope Stability Policy and Procedure appears to be a document developed by engineers trying to assess geologic hazards with little input if any from geologists experienced in landslide avoidance, identification, prevention, and remediation. Revise the Slope Stability Policy and Procedure with the aid of an engineering geologist working together with a geotechnical engineer. A geotechnical engineer alone is not sufficient to insure that complex geologic conditions are properly identified, interpreted, and applied in the siting, design, construction and maintenance of the project and in the remediation of landslides. An engineering geologist and geotechnical engineer working together are core team members required to assure due diligence for projects like this where recognition of natural and project-induced landslide hazards and other geologic hazards are critical to a successful project.
16	3.2.2	"*3.2.2 Define Slopes of Greater than 30 Degrees.* *The desktop study must identify the degree of slope for the entire route. There are several methods to identify and define the degree of slope, either by direct measurement from topographic maps or using various computer programs. The DTI Project Team/field engineer will select an appropriate method based on the size of the project. The DTI Project Team/field engineer may select a slope angle that is shallower than 30 degrees on a project-specific bases*." Please provide the results from this desktop analysis along with site-specific designs for each location that is greater than 40% slope on NFS Lands.
21	4.1	**4.1 Excavation Minimization—**address the maximum amount of construction and disturbance lengths allowed during pipeline installation at any one time- Realizing that the steeper sloped areas especially with unstable soils require limits on lengths of active construction where length decreases as slope increases. Set a limit of maximum allowable disturbance per particular amount of slope.

Page #	Section	Comment
22	4.2	"*Slope failures and slope failure-prone areas must be included in the project plans. The following items must be included on the Stormwater Pollution Prevention Plans (SWPPP) and the Erosion and Sediment (E&S) control plans:* • *Slope failure areas having high risk, as determined in Section 3.4;* • *Existing slope failures; and,* • *Slopes steeper than 30 degrees (58 percent).* *The above items will be clearly identified on the plans using legend items, shading, or call outs such that the information is conveyed to the construction personnel and that awareness of the hazard is communicated."* The Forest Service has not seen this SWPPP document. Please provide this document for FS review.
22	4.4	"*The project plans and specifications must include provisions for additional subsurface drainage on slopes greater than 30 degrees (58 percent). Include callouts and details in the E&S plans for location and type of drainage*." On MNF Lands, SW07 prohibits the use of mechanized equipment on slopes greater than 40% (approx. 22 degrees) without interdisciplinary team review and line officer approval of mitigation measures to maintain stability. Therefore, on MNF Lands, project plans and specifications must include provisions for additional subsurface drainage on slopes greater than 40%.
22	4.5	"*Project-specific engineered details and specifications must be developed for those slope failure-prone areas requiring engineered preventative measures, as identified in Section 3.5. These locations will likely include areas with slopes steeper than 30 degrees (58 percent), or locations requiring pre-emptive repair of an existing slope failure in the proposed pipeline corridor*." On MNF Lands, compliance with SW07 means assurance that slope stability can be attained on slopes greater than 40%. Therefore, project-specific engineered details and specifications must be developed for those slope failure-prone areas requiring preventative measures including areas with slopes steeper than 40% (approx. 22 degrees).
23	4.5	*" Drainage Improvement:* • *Provide subsurface drainage at seep locations through granular fill and outlet pipes.* • *Incorporate drainage into trench breakers using granular fill.* • *Intercepting groundwater seeps and diverting off ROW*." Please specify in more detail what type of granular fill will be utilized and how it will be utilized.
24	4.5	" *Bench and Regrade with Controlled Backfill:* • *A common slope failure repair approach for slopes up to 30 degrees (58 percent) includes removal of the failed soil mass and reconstruction of the slope by cutting level benches into competent soil or rock beneath the failure plane, installing subsurface drainage, and placing compacted soil or other material as backfill*." Although geotechnical compaction may be needed, intentional compaction of soils will not occur on NFS Lands.
24	4.5	*" Use Alternate Backfill:* • *The potential use of controlled low strength material (CLSM), such as cementitious flowable fill, as backfill within the pipeline trench could be considered as a method to reduce the pipeline trench from collecting and transporting water. The challenge is placing this material incrementally up the slope and containing it long enough for the flowable fill to harden and gain strength. Note: Dominion policy does not allow the use of CLSM containing fly ash as filler. Therefore a flowable fill using fine aggregates or sand must be used*."

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		CLSM will not be used as backfill material on NFS Lands.
24	4.5	*" Chemical Stabilization of Backfill:* • *Chemical modifiers, such as cement and lime, have successfully been used to dry cohesive soils that are saturated beyond the optimum moisture content, and are often used to extend the construction season. When used at higher concentrations, these modified soils can exhibit increased strength properties that can benefit slope failure stabilization projects on slopes up to 30 degrees (58 percent) or greater*." Cement will not be used on NFS Lands to dry cohesive soils that are saturated. The use of USFS-approved lime may be used to dry saturated soil.
25-26	4.6	Any modification to stormwater BMPs will require USFS approval on NFS Lands.
27	4.7	"*West Virginia: WVDEP requires that the SWPPP include information on slide prone areas and the methods to be implemented to both avoid slope failures and a plan of action should slope failures occu*r." In WV on MNF lands, SWPP shall include information on slide-prone areas including steep slopes (slopes >40%).
36	6.2.2	"*Typical details for temporary containment measures, including silt fence, silt sock, super silt fence, and jersey barriers, are included in the SWPPP*." Silt fence shall not be used at locations of concentrated overland flow, whether the flow is natural or constructed. Compost filter socks or other controls designed to filter or chemically remove sediment from water shall be used in those locations, subject to FS approval. Silt fence may be used as perimeter control where concentrated flow does not exist, as well as where prescribed as a barrier to keep threatened, endangered, and sensitive (TES) species out of the work area, or spoil materials or sediments out of TES habitat.
38	6.2.5	• " *Remove soil at the top of the slope failure to unload the slope;* • *Install a toe buttress using soil or rock fill, gabion baskets or similar devices;* • *If possible, perform minor regrading of the slope with some level of compaction to smooth out the existing scarps and reduce the number of pockets in which water can collect;* • *Direct drainage away from the slope failure through waterbars, diversion ditches, or temporary drains;* • *Place plastic on the failed slope to protect the soils from rainfall and surface runoff; and* • *Monitor the slope failure for signs of slope movement, especially after periods of heavy rain fall. If additional movement is detected or visible (i.e. cracks or scarps), notify Dominion Engineering for assistance*." If soil is removed from the top of the slope failure to unload the slope, this soil material will need to be stockpiled using appropriate erosion control measures to reduce erosion and sedimentation and replaced for revegetation once the slope is stabilized. Increasing compaction to the slope will increase soil bulk density, decrease porosity and water infiltration, thus decreasing revegetation potential which will increase the overall instability of the slope long-term. Plastic will not be placed on any NFS Lands. The use of hydraulic mulches, soil tackifiers, mulch, soil conditioners, etc. will be used to cover bare soil and reduce exposure to rain impact.

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39	8.0	" *If it is determined that a slope failure is caused by the actions of a third party and not related to pipeline construction or activities by DTI, the DTI Engineering Team or Operations will contact the DTI Land, Lease, and ROW group to make notification to the third party of the slope failure*." If the failure was caused by a third party contracted by DTI, ACP, or Dominion, and the third party does not have the funds to remediate, repair, and restore the slope failure, then DTI ACP Dominion is responsible for such repairs, restorations, and remediations on NFS Lands.
		Attachment D – Winter Construction
1	2.0	"*Within the ACP Project area and SHP Project area, the timing and extent of Winter conditions, such as snowfall and frozen soils, vary a great deal. The northern portions of the Projects, including Pennsylvania and the mountainous regions of West Virginia and Virginia, can have temperatures below freezing from early October through late April, with frozen soil conditions potentially occurring within these months (National Oceanic and Atmospheric Administration [NOAA], 2012a and 2012b)*." Due to the current varying weather conditions, it is unlikely that soils will continue to freeze. If soils do not freeze during the projected winter operation season, ACP will need to utilize methods that are not conducive to erosion and compaction of soils. ACP EI's and FS representatives will need to determine on site if soil are frozen to the point that compaction and erosion issues will be limited. ACP will need to provide the FS with construction methods that will meet MNF LRMP's such as SW06, SW07, SW09, SW19, etc.
1	2.0	"*In the transitional period between non-frozen and frozen soil conditions, Atlantic and DTI will implement appropriate measures as described in the Plan, Procedures, Restoration and Rehabilitation Plan, or this Winter Construction Plan based on site-specific conditions (e.g., soil stability) as determined by Atlantic's and DTI's Environmental Inspectors (EIs), 1 activity inspectors, and construction manager*." On NFS Lands, the FS representative will also determine if site-specific conditions are such that will not result in compaction or erosion and sedimentation.
2	4.0	**Snow Removal**- on graveled **access roads** on National Forest System Lands shall have a minimum of snow left to protect the road base and with required drainage-if such sections and conditions require blading down to road base then operator will be required to repair and replace this material per NFS standards. A road use permit may be required. **SNOW REMOVAL.** Snow removal shall be conducted in a manner that protects roads, ensures safe and efficient transportation of materials, and prevents erosion damage to roads, streams, and adjacent lands. The holder shall: 1. Remove snow from the entire width of the road surface, including turnouts. 2. Remove snow slides, earth slides, fallen timber, and boulders that obstruct the road surface. 3. Remove snow, ice, and debris from ditches and culverts so that the drainage system will function efficiently at all times. 4. Deposit all debris, except snow and ice, removed from the road surface and ditches at locations approved by the responsible official and away from stream channels.

Page #	Section	Comment
		5. Blades used to remove snow shall be equipped with skid shoes to prevent loss of surfacing and damage to the road. A minimum of 2 (two) inches of snow must be left to protect the road. 6. Restore any damage resulting from snow removal in a timely manner. 7. Ensure that snow plowing is conducted in accordance with the traffic control plan required under clause II.D. The holder shall not: 8. Undercut constructed slopes or remove gravel or other surfacing material from the road surface. 9. Leave snow berms on the road surface. Berms on the shoulder of the road shall be removed or drainage holes shall be opened and maintained. Drainage holes shall be spaced as necessary to obtain satisfactory surface drainage without discharge on erodible fills. 10. Use equipment with cleats or other tracks to plow snow without prior written approval of the responsible official. 11. Use any agents, chemical or physical, to aid in the removal of snow
2	4.0	"*Snow will be removed from both the working and spoil sides of the construction right-of-way prior to topsoil segregation and grading to prevent mixing of snow with excavated spoil. Snow will be removed and stockpiled along the edges of the construction right-of-way or in approved ATWS areas, or blown off the right-of-way as described above. Gaps will be left in stockpiled snow piles based on an assessment of drainage patterns to allow water to drain off of the right-of-way during the Spring thaw or other warm periods. Gaps also will be left in the stockpiled snow at drainage crossings.*" ACP will use temporary erosion controls, such as filter socks, in between stockpiled topsoil and spoil material and stockpiled snow to prevent erosion or mixing on NFS Lands.
3	5.0	"*In agricultural lands, topsoil will be removed and segregated from the trenchline and the spoil side of the construction right-of-way with the exception of areas directly beneath snow stockpiles. In open uplands, including pasture and hay fields, topsoil will be removed and segregated from the trenchline only with the exception of limited areas where grading is necessary to create a level work surface within the construction right-of-way. Topsoil typically will be removed using a step blade attached to a bulldozer. Alternatively, Atlantic and DTI may remove topsoil in frozen conditions by ripping with a grader or heavy disc or by utilizing a pavement excavator to pulverize the topsoil and allow for conventional removal*." ACP needs to provide details on how topsoil will be segregated in forested areas and on steep slopes on NFS Lands. At a minimum, the FS will require segregation over the trench area for the top 6 inches of material, or all actual topsoil as identified by the FS, whichever is deeper, throughout all areas of National Forest land.
4	5.0	"*Soils excavated while frozen may slump if they thaw. To prevent the mixing of topsoil and subsoil if slumping occurs, Atlantic and DTI will cover the stockpiled topsoil in mulch, which will create a barrier between topsoil and subsoil*." ACP will need to have topsoil separate from subsoil during stockpiling on NFS Lands.

Page #	Section	Comment
4	5.0	"*In upland areas, the trench will be backfilled with subsoil as described below. Depending on the extent of frost penetration in topsoil piles, however, the topsoil may be stockpiled over the Winter for replacement during the following Spring when it can be worked and contoured*." Stockpiled topsoil will need to have temporary erosion control measures to limit erosion. This will require mulch and filter socks providing a perimeter barrier that will limit sedimentation and erosion.
4	5.0	"*Stockpiled subsoil will develop a layer of frost penetration, the thickness of which will be dependent on water content, temperature, wind, and snow cover conditions. Prior to backfilling, frozen material will be skimmed off the top of the subsoil pile to provide access to underlying, unfrozen subsoil for backfilling. The unfrozen subsoil material will be backfilled over the pipeline first, followed by the frozen subsoil material. If frozen subsoil exhibits lumps or sharp edges that could damage the coating on the pipeline, Atlantic's or DTI's construction manager will determine appropriate backfill measures to be implemented. Such measures may include the use of mechanical shakers or grinders to break up frozen subsoils prior to backfilling, or in extreme cases, the use of sand padding around the pipe. If sand padding is used, it will be obtained from an upland commercial source and used in upland areas only*." Frozen subsoil will not be placed back into the trench until it has thawed and then dried to the allowable moisture content explained below: Topsoil and spoil material shall be replaced only when moisture levels in those reserved materials are at appropriate levels. Appropriate levels shall be determined using Time Domain Reflectometry (TDR) measurements taken at 5 or more locations in each pile between 1 and 2 ft below the pile surface. This requirement applies to all spoil piles on National Forest land, except as noted otherwise below. In jurisdictional wetland areas, ACP is not required to conduct soil moisture testing. The flat topography of the wetlands being crossed by the project is not likely to lead to slope failures. In areas that (1) are not jurisdictional wetlands, and (2) were identified by the Order 1 soil survey as having wet or poorly drained soil, testing is required regardless of the timing of excavation and backfill, and regardless of any precipitation that may or may not have occurred between initial excavation and completion of backfilling. In all other areas, testing is not required if (1) excavation and backfilling occur on the same day, or (2) no precipitation occurs between initial excavation and completion of backfilling. All individual moisture values from each pile (not the average of all measurements) must be less than 25 percent volumetric water content for replacement of material into the trench (spoil material) or onto the surface of the trench (topsoil). Twenty-five percent volumetric water content is approximately field capacity (field capacity is the approximate soil moisture resulting from 2 to 3 days of drainage following saturation). ACP shall employ qualified and trained inspectors who will be responsible for taking TDR measurements and evaluating whether the results meet allowable soil moisture requirements for backfilling. The number of inspectors will be adjusted (increased or decreased) based on the schedule of activities and the needs of the project. The TDR unit (brand and model) must be agreed to as suitable by the Forest Service. ACP's inspector shall keep records of the measured moisture levels for each topsoil and spoil pile at or just before the time of replacement into or onto the trench. The location (i.e., GPS locations along with the nearest milepost) of each topsoil or spoil pile shall be noted along with those moisture levels.

Page #	Section	Comment
		TDR measurements shall be taken during the construction phase of the Project during trench backfilling (both subsoil and topsoil) on National Forest lands. Measurement results shall be provided to the Forest Service weekly, except for weeks when no backfilling occurs on National Forest land. The Forest Service will be notified that no backfilling occurred via ACP's weekly status report, which is filed on the FERC docket. If moisture levels are found to be unsuitable for replacement (i.e., they exceed allowable moisture requirements), topsoil or spoil material may be mechanically mixed, or Forest Service-approved materials (e.g. lime, etc.) may be physically mixed in, to allow evaporation to achieve allowable moisture levels.
5	5.0	"*Final cleanup activities will be performed once the ground is fully thawed in the Spring and the topsoil (and subsoil, if applicable) stockpiled over Winter has dried sufficiently to allow it to be worked without causing excessive compaction and/or rutting. The schedule for final clean-up will be determined based on ground conditions, but Atlantic and DTI anticipate that activities will resume in the Spring or as soon as extended periods above freezing occur*" Describe techniques for ensuring moisture levels in backfilled material do not present an elevated risk of slippage. Topsoil and spoil material shall be replaced only when moisture levels in those reserved materials are at appropriate levels. Appropriate levels shall be determined using Time Domain Reflectometry (TDR) measurements taken at 5 or more locations in each pile between 1 and 2 ft below the pile surface. This requirement applies to all spoil piles on National Forest land, except as noted otherwise below. In jurisdictional wetland areas, ACP is not required to conduct soil moisture testing. The flat topography of the wetlands being crossed by the project is not likely to lead to slope failures. In areas that (1) are not jurisdictional wetlands, and (2) were identified by the Order 1 soil survey as having wet or poorly drained soil, testing is required regardless of the timing of excavation and backfill, and regardless of any precipitation that may or may not have occurred between initial excavation and completion of backfilling. In all other areas, testing is not required if (1) excavation and backfilling occur on the same day, or (2) no precipitation occurs between initial excavation and completion of backfilling. All individual moisture values from each pile (not the average of all measurements) must be less than 25 percent volumetric water content for replacement of material into the trench (spoil material) or onto the surface of the trench (topsoil). Twenty-five percent volumetric water content is approximately field capacity (field capacity is the approximate soil moisture resulting from 2 to 3 days of drainage following saturation). ACP shall employ qualified and trained inspectors who will be responsible for taking TDR measurements and evaluating whether the results meet allowable soil moisture requirements for backfilling. The number of inspectors will be adjusted (increased or decreased) based on the schedule of activities and the needs of the project. The TDR unit (brand and model) must be agreed to as suitable by the Forest Service. ACP's inspector shall keep records of the measured moisture levels for each topsoil and spoil pile at or just before the time of replacement into or onto the trench. The location (i.e., GPS locations along with the nearest milepost) of each topsoil or spoil pile shall be noted along with those moisture levels.

Page #	Section	Comment
		TDR measurements shall be taken during the construction phase of the Project during trench backfilling (both subsoil and topsoil) on National Forest lands. Measurement results shall be provided to the Forest Service weekly, except for weeks when no backfilling occurs on National Forest land. The Forest Service will be notified that no backfilling occurred via ACP's weekly status report, which is filed on the FERC docket. If moisture levels are found to be unsuitable for replacement (i.e., they exceed allowable moisture requirements), topsoil or spoil material may be mechanically mixed, or Forest Service-approved materials (e.g. lime, etc.) may be physically mixed in, to allow evaporation to achieve allowable moisture levels.
5	6.0	"*Construction in Winter months may minimize impacts in wetlands because construction will occur outside of the wet (Spring, Summer, and Fall) seasons in areas where sustained frozen conditions occur along the pipeline routes. In Winter conditions, frozen soils may provide stability for construction equipment working on the right-of-way and help prevent sloughing of the pipe trench which could occur in the Spring, Summer, and Fall seasons due to saturated conditions.*" Due to the current varying weather conditions, it is unlikely that soils will continue to freeze. If soils do not freeze during the projected winter operation season, ACP will need to utilize methods that are not conducive to erosion and compaction of soils. ACP EI's and FS representatives will need to determine on site if soil are frozen to the point that compaction and erosion issues will be limited. ACP will need to provide the FS with construction methods that will meet MNF LRMP's such as SW06, SW07, SW09, SW19, SW37, etc.
5	6.0	"*In frozen soil conditions in wetlands, Atlantic and DTI will remove and segregate topsoil from the area disturbed by trenching, but a thin layer of topsoil may be left over the trenchline during the process of removing the topsoil to prevent the introduction of subsoil into the segregated topsoil.*" ACP will not leave a thin layer of topsoil over the trench line during the removal of topsoil. If very limited amounts of subsoil are introduced unintentionally into topsoil piles that is more acceptable than mixing topsoil amounts with the majority of subsoil amounts when stockpiled.
5 and 6	6.0, 7.0 Wetlands, Waterbodies	*"Construction in Winter months may minimize impacts in wetlands because construction will occur outside of the wet (Spring, Summer, and Fall) seasons in areas where sustained frozen conditions occur along the pipeline routes." "Construction in the Winter may minimize impacts on waterbodies because construction will occur outside of the wet seasons in the areas crossed. This may avoid or minimize the potential for increased turbidity within waterbodies as well as impacts on fisheries."* Spring, Summer and Fall are not necessarily the wet times of year on FS lands in Virginia. Precipitation is normally well distributed. Many years Winter can be very wet due to rain, snow melt, rain on snow events and lower evapotranspiration levels. Freezing and thawing, especially on southerly aspects, can create high soil compaction hazards and rutting. Frozen soil conditions are variable on FS land in Virginia in Winter, depending on weather, aspects and elevations. In reality there does not appear to be "wet seasons" in many areas of FS land in Virginia, so these statements may not apply there and maybe other areas along the proposed route.
6	8.0	"*In frozen conditions, temporary slope breakers will not be installed during initial clearing and grading activities because soils will be frozen and not subject to erosion*." Due to the current varying weather conditions, it is unlikely that soils will continue to freeze. If soils do not freeze during the projected winter operation season, ACP will need to utilize methods that are not conducive to erosion and compaction of soils.

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		ACP EI's and FS representatives will need to determine on site if soil are frozen to the point that compaction and erosion issues will be limited. If soils are or are not frozen, temporary erosion control devices will still need to be in place to reduce the risk of erosion and sedimentation if potential thawing were to occur. ACP will need to provide the FS with construction methods that will meet MNF LRMP's such as SW06, SW07, SW09, SW19, etc.
8	8.0	"*Where required on the construction right-of-way, mulch typically will be applied at a rate of 2 tons/acre. When mulching before seeding, however, mulch will be applied at a rate of 3 tons/acre on slopes within 100 feet of waterbodies and wetlands. If conditions preclude crimping, Atlantic or DTI may elect to spray water to freeze the mulch in place, or apply a biodegradable tackifier.*" Atlantic will not spray water on NFS Lands to freeze mulch in place. On NFS Lands, the application of a hydraulic mulch or tackifier will be used.
9	13.0	"*The Contractors will install mats along the travel lane where soils are excessively wet and rutting is occurring to prevent mixing of topsoil and subsoil*." ACP will have to provide description on how they are going to comply with MNF LRMP SW06 and SW07.
9	13.0	• " *The Contractors may use frost driving measures, such as snow packing, to increase the load bearing capacity of the ground where necessary to remove equipment off the right-of-way (but not as a condition to allow construction to continue). The frost driving measures will be implemented in the early morning or evening to take advantage of colder temperatures.* • *If native materials become unsuitable for frost driving, e.g., mud resulting from snow melt, timber equipment mats will be used to create a suitable driving surface.* • *If the EI and construction manager determine that muddy conditions are severe and rutting occurs, work will be suspended until conditions improve*." Atlantic will have to comply with MNF LRMP SW06 and SW07. Atlantic will not be able to conduct construction operations when soil conditions are saturated and create erosion and compaction issues along the ROW and disturbance areas on NFS Lands.
9		Dominion should note that when construction is halted due to weather or dangerous operating conditions during the winter, seeding at normal or increased rates alone will not meet Forest Service requirements for stabilization. Therefore: -To the maximum extent practicable, Dominion shall complete construction in areas identified as susceptible to slope instability or erosion (e.g., steep slopes) at a time in the construction cycle that maximizes the available growing season length for revegetation, while complying with other timing commitments related to TES species. Dominion shall address this aspect of construction sequencing in the COM plan for National Forest land. - Soil conditioner or hydraulic mulch applications shall be permitted year-round for pipeline restoration. West Virginia Department of Environmental Protection vegetative ground cover requirements (70 percent cover) shall be met in spring even if hydroseeding and soil conditioner or hydraulic mulch applications are made during late fall or winter. If ground cover requirements are not met because the seed sowed during the dormant season became nonviable, additional seeding and soil amendments shall be applied. Reseeding and soil amendment application shall be required at the start of the spring. The timing for reseeding and other amendments shall be in accordance with manufacturer's recommendations for both the seed mix and the application for soil conditioners or hydraulic mulches. Dominion will

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		coordinate with the Forest Service by March 15th to determine if reseeding or other amendments are necessary in areas that were seeded during late fall or winter and are on the schedule for early inspection in the spring. Temporary erosion control for work stoppages during the winter shall be required where soil disturbance has occurred but pipeline construction or reclamation has not been completed. Temporary erosion control shall require treatment of soil materials and the soil surface to reduce the potential for soil movement, as well as installation of erosion control treatments to further ensure sediment transport is controlled. Rough surfacing shall be used to increase the potential for water infiltration and reduce the potential for sheet erosion. Soil protection shall be provided to rough surfaced areas to enhance temporary erosion control during the dormant season. Protection will be in the form of soil conditioners or hydraulic mulches (e.g., polyacrylamides, polysaccharides, etc.) or weed-free mulch or similar soil cover determined to be suitable by the Forest Service. Weed-free mulch or similar soil cover may be used as a substitute for, or augmentation to, soil conditioners or hydraulic mulches. These forms of soil protection may be applied with or without seed application. The soil conditioners or hydraulic mulches that are used shall be identified by Dominion and be suitable for the soil chemical conditions. The Forest Service must approve the selected conditioner(s) prior to application. Different soil conditioners or hydraulic mulches may be needed at different locations along the pipeline route because soil chemistry varies along the route. The expected life of the soil conditioner or hydraulic mulch shall be a consideration in the selection; if the expected effective life of the soil conditioner or hydraulic mulch is less than the time until work resumes, additional applications of the soil conditioner or hydraulic mulch shall be required. For mulches, at a minimum, the type of mulch and application method shall be capable of preventing erosion by raindrop impact and interrill and rill flow. The type, application rate, and application method must be approved by the Forest Service prior to application. Tackifiers that are used for retention of mulch on the site must be approved by the Forest Service. Use of asphalt emulsion tackifiers shall not be permitted on National Forest land. Additional sediment control treatments, such as barriers, shall be used in addition to other winter-work stoppage temporary erosion controls in case the other erosion controls (e.g., soil conditioners or hydraulic mulches, mulch, etc.) are not fully effective.
		Attachment F – Access Road Maps
n/a	General	Engineering will need to review site specific plans and project specifications for any road work, including maintenance, reconstruction, and construction. Road reconstruction or construction should follow FP03 standards (FHWA). Culverts should be designed for 50 year storm event (at a minimum) Please include all planned culvert crossings. Attachment F does not appear to address all needed crossings.
n/a	Access Road Imp. Maps	Some ownership labels are erroneously placed.

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n/a	Access Road Improvement maps	In general the maps do not appear to be based on true parcel boundary locations, appears to be a GIS product. Ownership boundaries are not accurate. Survey grade data should be used to delineate parcel boundaries, features, and areas to be potentially encumbered (permanently and temporary) on USFS lands.
n/a	Access Road Improvement Maps Part 01 (FR 1012)	- Widening should be clearly marked out prior to a full field visit. - Overall width is very narrow, this is a cause for concern over access with any truck/trailer combination. - Road profile: The grade from station 2+50 to 16+00 is moderately steep, the modification to drainage dips on this portion of road could cause drainage problems, and this could be a problem for heavy truck/trailer combination. - At 00+00 (beginning of road) off of WV 92, suggestion would be to increase sight distance along with increasing the width of FR 1012 at the entrance. - At 34+00, do they mean south when referring to "widen area 25 feet north by 100 feet to allow passing of equipment on roadway". North at this area is a steep downslope embankment while south looks to be the better option for widening. - From 73+00 to 93+27 (Y intersection), ACP should look at this more closely, a full reconstruction of the road would be suggested. The roadway looks to be as little as 8 feet wide in some sections along with a steep embankment downhill on the western side and steep embankment uphill on the eastern side. - At 93+27 (end of road) does ACP plan to build a turnaround or will they be build a short access to the pipeline and use that?
n/a	Access Road Improvement Maps Part 01 (FR 1026)	- Widening should be clearly marked out prior to a full field visit. - Distance to property line should be clearly labelled where the property line is close to the roadway work. - ACP should also keep in mind that this is a slip prone area and has a high erosion potential. - At 00+00, if widened, the pipe under the roadway would need to be replaced. - At 32+25, remove the mounds on the north side of the road and ensure that the drainage is still effective. How will ACP manage the leadoff ditch damage? ACP needs to specify the taper. - At 35+00, ACP commented on extending the culvert, how did they plan on doing this? They would need to specify if welding onto the existing pipe or a solid joint. They also need to specify which side the culvert may be extended on. - At 42+00, ACP may need to consider cutting on the east side of the road along with maintaining the drainage on the west side. The length of 100 feet of widening seems to be short for long trailers. - At 48+50, ACP has not commented on this curve but it would be suggested that they take a look at this. - At 55+50, the embankment with the curve located here is not shown on the map and this could be a future issue with long trailers. - At 56+00, widening of the roadway would be suggested. - At 61+75, would suggest adding fill on the outlet side of the culvert along with new pipe, any additional fill would have trouble due to the current aluminum pipe. Extension of the current pipe could cause future hazards so doing so would be strongly discouraged. - At 68+00, ACP's comment states 5 feet in length, this seems to be wrong, maybe they meant 50 feet but 5 feet looks to be entirely too short. There is a lot of water in the ditch on the left side of the roadway, a possible culvert may need to be installed to lower the risk of saturation at the toe of the proposed cut. - At 75+50, a new longer pipe would be suggested, the cover over the culvert is thin. The current culvert is already crushed. The fill and stone on each side before the culvert may need to be longer as in 80 feet instead of 60 feet along with the taper needing to be clarified. - At 102+00, it would be recommended to extend the pipe at the outlet, the culvert cover at the inlet is less than 1 foot. - At 105+25, ACP needs to address the culvert and the culvert length. - At 107+00 to 108+00, this curve will be a possible trouble spot for longer trailers, map barely shows a curve. - At 154+50, a new one piece culvert would be suggested at this location. - At 185+75 to 187+00, curve widening is suggested between the culverts located between these locations.

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		- At 193+75, a full culvert replacement with curve widening 10-12 feet wide by 100 feet in length is suggested. - At 202+50, concerns with the culvert cover and ditch line at this location. - At 245+00, new culverts may need to be installed at the Y intersection where ACP leaves the road, will a turnaround be needed using FR 1026?
n/a	Access Road Improvement Maps Part 02 (FR 55)	- Gate may cause issues for longer trailers, may need to move the gate up station to prevent this from becoming an issue. - At 7+50, curve may need widening along with culvert extension or replacement. - At 18+50, culvert is short therefore needs replacement or extension along with possible curve widening. - At 33+50, curve may need widening along with culvert extension or replacement which directly affects the curve at 34+50. - At 37+50, curve may need widening along with culvert extension or replacement. - At 38+50, curve widening on the right/northeast side. - At 66+25, may need longer section than 5 feet by 100 feet buildup in order for facility equipment to make the curve, would also prefer a longer pipe if widening the roadway at the culverts. - At 67+25, may need to cut fill slope back for the swing of facility equipment. - At 95+00, may be tight for some trailers, depends on length. - At 100+50, may be right for some trailers, depends on length. - At 111+00 to 145+41, multiple drainage dips, would be a problem if a lowboy trailer is using the road, may want to address this issue. - At 119+50, curve widening needed, cutting the bank on the left side of the road. - At 121+50, curve widening needed, fill on the right side of the road. - At 125+50, curve widening needed, cutting the bank on the left side of the road. - At 131+00, curve widening needed, fill on the right side of the road. - At 145+41, will they be needing a turnaround to accommodate turning of traffic?
n/a	Access Road Improvement General Comments	- All comments made for the access roads (FR 1012, FR 1026, FR 55) were made assuming a lowboy trailer being the largest piece of equipment using these roads, some comments may be changed if ACP specifies what vehicles will be using these roads. - ACP should address what vehicles will be using the roadways. What type (triaxle, truck and trailer) and length would be requested. - The FS would like to see all culverts fully replaced instead of extended. A full replacement would eliminate a possible weakness at the joint when extending the culverts. - The FS does not recommend installing culverts below 18" in diameter due to excessive leaf litter and debris causing them to plug. (ACP recommends multiple 12" culverts which would be discouraged) - The frequency of traffic would also be requested and could change some comments. - Will there be any overweight loads, what would be the typical load going on the roads? Cover consideration over the culverts would/could be an issue. The culverts would need to be assessed prior to using the roads anyhow (in case of damage due to haul or damage preexisting). - FR 1026 and FR 1012 are already steep on the inside of the curves and would pose a problem for truck/trailer combinations. How does ACP plan to deal with this issue and maintain sufficient drainage in the process? - Why is the pipeline crossing FR 55 three times within 0.1 miles? The FS would like to see them stay north of the road and cross the road once or stay south of the road and cross it once. This is in reference to the crossings around the location of station 137+00 to 145+41 on FR 55. - The GIS file shows the pipeline crossing FR 55 at the gate while the COM main body plan says it will not cross at this location and the shapefile agrees with the pipeline not crossing. We would like the GIS, shapefile, and COM plan to all be in agreeance.
n/a	Acccess Road Improvement Maps	In Rev 11 b on the east slope of Tower Hill and southwest of Browns Pond, the centerline has been rerouted several thousand feet to the northeast. Has this section been surveyed for TESLR species?

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n/a	ATTACHMENT F	Document says they will be provided later. We can't comment on information that is not provided.
n/a	Attachment F	Access Road improvement plan and alignment sheets for the access roads need to be provided. Specifications for alignment sheets of access roads are the same as alignment sheets for pipeline.
n/a	Attachment F	Attachment F contains no access road improvement maps, so we cannot comment on them at this time. However, four files, named "Access_Road_Maps_2017_01_12_Part01", "Access_Road_Maps_2017_01_12_Part02", "Access_Road_Maps_2017_01_12_Part03", and "Access_Road_Maps_2017_01_12_Part04" were provided to the USFS, but they do not provide the detail needed for impact analyses. We have requested shapefiles of the impact footprint and further details about the proposed access road improvements in order to make comments and help make determinations of effects in wildlife habitat areas.
n/a	Road Improvement Maps	First 9 maps are hard to read with fall colors, yellow road lines, orange boundary lines. Could use better colors. Label roads with FS road numbers. Make Forest Service ownership lines more visible. Group maps agency by Mon National Forest, GW/Jeff National Forest, and other agencies. As previously discussed, ACP needs permission of private landowner for access across some private lands even though the FS has access.
n/a	Road Improvement Maps	Show Forest Service Tract numbers to help locate maps or tie to mile markers.
Map 45 of 47	Attachment F, access road improvement maps part 4	This map shows access road 07-001.AR.AR9 crossing a delineated stream at least 4 times and actually sharing the same space as the stream with no identified culverts or crossings. This must be an error. Please correct.
		Attachment G – Soil Survey
12	6.2	"*Throughout the Project, the predominant soil textures observed in the field were silt loams. The ridgelines and steep backslopes were mostly comprised of soil material with this silt-rich texture. The silt particle size (2-50 µm) is the most susceptible to erosion due to its light weight and minimal cohesiveness. Erosion and sediment control measures will be critical during and post construction with soil material that is highly susceptible to erosion, especially on steep slopes*." ACP needs to incorporate the information into the BIC and site-specific design controls for erosion especially on steep slopes.
13	6.3	"*Based on an estimated bulk density (not measured during survey) of 0.2 g cm-3 for the O-horizons, 1.2 g cm-3 for the A-horizons, and 1.4 g cm-3 for subsoil horizons it would be estimated that the O-horizons, A horizons and Subsoil horizons would contain about 64.8 mg C cm-3, 73.2 mg C cm-3, and 12.6 mg C cm-3 respectively. Due to their interaction with the environment, surface horizons provide numerous ecosystem services as a result of the higher organic carbon contents and biotic interactions including facilitating higher infiltration rates, carbon sequestration, nutrient cycling, providing a seed bank, etc. Carbon contents are dynamic because they are a balance between vegetative inputs and decomposition rates. Complete loss of these layers during construction would require decades of high inputs to recover. Conservation of these layers during construction and replacement following construction will ensure a faster recovery and provide ecosystem services that would assist in the restoration of these habitats."* ACP will be required to calculate the estimated carbon lost to construction of the ROW using the carbon data from the Order 1 Soil Survey. The estimated carbon that is lost due to construction will need to be mitigated.
		Attachment H – Karst Plan
n/a	Attachment H	**The FS commented about this issue previously**. While we understand that the karst report was conducted by a geologist from a strictly geological/structural point of view without regard to the microclimate of the feature or potential karst inhabitants, biological considerations need to be included when addressing the unanticipated scenarios detailed in the document. Openings, voids, channels, "features", and

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		"structures" all have the potential to contain cave inhabitants, which depend on the consistent microclimate of the feature. If this microclimate is altered because of interception by construction or blasting, it could affect the biotic environment, which is why a qualified biologist needs to be consulted upon the discovery and on remediation.
11-13	Attachment H Karst Terrain Construction and Mitigation Plan	**Pre construction and Construction Phase**- needs to address and include **dye tracing** as an accepted and reasonable process to determine connectivity, flow rate and delineate the areas of effect and potentially identify changes and effects from activities and or possibly construction. It needs to be incorporated with ERI.
11	Attachment H Karst Terrain Construction and Mitigation Plan	**Electrical Resistivity Investigation (ERI)-** Include use of these protocols/process in the Pre-Construction Section page 13. At the beginning (page 1), the document provides a description of the contents outlined and includes **ERI** during the construction phase. Essentially, this is too late in the process and ERI needs to be used during the pre-construction phase. This will allow proper time to assess, evaluate and develop a proper case specific plan should a cave or sinkhole be discovered.
13	Attachment H Karst Terrain Construction and Mitigation Plan	Describe process and mitigation for minimizing effects from using a **boring** (drilling) machine that is within planned ROW disturbance and any extra or changed mitigations for such boring outside the ROW disturbance area.
13	Attachment H	" a. If an identified feature with potential impact to the subterranean environment falls within the area designated for earth disturbing activities and cannot be avoided, the feature will be documented by field location and photographs, and then assessed for pre-construction remediation by Atlantic/DTI staff with input and guidance to be provided by the KS." Comment: A biologist should also be consulted. Structural integrity and hydrology are not the only concerns that need to be addressed upon the discovery of an opening or feature. The opening should be investigated by a qualified biologist to determine if bats or other species are present in the structure, if the feature is suitable for bats (large enough, suitable microclimate), and how remediation will affect the microclimate upon which bats and other species depend. A biologist should investigate the entire biotic environment and be consulted on remediation in addition to the geologist/KS.
13	Attachment H Karst Terrain Construction and Mitigation Plan	Provide greater detail and description to define the 'greater than 6 inch hole' during the blasting phase. Is this a diameter measurement? Is there connectivity or inferred connectivity? A one inch hole parallel along a plane can connect and transfer enormous amounts of flow.
14	Attachment H	"If changes in the features are observed, Atlantic/DTI staff will report the condition to the KS who will provide consultation on potential impacts to the karst environment and possible remedial actions." and "If any feature is intercepted during work activities including borings, blasting, and excavation or trenching, the onsite geologist will conduct an initial assessment of the feature to determine if further inspection (Level 2) by the KS will be required." Comment: Same comment as above - Because structural integrity of the feature is not the only concern, a biologist should also be consulted. The opening should be investigated by a qualified biologist to determine if bats or other species are present in the structure, if the feature is suitable for bats (large enough, suitable microclimate), and how remediation will affect the microclimate upon which bats and other species depend. A biologist should investigate the entire biotic environment and be consulted on remediation in addition to the geologist/KS.

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14	Attachment H	" a. The KS will examine the feature and determine if it has potential impact to the subterranean environment based on potential connectivity with the phreatic aquifer via the epikarst stratum (Moore, et al, 2013)." and "b. If the feature is determined to have potential impact to the subterranean environment, the KS will advise Atlantic/DTI staff regarding appropriate remedial actions." Comment: Impact to the subterranean environment cannot be based solely on hydrology. The microclimate, including temperature, above the aquifer is vital to endangered, threatened, and regionally sensitive bat species and other species. A biologist should be consulted upon discovery of a feature to determine if bats or other species are present in the structure, if the feature is suitable for bats (large enough, suitable microclimate), and how remediation will affect the microclimate upon which bats and other species depend. The biologist should investigate the entire biotic environment and be consulted on remediation in addition to the geologist/KS.
14, 15	Attachment H	Also, footnotes 2 and 3 refer only to caves or cave entrances. Throughout the document, there are references to "voids", "openings", and "features", any of which have the potential to house bats and other species, and therefore should be included in the coordination addressed in the footnotes.
15	Attachment H	" a. The KS will examine the feature and determine if it has potential impact to the subterranean environment based on potential hydraulic connectivity with the karst aquifer via the epikarst stratum." and "c. If the feature is determined to have potential impact to the subterranean environment, the KS will consult with Atlantic/DTI staff regarding appropriate remedial actions. c. If the feature is determined to have potential impact to the subterranean environment, the KS will consult with Atlantic/DTI staff regarding appropriate remedial actions." and "e. If any changes are observed, the KS will provide consultation on potential impact to the karst environment and remedial actions, if necessary." Comment: Impact to the subterranean environment cannot be based solely on hydrology. The microclimate, including temperature, above the aquifer is vital to endangered, threatened, and regionally sensitive bat species and other species. A biologist should be consulted upon discovery of a feature to determine if bats or other species are present in the structure, if the feature is suitable for bats (large enough, suitable microclimate), and how remediation will affect the microclimate upon which bats and other species depend. A biologist should investigate the entire biotic environment and be consulted on remediation in addition to the geologist/KS.
15	Attachment H	Footnote 3 "If an opening to a cave forms during construction activities, should be immediate coordination with the Virginia DCRNHP Karst Program (or) West Virginia Department of Conservation for investigation. " Comment: Footnote 3 needs to include the USFWS and USFS and read the same as footnote 2 – "If an opening to a cave forms during construction activities, there should be immediate coordination with the US Fish and Wildlife Service, US Forest Service (if within Forest Service ownership land) Virginia DCR-NHP Karst Program (or) West Virginia Department of Conservation, for investigation.".

Page #	Section	Comment
16	Attachment H Karst Terrain Construction and Mitigation Plan	Reference is made to Columbia's HCP BMPs for ACP—Checking whether if this is a misprint or intended use. "Measures to Avoid Impact to the Karst Aquifer and Environment These measures shall apply to any karst feature which allows the unfiltered and unimpeded flow of surface drainage into the subsurface environment, including (but not limited to): open throat sinkholes, caves which Receive surface drainage, sinking streams, and losing stream segments. These avoidance measures were derived from the NiSource Habitat Conservation Plan, Madison Cave Isopod Avoidance and Minimization Measures, and the Columbia Pipeline Group HCP and non-HCP species Best Management Practices"
18	Attachment H	5 b. and 5 c. "The void will be inspected by the KS and the most appropriate remedial method will be determined on a case-by-case basis." Comment: A biologist should also be consulted upon discovery of a void to determine if bats or other species are present in the structure, if the feature is suitable for bats (large enough, suitable microclimate), and how remediation will affect the microclimate upon which bats and other species depend. A biologist should investigate the entire biotic environment and be consulted on remediation in addition to the geologist/KS.
18	Attachment H	6 b. "If the rock removal intercepts an open void, channel, or cave, the work in that area will be stopped until a remedial assessment can be carried out by a qualified geologist or engineer with experience in karst terrain." Comment: Structure is not the only concern when intercepting a void, channel, and cave. The biotic environment is of concern because of possible alterations, upon exposure, to the microclimate upon which cave inhabitants depend. A biologist should be consulted upon discovery of a feature to determine if bats or other species are present in the structure, if the feature is suitable for bats (large enough, suitable microclimate), and how remediation will affect the microclimate upon which bats and other species depend. A biologist should investigate the entire biotic environment and be consulted on remediation in addition to the geologist/KS.
		Attachment I – Typical Erosion and Sediment Control Details
n/a	Attachment I	Erosion control blankets will not be used on NFS Lands. Alternative erosion control materials may be used on steep slopes such as hydraulic mulches, soil conditioner, soil tackifiers, etc. The USFS is open to alternative suggestions from ACP.
n/a	Attachment I	Foam shall not be used for trench plugs anywhere along the pipeline on National Forest lands. Trench plug spacing in the FERC Upland Erosion Control Revegetation and Maintenance Plan (May 2013 version) is acceptable to the Forest Service and shall be employed on National Forest lands by Dominion. Closer trench plug spacing will be allowed where Dominion determines a need due to slope steepness. Bags of concrete mix may be used for trench plugs no more frequently than every other trench plug; sand bags or earth-filled sacks shall be used for all other trench plugs and sand bags or earth-filled sacks may be used for consecutive trench plugs (i.e., more frequently than every other trench plug) at Dominion's discretion. Any off-site earthen material must be shown through testing or inspection to be free of chemical contaminants, non-native invasive species propagules, and other undesirable contaminants, and is subject to Forest Service approval prior to use.
n/a	Attachment I	Bleeder drains will be used on slopes greater than 30% on NFS Lands with an outlet at every other trench plug.

Page #	Section	Comment
		Bleeder drain outlets (daylighting) anticipated to be installed on slopes greater than 30 percent shall be spaced no farther apart than every other trench plug. Closer bleeder drain outlet spacing will be allowed where Dominion determines a need due to slope steepness, bleeder drain discharge volumes, or other factors. Bleeder drains may need to be installed on slopes less than 30% if subsurface flow and/or seeps are encountered during excavation of the trench. The Dominion EI and the Forest Service representative will determine when this is applicable in the field. Riprap at the outlet of bleeder drains shall be composed of limestone or other suitable stone material to achieve the purpose of energy dissipation. Water quality testing at selected bleeder drain outlets will be required post-pipeline construction. The Forest Service is still working to identify the locations where testing will be conducted. The testing locations will be based on site sensitivities (i.e., Threatened, Endangered, and Sensitive (TES) species habitat, brook trout spawning, presence of nearby private or public wells, etc.). The Forest Service will provide Dominion with the locations and chemical parameters at a later date.
n/a	Attachment I	Silt fence shall not be used at locations of concentrated overland flow, whether the flow is natural or constructed. Compost filter socks or other controls designed to filter or chemically remove sediment from water shall be used in those locations, subject to FS approval. Silt fence may be used as perimeter control where concentrated flow does not exist, as well as where prescribed as a barrier to keep threatened, endangered, and sensitive (TES) species out of the work area, or spoil materials or sediments out of TES habitat. Where temporary slope breakers are deemed necessary during construction, as determined by consultation between ACP's environmental inspector and the FS representative, install berms or other appropriate diversion structures on the ROW to intercept and divert water from the ROW. Install 12-inch diameter or larger compost filter socks at the outlet of the berms to control sediment transport. In areas where excessive run-on (i.e., onto the ROW or access roads) is expected or occurs, diversion channels or berms may be installed on the upslope side of the ROW. Run-on diversions or berms shall disperse the water into a well vegetated area, such that it does not result in concentrated discharge or rill erosion at or downslope of the outlet. One or more 12-inch or larger diameter compost filter socks shall be installed at each outlet to aid in reducing energy and removing sediment suspended in the discharged water.
n/a	Appendix I	USFS requested more site specific sediment and erosion control plan measures. We were told a best in class program was established. Where is that information? This appendix is still just the basics with limited details. Supplement with BIC program information.
		Attachment J – Nonnative Plant Doc.
n/a	Attachment J	The herbicides proposed in Attachment J are listed below along with the effects on the soil resource: Herbicide effects on the soil resource are dependent on the chemical components and their mobility in the soil. Some herbicides are not mobile and bind readily with the soil—these are less likely to result in groundwater contamination unless soil erosion potential is high (i.e., steep slopes), whereas other herbicides are more mobile and depending on the half-life of the particular herbicide, the more mobile herbicides are more likely to result in groundwater contamination. All of this however, is based on the soil type.

Page #	Section	Comment
		If all label application guidelines are followed, the risks of having herbicides leave the site prior to reaching its half-life and degrading is low, unless erosion occurs and affected soil moves off site or into water bodies. In that situation, the highest risk for unplanned herbicide transport and contamination would be on slopes over 30 percent. Slopes >30 percent correspond to the most sensitive soils within the proposed ACP ROW Project, as they are the slopes at greatest risk for both natural and management-induced erosion. Even if herbicides are bound to soil particles, in a steep slope area where erosion potential is high, the soil and herbicide could be carried to an adjacent waterway. Where erosion issues are a concern, herbicides would not be broadcast sprayed over bare soil. Hand and spot (wick) application would have to be used in these areas, followed by re-vegetation (e.g., seeding) after the herbicide efficacy has degraded. Herbicide treatment should not occur until environmental and climate conditions are such that chemical mobility would be low and the probability of target treatment success would be high. ACP proposes the following herbicides: **Sethoxydim** (SERA, 2001c) Sethoxydim has not been studied extensively on soil invertebrates. • Assays of soil microorganisms noted transient shifts in species composition at soil concentration levels far exceeding concentrations expected from USDA Forest Service application. No adverse effects to soil microorganisms are expected with the rates proposed in this project. • Sethoxydim is degraded by soil microbes, with an estimated half-life of 1 to 60 days. Adsorption of sethoxydim varies with organic material content. • Modeling results indicate sethoxydim runoff is highest in clay and loam soils with peaks after the first rainfall. **Triclopyr (SERA, 2003b)** The five commercial formulations of triclopyr contain one of two forms of triclopyr, BEE (butoxyethyl ester) or TEA (triethylamine). Triclopyr BEE is much more toxic to aquatic organisms than triclopyr TEA. A breakdown product, TCP (3,5,6-trichloro-2-pyridinol), is more toxic than either form of triclopyr. Site-specific cumulative effects analysis buffer determinations need to consider the form of triclopyr used and the proximity of any aquatic triclopyr applications, as well as toxicity to aquatic organisms. • Triclopyr has not been studied on soil invertebrates. • Soil fungi growth was inhibited at concentrations 2 to 5 times higher than concentrations expected from USDA Forest Service application rates. • Triclopyr has an average half-life in soil of 46 days while TCP has an average half-life in soil of 70 days. Warmer temperatures decrease the degradation time of triclopyr. • Soil adsorption is increased as organic material increases and decreased as pH increases. Triclopyr is weakly adsorbed to soil, though adsorption varies with organic matter and clay content. Both light and microbes degrade triclopyr (SERA, 2003b). **Glyphosate (SERA, 2003a)** Numerous soil bacteria, fungi, invertebrates, and other microorganisms have been studied for their effects to glyphosate application. • There is nothing in the current literature to suggest glyphosate would adversely affect soil organisms. • Glyphosate is readily metabolized by soil microorganisms and some species can use glyphosate as a sole source of carbon. • It is degraded by microbial action in both soil and water.

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		• Glyphosate degrades in soil, with an estimated half-life of 30 days. • Glyphosate is highly soluble, but adsorbs rapidly and tightly to soil. • Glyphosate has low leaching potential because it binds so tightly to soil. • Modeling results indicate glyphosate runoff is highest in loam soils with peaks after the first rainfall. **Pendimethalin (epa.gov)** • There is nothing in the literature to suggest Pendimethalin would adversely affect soil organisms. • Pendimethalin dissipates in the environment by binding to soil, microbially-mediated metabolism and volatilization. • It is essentially immobile in soil. • Pendimethalin may contaminate surface water from spray drift associated with aerial and ground spray application, or in runoff from rainfall events and through irrigation waters (chemigation). • Its high affinity to bind to soil and sediment particles should limit concentrations of pendimethalin in surface waters unless in areas that are have risks of erosion such as steep slopes. • Pendimethalin has been detected in ground water (at very low levels), the potential for ground water contamination from pendimethalin residues is low. • Overall, pendimethalin does not represent a high risk to aquatic animals and plants, including estuarine organisms. • The use of pendimethalin may adversely affect endangered species of terrestrial and semi-aquatic plants, aquatic plants and invertebrates including mollusks, fish, and birds (specifically grazers). • The risk to nontarget terrestrial and semi-aquatic plants is expected to be moderate. • To lessen the risks posed by pendimethalin, follow handling, mixing, and application instructions. • To reduce risks to nontarget plants, add spray drift best management practices. **2, 4-D Amine (epa.gov)** Esters of 2,4-D are rapidly hydrolyzed in alkaline aquatic environments, soil/water slurries, and moist soils. The 2,4-D amine salts have been shown to dissociate rapidly in water. However, 2,4-D esters may persist under sterile acidic aquatic conditions and on dry soil. These bridging data indicate under most environmental conditions 2,4-D esters and 2,4-D amines will degrade rapidly to form 2,4-D acid. • The dissipation is dependent on oxidative microbial-mediated mineralization, photodegradation in water, and leaching. • Degrades rapidly in soils (half life = 6.2 days), degrades rapidly in aerobic aquatic environments (half life = 15 days), and is relatively persistent in anaerobic aquatic environments (half life ranges from 41 to 333 days). • 2,4-D esters volatilize readily, particularly in conditions of high temperatures and low humidity. • 2,4-D has a low binding affinity in mineral soils and sediment. • 2,4-D has been detected in groundwater at approximately 15 ppb. This is below the DWLOCs determined to be protective in the human health risk assessment and below the maximum contaminant level (MCL) set at 70 ppb by the EPA Office of Water. • 2,4-D is considered to be moderately to practically non-toxic to birds on an acute basis. • 2,4-D is classified as slightly toxic to small mammals on an acute oral basis. • A honey bee acute toxicity study indicated that 2,4-D is practically non-toxic to the honey bee. 2,4-D is toxic to terrestrial plants; it is more toxic to dicots than to monocots. • 2,4-D acid and amine salts have been found to be practically non-toxic to freshwater or marine fish. • The 2,4-D esters have been found to be highly toxic to fish. • Acute toxicity studies on 2,4-D acid and amine salts show these compounds to be slightly toxic to practically nontoxic to aquatic invertebrates.

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		• The 2,4-D esters have been found to be very highly toxic to slightly toxic to freshwater and marine invertebrates. • The 2,4-D esters may be chronically toxic to freshwater and marine invertebrates. • 2,4-D is toxic to aquatic plants; it is more toxic to vascular plants than to non-vascular plants. • Most ecological risk quotient (RQ) values exceed the LOC, with the following exceptions: chronic risk to fish from use of 2,4-D BEE for aquatic weed control, risk to endangered aquatic plants from use of 2,4-D on rice and for aquatic weed control, chronic risk to mammals from use of 2,4-D liquid spray, acute risk to non-endangered and endangered plants from use of 2,4-D liquid spray, and acute risk to non-endangered and endangered plants from use of 2,4-D granules. • There is a potential for risk to endangered species. • Reductions in application rates and/or number of applications will reduce overall risk. • The spray drift control measures are expected to reduce the risk to non-target plants.
		Attachment K – Spill Report
n/a	Attachment K- Spill Report	The Spill Prevention Countermeasures and Control Plan (SPCC) should be included with this form
		Attachment L – GWNF Unanticipated Discoveries
Attachment L	4E-5	Brian Webb is no longer patrol Captain on the G.W. & Jeff. Nat. Forests. The Patrol Captain is Katie Ballew
		Attachment M –MNF Unanticipated Discoveries Plan
n/a	Attachment M Add new section- Paleontological Resource Protections	Add new Section- **Unanticipated Paleontological Discovery Plan** and provide protocol for encountering potential vertebrate fossils Add to Attachment L as well for the GWNF
		Attachment O – ANST HDD Drawings
n/a	Attachment O	2nd page, first line reads: "Blue Ridge Parkway." Note that Blue Ridge Parkway is not USFS lands.
n/a	Attachment O	All pages in this Attachment, and ALL Attachments to the COM Plan, need to have page numbers.
n/a	Attachment O	3rd page, oversized sheet, Drawing Label: "BR Parkway 1" • Property ownerships are not shown clearly and need to be emphasized, especially the federal ownerships. • "Appalachian Trail" needs to be relabeled as "Appalachian National Scenic Trail"
n/a	Attachment O	5th and 9th pages are very similar, both labelled "Stress Analysis, "worst-case)". • Please label these sheets and explain their difference to an interested non-geotechnical-drilling-engineer. • Explain what "with BC" and "no BC" mean.
		Attachment P – Contingency Plan ANST and BRP
multiple	Attachment P	Throughout this Attachment, beginning on 3rd page, in List of Acronyms and Abbreviations, change "AT" to "ANST". Also: • Page 1, first paragraph in section 2.0, two references, • Page 2, 2nd paragraph in section 6.9, two references, • Page 3, top line,
1	Attachment P	First paragraph, change "AGL Resources" to match the successor company, as shown in section 1.1 on page 1 of the main COM Plan document.

Page #	Section	Comment
2	Attachment P	Section 6.0, first sentence. Change "results" to "result" to match singular/plural.
2	Attachment P	Section 6.0, 3rd paragraph. Refers to NPS lands. This COM Plan is specific to USFS lands, per the statement on page 3 in section 1.1 of the main document. Should this be "USFS" instead of "NPS"?
3	Attachment P	Section 6.0, first partial paragraph on this page – states no ground disturbance or tree clearing within 350' of the ANST. This conflicts with the dimensions and distances listed in Figure 1 on page 4 of this Attachment (400'). This section needs to be reworded to give the correct distances and to add a clear and direct statement as to whether or not any ground disturbance or tree clearing will occur on any USFS lands in this area; knowing that one goal of the HDD and DPI is to completely avoid all ground disturbance or tree clearing on USFS lands.
4	Attachment P	Figure 1. Thank you for delineating and labelling the Appalachian National Scenic Trail correctly on this page. Several other comments on this page: • In the legend, change "National Forest Service" to "USFS Lands". Previously requested in Draft-1. • Revise this figure to clearly show the Trenchless Exit and the limits of surface disturbance as ending on private land, NOT partially on private and partially on USFS lands. • Revise this figure to eliminate the "ghost" irregular wedge of apparent private land as shown east of the USFS land (dark green) and west of the NPS land (purple). This does not exist, and showing it on this figure is confusing and erroneous. The USFS lands abuts and joins the NPS lands. Previously requested in Draft-1.
5	Attachment P	Show USFS ownership and property lines much more clearly. Also, change the label "Appalachian Trail" to "Appalachian National Scenic Trail".
		Attachment Q – Timber Cruise Plan
n/a	Attachment Q	Because certain MNF Land and Resource Management Plan standards and guidelines will not be followed, resulting in the destruction of primary bat roosting trees, additional mitigation measures for bats need to be incorporated into various documents. These mitigation measures will include snag creation and artificial roosting structures at a 1:1 ratio. To do this, it must be known how many shagbark hickory trees over 5 DBH and snags of particular specifications are taken, which requires timber cruisers to keep track of them. Attachment Q MNF Timber Cruising Specifications will need to be updated to reflect these details once bat surveys are complete.