Transcontinental Gas Pipe Line Company, LLC

Response to Technical Deficiency
Pennsylvania Department of Environmental Protection

Atlantic Sunrise Project

November 18, 2016

DEP Application No. No. E19-311, APS No. 878953
Cleveland, Greenwood, Franklin, Jackson, Montour, Mt. Pleasant, Orange, Hemlock, and Sugarloaf Townships, Columbia County

Table 1
Transco's Responses to DEP July 29, 2016 Technical Deficiencies Letter

Technical Deficiency Number	Technical Deficiency Description	Response
1	Upon further evaluation by the Pennsylvania Department of Environmental Protections' (PA DEP) and in accordance with the 25 Pennsylvania (PA) Code § 105.13(e), complete delineation of impacts to wetlands, streams and flood ways needs to be provided for the PA DEP to perform the required environmental review of the application and make a proper permit decision. The impacts to wetlands, streams and floodways cannot be based on remote sensing. 25 PA Code § 105.13(e)(1)(i)(A) requires a complete demarcation of the floodplains and regulated waters of this Commonwealth on the site. This requirement will not be waived under 25 PA Code §105.13(k) as remote sensing or national wetland inventory data alone may not identify all wetlands, streams and flood ways present, nor does it adequately identify any unique characteristics of the wetlands, or the functions that they provide. As such, the remote sensed impacts will require in field verification, and all relevant portions of the application will need to be revised prior to making a permit decision. *[25 PA Code §105.13(e)]*	Transco is providing an updated permit application package that includes changes made to the project (e.g., minor alignment and workspace modifications) and new field survey data collected since the original application was submitted on July 29, 2016. With this supplemental information, the updated application provides field-verified data for 96 percent of the project and for 96 percent of Columbia County. Transco continues to coordinate with landowners to obtain survey access for the remaining four percent of the project area, including the no survey parcels in Columbia County, and will periodically file updated survey information as access is granted in these areas. Field verified data collected to date is included in Attachment L-5 Section B, and the impacts are included in Attachment E-2 and the Impact Mapping is included in Attachment H-2. For mitigation planning and Project design, remote sensed (RS) data is included in the impact table in Attachment E-3 and on the impact mapping in Attachment H-2. Transco appreciates the PA DEP's commitment to proceed with its review based on the substantial amount of field-verified information that is available at this time.

Technical Deficiency Number	Technical Deficiency Description	Response
2	Several flume crossings are shown in the Erosion and Sedimentation (E&S) Control Plan sheets along the length of the pipeline. Clarify, with the drawings, if the flume crossing is proposed in a regulated waterway. If the crossings are located within a regulated waterway, provide a detailed impact table for the resource crossing identifying all the impacts associated with this crossing. Revise all other application documents to reflect any additional impacts. *[25 PA Code §105.13(e)(1)(x)]*	The revised Application clarifies that proposed "Clean Water Crossings" are stormwater runoff conveyance / E&S Best Management Practices (BMP/BMPs), not flumed crossings of regulated waterways. The following note has been added to the Chapter 102 drawings: "Proposed clean water crossing shown herein are temporary stormwater runoff conveyance BMPs associated with the Chapter 102 ESCGP-2 application. No flows from regulated waterways are intended to be conveyed within these BMPs." The Revised Chapter 102 drawings are included in Attachment M.
3	Provide adequate provisions for shut-off in the event of break or rupture. Provide locations and description of how this action will be completed in the event rupture occurs. *[25 PA Code §105.301(9)]*	Attachment J (Project Overview, New Mainline Valves and Tie-In Assemblies) of the revised Application includes a description of the provisions for shut-off in the event of a pipeline rupture or break.

Technical Deficiency Number	Technical Deficiency Description	Response
4	Provide agency clearance letters and copies of correspondence from the Pennsylvania Fish and Boat Commission (PFBC), Pennsylvania Game Commission (PGC), Pennsylvania Department of Conservation and Natural Resources (PDCNR), and U.S. Fish and Wildlife Service (USFWS) for the proposed pipeline, including no-access parcels, and the mitigation area, and identify any mitigation measures that are recommended or required. Please be advised that additional deficiencies may be generated pending responses from resource agencies. *[25 PA Code §105.14(b)(4)]*	The revised Application includes a County-specific summary of correspondence received from the PFBC, PGC, PDCNR, and USFWS in Attachment G-1, which correlates with the Pennsylvania Natural Diversity Inventory (PNDI) review of the pipelines, access roads, and ancillary facilities. The summary also includes a discussion of any mitigation measures recommended or required. Transco has received final clearance letters from the PGC, PFBC, and PDCNR for the Project. The USFWS is consulting with the Federal Energy Regulatory Commission (FERC) regarding federally listed species; Transco expects resolution in fourth quarter 2016. Copies of the respective correspondence referenced in the summary are provided in Attachments G-2 through G-5. Swatara Creek PRM Site: The PNDI receipt for the Swatara Creek Permittee-Responsible Mitigation Site (PRM) indicated that there may be potential impacts to threatened and endangered and/or special concern species and resources under the jurisdiction of the USFWS within the bounds of the proposed PRM site. The USFWS requested that a Bog Turtle Habitat Survey (Phase I Survey) be conducted. Transco completed a Phase I Survey of the PRM Site in April 2016. No bog turtle habitat was observed within the PRM Site boundary. In a letter dated August 24, 2016, the USFWS provided clearance for the Swatara Creek PRM Site. The USFWS clearance letter is provided in Attachment Q-2, Appendix E, Exhibit 1.

Technical Deficiency Number	Technical Deficiency Description	Response
5	Provide clearance or approval from the Pennsylvania Historical and Museum Commission (PHMC) for cultural, archeological, and historic resources for the proposed water obstructions and encroachments, mitigation area, and areas necessary to construct the water obstructions and encroachments. *[25 PA Code §105.13(e)(1)(x), §105.14(b)(4), §105.14(b)(5)]*	The revised Application includes a summary of coordination with the PHMC for the pipelines, access roads, and ancillary facilities within Attachment D-1 and copies of relevant clearance/approval letters identified within the above-mentioned summary within Attachment D-2. Transco is coordinating with PHMC and FERC to develop a Memorandum of Agreement (MOA) to address Section 106 compliance and will include procedures for assessing impacts for inaccessible properties, and protocols for handling chance finds. Transco will survey, document, report, and request clearance for all inaccessible properties. <u>Swatara Creek PRM Site:</u> A copy of the PHMC clearance letter, dated June 27, 2016, is provided in Attachment Q-2, Appendix E, Exhibit 2.
6	Provide plans or a detail for the restoration of stream beds at open cut stream crossings. This should include replacement of native stream bed material. This should include replacement of native stream bed material and assurance that no significant changes in bed grade occur. *[25 PA Code §105.13(e)(1)(i)(G), §105.13(e)(1)(ix), §105.1, Mitigation, §105.13(e)(1)(x), §105.15(a)(1), §105.14(b)(4), §105.16(d), §105.13(e)(1)(i)(G), §105.242(c)]*	The revised Application includes a typical detail for streambed restoration (see SBR Detail in the BMPs and Quantities Plan Set within Attachment M - provided under separate cover).
7	Explain how the final "restored" wetland elevations will be determined. *[25 PA Code §105.13(e)(1)(ix)]*	The revised Application (Attachment L-5, Section B1) has been updated to indicate that final wetland elevations will be determined using civil survey (sub-centimeter accuracy) data collected prior to construction.

Technical Deficiency Number	Technical Deficiency Description	Response
8	It appears that several waters of the Commonwealth could be crossed using trenchless installation methods. Provide a revised alternatives analysis that incorporates a discussion of alternative crossing techniques (e.g., conventional bore, horizontal directional drill [HDD], micro-tunneling) addressing each resource crossing individually and explaining why trenchless installation methods are not appropriate. *[25 PA Code §105.13(e)(1)(viii), §105.18a]*	Attachment P-1, Appendix P-2 of the revised Application includes a revised alternatives analysis that incorporates a discussion of alternative crossing techniques for each resource crossing and whether a trenchless method is or is not appropriate.

9	The following deficiencies relate to the proposed HDD *[25 PA Code §105.3(a)(4) & §105.11(a) & §105.13(e)(1)(i) & §105.13(e)(1)(iii) & §105.13€(1)(x) & §105.14(b)(4) & §105.301(1) & §105.301(7) & §105.301(5) & §105.301(3) & §105.151(1) and (3) & §105.161(a)(3) and (4)]:* a. Provide plans and cross sections indicating pipe size, placement, and locations for all wetlands, streams, floodways and floodplains where the testing discharges are proposed. The cross sections should depict, at a minimum, the proposed structures, resource boundaries, stream bed and banks, water surface elevation. b. Provide a description and plans of how the water will be discharged, the methods to be utilized, what equipment and structures are proposed to be placed and utilized in waters of the Commonwealth, the length of time which obstructions will remain in place. c. Provide cross sections, profiles, and hydraulic analysis for piping placed in existing stream culverts and along and within stream channels. d. Identify on the plans the location of the proposed HDD electric guide wire, and provide an analysis to show that the wire will not present a hazard to river users.	a. All proposed discharge locations will be submitted to PA DEP as part of a PAG-10 Discharge Permit NOI Application. It is anticipated that this application will be submitted to the PA DEP in November 2016. There are two outfall locations in the vicinity of the HDDs: Outfalls 009 and 024. The locations of Outfalls 009 and 024, and all other proposed discharge locations, hay bale discharge structure details, and the associated flow direction of the discharge water have been incorporated into the existing Chapter 102 (Attachment M) and Chapter 105 (Attachment H-2) drawings. These drawings currently show the locations of all wetlands, streams, floodways, and floodplains where the testing discharges are proposed. b. Details of the hydrostatic test water discharge equipment and structures will be provided in the PA DEP PAG-10 NPDES Discharge Permit NOI Application. The equipment and structures will only be in place as long as necessary to conduct the required tests and discharge the water. Hay bale discharge structures will be used according to BMPs. Details of the hay bale structures are included in BMPs and Quantities Plan Set within Attachment M - provided under separate cover). c. No piping to be used for discharge of hydrostatic test water will be placed in existing stream culverts or stream channels. Therefore, no hydraulic analysis or permitting were required (see Attachment L-5, Section D).

Technical Deficiency Number	Technical Deficiency Description	Response
		d. Transco does not intend to use guide wire at this location.
10	Public water supplies are located within in the vicinity of the proposed pipeline. The application states that there will not be any impacts the water supplies as a result of the pipeline. Provide the supporting documentation that led to this conclusion. Additionally, we recommend that you contact any public water supplier in order to help determine if your project will impact the public water supplier and subsequently provide documentation of interactions, through correspondence, with each supplier. Ensure all Public water supplies in the vicinity of the proposed pipeline are identified within the location map. Enclosed are instructions on how to utilize PA DEP's eMapPA to identify public water supplies in the vicinity of your project. *[25 PA Code §105.13 (e)(1)(ii)]*	Transco identified potable and non-potable surface water intake structures in proximity to the Project in Columbia County using eMapPA. Enclosure D (Attachment L-5), Items B2d and e of the revised Application has been updated to address public water supplies and includes a table of correspondence with the Suez Water Authority. The Project Location Map (Attachment I-3) has been updated to include the identified surface water intake that is discussed in the revised Attachment L-5, Section B2d and e.

Technical Deficiency Number	Technical Deficiency Description	Response
11	The application states that topsoil will be segregated. Provide a revised Enclosure D of the Environmental Assessment that explains how the topsoil depth will be determined in the field. *[25 PA Code §105.15(a) §105.15(b), Environmental Assessment Form Instructions]*	The Transco Project-specific Wetland and Waterbody Construction and Mitigation Procedures (Attachment 18 of the Environmental Construction Plan [ECP]) and Agricultural and Construction Monitoring Plan (Attachment 6 of the ECP) indicate that the top 12 inches of topsoil from wetland and agricultural areas disturbed by trenching will be segregated from subsoil, except in areas where standing water is present, soils are saturated, or where shallow depth to bedrock conditions exist. These exceptions will be identified via visual assessment during grading and documented in the field with the Environmental and/or Agricultural Inspector. Immediately after backfilling is complete, the segregated topsoil will be restored to its original horizon location. Attachment L-5, Section B1 has also been revised to reflect this. Pipeline construction personnel are familiar with this FERC mandated practice and are knowledgeable of the visual differences between topsoil and subsoil (color, texture) in order to make the determination of topsoil depth that needs to be segregated.

12	Revise the application to provide a planting plan to re-establish woody vegetation within the temporary construction right-of-way (ROW) in riparian and wetland areas that are currently forested or dominated by woody species, as was previously proposed and implemented by Williams Transco on a similar project. *[25 PA Code §105.13(e)(1)(ix), §105.16(d)]*	The revised Application includes a Riparian Area Impact Assessment and Restoration Plan (Attachment L-5, Appendix L-2). Transco has determined that the proposed permanent conversion of forested riparian buffer to herbaceous riparian buffer affects a relatively small fraction of the overall riparian buffer for each affected watercourse and the larger watershed. In addition, the remaining herbaceous riparian vegetation will continue to provide beneficial functions related to water quality. Therefore, any potential changes in riparian area function will be minor and isolated to the 10-foot-wide maintenance corridor centered over the pipeline within the permanent easement and will not result in the degradation of the existing stream uses or associated water quality. However, as an additional re-establishment measure, Transco is proposing to voluntarily replant riparian forest buffers crossed by the Project. Replanting will occur within the regulated floodplain (Federal Emergency Management Agency [FEMA] mapped 100-year floodplain or 50-foot-wide floodway if no FEMA-mapped floodplain is present, whichever is greater). Transco is also proposing to replant in areas where Chapter 102 riparian buffer waivers are being requested. In all instances, replanting will occur in the construction workspace outside of the 10-foot-wide maintenance corridor over the pipeline. Transco will replant the 50-foot-wide permanent ROW by applying a riparian seed mix. Outside of the permanent ROW, to the edge of the construction workspace and within the regulated floodplain, Transco will reestablish the riparian buffer by planting trees and shrubs. During operation of the pipeline, Transco will maintain herbaceous cover within the 10-foot corridor centered over

Technical Deficiency Number	Technical Deficiency Description	Response
		the pipeline. Outside of the 10-foot corridor, maintenance will be limited to selective trimming and clearing of large trees (greater than 15 feet in height) within 15 feet of the pipeline. Transco is proposing compensatory off-site mitigation for Project-related impacts to palustrine forested (PFO) and palustrine scrub-shrub (PSS) wetlands, as detailed within the Mitigation Master Plan and Permittee Responsible Mitigation Plan, which are provided within Attachments Q-1 and Q-2 of the revised Application.

13	The functions and values provided by shrub species more closely match those provided by forested areas than are provided by emergent areas. Revise the plans to incorporate the replanting of woody species in forested/ scrub shrub areas in the permanent ROW. *[25 PA Code §105.13(e)(1)(ix)]*	The revised Application includes a Riparian Area Impact Assessment and Restoration Plan (Attachment L-5 Appendix L-2). Transco has determined that the proposed permanent conversion of forested riparian buffer to herbaceous riparian buffer affects a relatively small fraction of the overall riparian buffer for each affected watercourse and the larger watershed. In addition, the remaining herbaceous riparian vegetation will continue to provide beneficial functions related to water quality. Therefore, any potential changes in riparian area function will be minor and isolated to the 10-foot-wide maintenance corridor centered over the pipeline within the permanent easement and will not result in the degradation of the existing stream uses or associated water quality. However, as an additional re-establishment measure, Transco is proposing to voluntarily replant riparian forest buffers crossed by the Project. Replanting will occur within the regulated floodplain (Federal Emergency Management Agency [FEMA] mapped 100-year floodplain or 50-foot-wide floodway if no FEMA-mapped floodplain is present, whichever is greater). Transco is also proposing to replant in areas where Chapter 102 riparian buffer waivers are being requested. In all instances, replanting will occur in the construction workspace outside of the 10-foot-wide maintenance corridor over the pipeline. Transco will replant the 50-foot-wide permanent ROW by applying a riparian seed mix. Outside of the permanent ROW, to the edge of the construction workspace and within the regulated floodplain, Transco will reestablish the riparian buffer by planting trees and shrubs. During operation of the pipeline, Transco will maintain herbaceous cover within the 10-foot corridor centered over

Technical Deficiency Number	Technical Deficiency Description	Response
		the pipeline. Outside of the 10-foot corridor, maintenance will be limited to selective trimming and clearing of large trees (greater than 15 feet in height) within 15 feet of the pipeline. Transco is proposing compensatory off-site mitigation for Project-related impacts to PFO and PSS wetlands, as detailed within the Mitigation Master Plan and Permittee Responsible Mitigation Plan, which are provided within Attachments Q-1 and Q-2 of the revised Application.
14	Several streambank stabilization methods are proposed in the E&S Control Plans. Identify where each type of stabilization measure will be utilized. *[25 PA Code §105.21(a)(1)]*	The revised Application (Attachment L-5, Appendix L-3) includes a table that identifies each stream and which stream restoration detail is to be utilized on either bank.
15	Revise the alternatives analysis to show the 600-foot survey corridor and demonstrate that impacts to waters of the Commonwealth within the corridor have been minimized to the maximum extent practicable. The demonstration should address each crossing individually. *[25 PA Code §105.13(e)(1)(viii), §105.18(a)]*	The revised Application includes a revised alternatives analysis (Attachment P-1) demonstrating that impacts to waters of the Commonwealth have been minimized to the maximum extent practicable. Appendix P-1 documents measures to avoid and minimize impacts to each crossing individually.
16	The application incorrectly identifies watercourses as "waterbodies". Watercourses and bodies of water are defined differently under Chapter 105. Provide revised copies of all applicable documents. *[25 PA Code §105.21(a)(1)*]	The revised Application identifies bodies of water and watercourses as defined under Chapter 105.

Technical Deficiency Number	Technical Deficiency Description	Response
17	The application states that blasting may be required to install the proposed pipeline. Clarify if blasting will be necessary in or along waters of the Commonwealth, and identify where it will be proposed. Please be advised that a blasting permit from the PFBC may be needed. *[25 PA Code §105.21(a)(1)]*	Transco anticipates the use of blasting in bodies of water or watercourses; however, Transco will not know for certain until construction activities commence. Watercourses with a higher potential for blasting are those with shallow depth to bedrock, as presented in Attachment L-5, Section B1 in Table L(d)-3 of the revised Application. Transco's construction contractor will be required to demonstrate that blasting is necessary by first attempting to remove bedrock material using mechanical means, such as a hydraulic ram or splitter, rock trenching machine, or rock saw Transco has submitted an Application for use of Explosives in Commonwealth Waters to the PFBC for each proposed stream crossing in the event that blasting of bedrock is required properly install the pipe.
18	An Aids to Navigation (ATON) plan may be required for this project. Contact Thomas Burrell with the PFBC at 717.705.7838 regarding ATON requirements, and provide a copy of the ATON approval to the PA DEP. *[25 PA Code §105.14(b)(2)]*	In coordination with Captain Burrell (PFBC), five locations in Columbia County will require an ATON permit; which were submitted to the PFBC on October 4, 2016. Transco will provide copies of the ATON approvals to PA DEP as received (see Attachment L-5, Section B4f).
19	The Joint Permit Application Plans shall be the final plans for construction. Remove the reference to "Preliminary/Draft" from all plan sheets. *[25 PA Code §105.13(e)(1)(i)(C)]*	The revised Application includes an updated set of drawings (with stationing) (Attachment H-2) and removes the inadvertent reference of "Preliminary/Draft".

Technical Deficiency Number	Technical Deficiency Description	Response
20	Installation of trench plugs as depicted in the profile view on the E&S Control Plans is likely to result in adverse impacts to the hydrology of waters of the Commonwealth. Provide a revised detail showing the trench plug continuing to the bottom of the trench instead of the top of the bedding material. *[25 PA Code §105.18a]*	The E&S Control Plans' detail associated with trench plugs, included within the Trench Plug Installation (TP) typical detail located in the BMPs and Quantities Plan set as Attachment M (provided under separate cover) in the revised Application, has been revised to depict the trench plugs continuing to the bottom of the trench.
21	The application states in numerous locations that the criteria used during routing surveys included "minimizing effects at any single wetland crossing to 1 acre or less whenever practicable". The PA DEP is unable to determine why the 1 acre threshold was utilized when Chapter 105 regulations require minimizing impacts to wetlands to the maximum extent practicable. Revise the application to demonstrate that the routings avoid and minimize wetland impacts to the maximum extent practicable. Transco should assess the applicability of this deficiency to the other counties that are part of this project. *[25 PA Code §105.13(e)(1)(vii), §105.18a]*	The revised Application (Attachment L-5) clarifies that the routing process was designed to minimize Project-related impacts on all streams and wetlands, regardless of the extent of Project-related impacts. The revised Application (Attachment P-1, Appendix P-1) includes a revised alternatives analysis demonstrating that impacts to each crossing of waters of the Commonwealth within the 600-foot wide routing corridor have been minimized to the maximum extent practicable. See also response to Technical Deficiency 15.

22	According to the Hydrologic & Hydraulic (H&H) Calculations for Waterbody Crossings several waterbody crossings are to be crossed by a dam and pump method. Many of these crossings have excessive Peak Flows that could not be managed by pumping. Detail how these crossings will be stable and how the waterbodies will be successfully passed through or around the work area. Provide tables in the plan drawings depicting pump sizing and rate information to be used by contractors. *[25 PA Code §105.16]*	Stream crossings are to be performed during low flow conditions with oversight from an environmental inspector. Storm event weather forecasts will be monitored prior to and during the stream crossing. This note has been added to the Notes Sheet on the Water Obstruction and Encroachment Permit Impact Maps in Attachment H-2. The contractor will be required to maintain an adequate number of pumps on-site to facilitate an unanticipated increase in stream flow. County specific H&H reports are provided for the project. The reports specify the various crossing methods used, including flume, dam and pump, dry open cut, conventional bore and HDD. The reports also indicate the required time to complete each of the various types of crossings. Details of each crossing type are provided in Appendix A of each report. The crossing methods have been revised on a waterbody by waterbody basis considering the flow characteristics of the waterbody (which are provided in the tables in each H&H Report Appendix B, included as Appendix M of this revised Application). Crossing methods have been chosen (and/or updated) such that, at a minimum, normal flow is safely conveyed past the construction workspace. Additionally, further details and requirements regarding crossing stabilization have been added. For example, Section 1.2 of the H&H Report specifies that Contractors are required to meet the following performance criteria for dam and pump type crossings: • Sufficient pumps to maintain 1.5 times the flow present in the stream at the time of construction; • At least one back up pump available

Technical Deficiency Number	Technical Deficiency Description	Response
		on site in case of mechanical failure; • Dams constructed with materials that prevent sediment and other pollutants from entering the waterbody (e.g. sandbags or clean gravel with plastic liner); • Streambed scour prevented at pump discharge; and • Dam and pumps shall be monitored to ensure proper operation throughout the waterbody crossing. The stream flow information provided in H&H Report Appendix B (included as Appendix M of this revised Application) will be utilized along with actual site conditions and forecasted weather at the time of construction.
23	The H&H report, Peak Flow Calculations depict culvert pipe diameter and number of culvert pipes for some crossings but not all. Some crossings state "Cross When No Storm Forecasted" in the Flume Diameter and Number of Pipes columns. Provide crossing types and sizing data for these crossings. *[25 PA Code §105.161]*	Stream crossings are to be performed during low flow conditions with oversight from an environmental inspector. Storm event weather forecasts will be monitored prior to and during the stream crossing. Many of the stream crossings have been adjusted to reflect a dam and pump method (Attachment E-2). See also response to Technical Deficiency 22. The H&H reports (included as Appendix M of this revised Application) have been updated to provide size and number of flume pipes for each flume type crossing. A crossing table is provided in H&H Report Appendix B, included as Appendix M of this revised Application.

Technical Deficiency Number	Technical Deficiency Description	Response
24	In reviewing the plans, trench plugs are indicated to be installed at wetland/upland interfaces. Additional trench plugs may be necessary along the length of the crossing due to length and/or slope to maintain hydrology throughout the wetland. Please review and revise accordingly. Some additional guidance is available within the PA E&S Control BMP Manual. *[25 PA Code §105.13(e)]*	The Chapter 105 impact drawings have been revised to include additional trench plugs and are included within Attachment H-2 of the revised Application.
25	Attachment D-1: Summary of PHMC Coordination; Table D-1 details 11 entries that have a potential eligibility for PHMC review. Attachment D-2 details that coordination with PHMC has begun but yet there are no clearance letters stating that PHMC requirements have been met and are satisfied. Provide documentation that 100 percent of the pipeline corridor has been surveyed and cleared by PHMC. *[25 PA Code §105. 13(e)]*	The revised Application includes a summary of coordination with the PHMC in Attachment D-1 and copies of the relevant clearance/approval letters identified within the above-referenced summary within Attachment D-2. See also response to Technical Deficiency 5.
26	Attachment G provides information on Transco's efforts to determine if endangered species exist along the pipeline corridor and provide information from responding agencies concerning the inquiries. All responding agencies detailed that there were potential impacts to endangered or protected species within the corridor. To date no clearance letters have been provided detailing no impacts to endangered or protected species or special procedures to avoid impacts to the species. Provide clearance letters for 100 percent of the pipeline corridor. *[25 PA Code §105. 13(e)]*	Transco has received final clearance letters from the PGC, PFBC, and DCNR for the Project. The USFWS is consulting with the FERC regarding federally listed species; Transco expects resolution in fourth quarter 2016. Attachment G of the revised Application includes a current summary of endangered species agency consultation, as well as copies of agency clearance letters. See also response to Technical Deficiency 4.
27	Since 100 percent of the corridor has not been assessed and evaluated for environmental impacts and those areas have used remote sensing to evaluate environmental impacts, the re-submission shall have 100% evaluation of environmental impacts from ground survey. *[25 PA Code §105. 13(e)]*	See response to Technical Deficiency 1.

Technical Deficiency Number	Technical Deficiency Description	Response
28	Any and all changes developed and implemented after initial submission that will impact this Water Obstruction and Encroachment permit shall be incorporated and addressed in the re-submission. Clearly explain what led to these changes for each location where increased or lessened impacts are now proposed or eliminated and clearly explain why these changes are necessary. *[25 PA Code §105.2] [25 PA Code §105.11]*	All changes to the Project since the initial Application submittal on August 28, 2015 and the administrative completeness response on December 4, 2016 that have resulted in increased, lessened, or eliminated impacts to regulated resources are a result of the incorporation of route deviations and new field survey data. Route deviations are defined as minor adjustments to the proposed route that are typically incorporated to avoid a specific feature (e.g., topography, sensitive habitat, structures) and/or to accommodate requests by affected landowners or jurisdictional agencies. New field survey data was collected for route deviations and of portions of the project that were previously-inaccessible at the time of the initial Application and administrative incompleteness response submittals. The Chapter 105 Impact Table, provided within Attachment E-2 of the revised Application, identifies new or revised impact information as bold, italicized text, while previously-identified impacts that have been avoided due to the incorporation of route deviations are presented as bold, strikethrough text, indicating that those resources are no longer impacted by the Project.
29	Reductions of Limits of Disturbance in sensitive areas could result in reduced impacts. It is recommended that the sensitive areas of the project be re-evaluated and construction limits be reduced where applicable to eliminated or reduce project impacts. Provide those developed changes within the re-submission. *[25 PA Code §105.14]*	Transco has re-evaluated each individual crossing and modified or reduced the construction limits wherever possible to eliminate or reduce impacts. Modifications to the construction limits for each individual crossing are provided in Attachment P-1, Appendix P-1 of the revised Application.

Technical Deficiency Number	Technical Deficiency Description	Response
30	According to Section 1.1 of the Hydrologic & Hydraulic Calculations for Waterbody Crossings, the pipe line will be buried with a minimum cover above the pipe of 5 feet. This section goes on to state that the cover may be decreased to a minimum of 2 feet if in Consolidated Rock. Provide alternative design in plans detailing all methods of installation for the alternative design. *[25 PA Code §105.313]*	The revised Application includes revisions to the H&H report and the Flume Stream Crossing (FX) and Dam and Pump Stream Crossing (DPX) typical details within the Best Management Practices and Quantities Plan Set, all of which are located within Attachment M.
31	According to the Hydrologic & Hydraulic (H&H) Calculations for Waterbody Crossings several waterbody crossings are to be crossed by a dam and pump method. Many of these crossings have excessive Peak Flows that could not be managed by pumping. Detail how these crossings will be stable and how the waterbodies will be successfully passed through or around the work area. Provide tables in the plan drawings depicting pump sizing and rate information to be used by contractors. *[25 PA Code §105.16]*	See response to Technical Deficiency 22. (Duplicate)
32	Attachment H-2, Encroachment Permit Impacts detail several different drawing types. It appears that items found in one drawing type are not duplicated in another type. Standardization of the mapping would assist in not eliminating needed detail. Example: Wetland impacts associated with wetland W-T01-13001 PEM are not shown on drawing number 24-1600-70-20-A/109.16-01 as permanent or temporary. Additionally, it appears that this impact could be avoided by narrowing the northwest Limit of Disturbance (LOD) boundary. *[25 PA Code §105.13(e)(1)]*	Inconsistencies have been addressed in the revised Chapter 105 Impact Drawings, included within Attachment H-2 of the revised Application. Refer to Attachment P-1, Appendix P-1 for a summary of LOD modifications and justifications.
33	H&H calculations and plan charts don't show same pipeline crossings; H&H report appendixes B, C, and D do not match tables 3, 3A, 3B found in plan drawings for proposed 30" CPLN and proposed 42" CPLS Best Management Practices and Quantities. The tables depict waterbody crossings that are not found in the H&H report, tables don't provide any culvert sizing information to be used by the contractor or any length of crossing information. Correct tables to mimic the information provided in the H&H report. *[25 PA Code §105.161]*	Inconsistencies have been addressed within the revised H&H report, which is included within Attachment M of the revised Application. Tables 3A and 3B have been removed and the data combined into one Table 3 in the revised BMPs and Quantities Plan Set in Attachment M (provided under separate cover). See also response to Technical Deficiencies 22 and 23.

Technical Deficiency Number	Technical Deficiency Description	Response
34	Section B of the H&H report, Peak Flow Calculations depict culvert pipe diameter and number of culvert pipes for some crossings but not all. Some crossings state "Cross When No Storm Forecasted" in the Flume Diameter and Number of Pipes columns. Provide crossing types and sizing data for these crossings. *[25 PA Code §105.161]*	See response to Technical Deficiency 23. (Duplicate)
35	Impact table in the Joint Permit application, Attachment E-2, begins impacts at the intersection of CPL North and CPL South. The table consecutively numbers impacts working to the south of the project. Plan Set, E&S Control Plan/Site Restoration Plan CPL South Sheet 1 of 32 begins at the southern boundary of Columbia County and works north. Provide consistency between plan sets and explanation through stationing and milepost numbers. *[25 PA Code §105.13(e)(1)]*	Station numbers from the E&S Control Plans have been added to the Chapter105 drawings (Attachment H-2) to provide consistency across the different sets of mapping.
36	The impact table for the individual permit application utilizes the resource name however does not utilize the impact numbers as found in Attachment H-2 and Plans. Additionally, attachment H-2 provides impact areas but does not detail impact dimensions as found in the Impacts Table in the Joint Permit Application Narrative. The impacts in each of these documents are not consistent with each other, correct with re-submission. *[25 PA Code §105.13(e)]*	Inconsistencies have been addressed in the revised Application (see Attachments E-2 and H-2).

Technical Deficiency Number	Technical Deficiency Description	Response
37	Several waterbody crossings have multiple delineations for the same impact. Example Wetland Complex W-T01-12001 "A and B" and Wetland Complex W-T06-13003 "A, B and C". Boundary lines for the separations are not clear and disturbance acreage can't be confirmed. Why have these crossings been divided into multiple pipeline impacts? Provide improved Plans and Narrative that explain the divisions and/or provide appropriate data for the crossings. *[25 PA Code §105.13(e)(1)]*	As indicated within the Wetland Delineation Report (Attachment L-2), each wetland documented during the field surveys was assigned a unique identification (ID) and, in some instances, was secondarily assigned an alpha and/or numerical suffix. Wetlands that contained multiple cover types (PEM, PSS, or PFO) received an A, B, or C suffix, as follows: • A = PEM • B = PSS • C = PFO If a wetland was part of a large complex that contained noncontiguous portions within the survey corridor (e.g., the same, hydrologically connected complex meandered in and out of the survey corridor, etc.), it received a numerical suffix (e.g., 1, 2, 3). In some cases, a wetland ID could have both an alpha and numerical suffix (i.e., if a wetland had both multiple types and noncontiguous portions). For clarity of discussion and crossing impact calculation, Transco separated wetlands into cover types to accurately reflect field conditions and impacts. Boundary line weights have been increased between the different wetland cover types on the revised Chapter 105 Impact Drawings (see Attachment H-2).

Technical Deficiency Number	Technical Deficiency Description	Response
38	How have avoidance and minimization of resources been achieved when pipeline changes in direction occur in sensitive resource areas such as wetlands and stream crossings? Crossings shall be designed to cross at the most direct manner and to create the least impact. Additionally, it appears that Limits of Disturbance could be narrowed to eliminate or reduce potential impacts. *[25 PA Code §105.14]*	Transco has re-evaluated each individual crossing and modified or reduced the construction limits wherever possible to eliminate or reduce impacts. Modifications to the construction limits for each individual crossing are provided in Attachment P-1, Appendix P-1 of the revised Application. See also Technical Deficiency 15.
39	Chapter 105 regulations require that adequate provisions for shut-off in the event of break or rupture are provided in *25 PA Code §105.301(9)*. Provide locations and description of how this action will be completed in the event rupture occurs. *[25 PA Code §105.301(9)]*	See response to Technical Deficiency 3. (Duplicate)
40	Provide plans or a detail for the restoration of stream beds at stream crossings. This should include replacement of native stream bed material and assurance that no significant changes in bed grade occur.	The revised Application includes a typical detail for streambed restoration (see SBR Detail in the BMPs and Quantities Plan Set within Attachment M - provided under separate cover). See also response to Technical Deficiency 6.
41	Provide a detailed site specific pollution prevention and control plan that addresses potential inadvertent returns as well as hazardous and non-hazardous chemical releases. *[25 PA Code §105.14]*	The HDD Contingency Plan in Attachment 3 of the ECP of the revised Application (Attachment M - provided under separate cover) addresses inadvertent returns. The Spill Plan for Oil and Hazardous Materials is included as Attachment 9 of the ECP, which is provided within Attachment M of the revised Application.
42	It appears that several Waters of the Commonwealth could be crossed using trenchless installation methods. Provide a revised alternatives analysis that incorporates a discussion of alternative crossing techniques (conventional bore, HDD, micro-tunneling, etc.) addressing each resource crossing individually and explaining why trenchless installation methods are not appropriate. *[25 PA Code §105.14(b)(4)]*	See response to Technical Deficiency 8. (Duplicate, different regulatory citation)

Technical Deficiency Number	Technical Deficiency Description	Response
43	Provide a description and plans of how the water will be withdrawn, the methods to be utilized, what equipment and structures are proposed to be placed and utilized in waters of the Commonwealth, the length of time which obstructions will remain in place, and other details. Provide a cross sections, profiles, and hydraulic analysis for piping placed in existing stream culverts and along and within stream channels. *[25 PA Code §105.13(e)(1)]*	All water withdrawals will be completed in compliance with SRBC dockets. Four water withdrawal sites are planned for Columbia County: (1) Fishing Creek, (2) Fishing Creek CPLS, (3) Roaring Creek, and (4) Susquehanna River (Primary). SRBC approved the dockets for these water withdrawal locations on September 8, 2016. The location of the water withdrawal equipment relative to wetlands, streams, floodways, and floodplains are captured within the revised Application (see Attachment H-2). Water withdrawals from Fishing Creek, Fishing Creek CPLS, Roaring Creek, and Susquehanna River (Primary) will be completed in compliance with the SRBC dockets. The SRBC docket and metering plans provide details regarding the methods to be used to withdraw water. The equipment will remain in place only as long as is necessary to complete the water withdrawals. All equipment will be overland and temporary. The intake structure and piping will be located in the floodway. The pump and other equipment will be kept out of the floodway (see Attachment L-5, Section D). No piping will be placed in existing stream culverts. Cross sections, profiles, and hydraulic analysis of piping to be placed in stream channels was completed for the SRBC dockets. This information is provided in Attachment L-5, Appendix L-3.

Technical Deficiency Number	Technical Deficiency Description	Response
44	Revise the application to provide a planting plan to re-establish woody vegetation in 25 foot riparian area and wetland areas that are currently forested or dominated by woody species. *[25 PA Code §105.13(e)(1)(ix)]*	See response to Technical Deficiency 12. (Duplicate)
45	The application states that blasting may be required to install the proposed pipeline. Clarify if blasting will be necessary in or along waters of the Commonwealth, and identify where it will likely be required. Please be advised that blasting permit from the PFBC may be needed. *[25 PA Code §105.21(a)(1)]*	See response to Technical Deficiency 17. (Duplicate)
46	An Aids to Navigation plan may be required for this project. Contact the PFBC at 717.705.7800 regarding ATON requirements. *[25 PA Code §105.14(b)(2)]*	See response to Technical Deficiency 18. (Duplicate)
47	Access road AR-CO-94.1.1 is shown to be placed in the floodway of an Unnamed Tributary to the Susquehanna River. An impact number WW-T47-12001 is noted as the stream traverses under Legion Road. It is unclear what the impacts are and where they are shown on the plans. Additional impacts are shown on the Access Road Layout plans depicting erosion and sedimentation controls in the stream channel. These impacts do not exhibit avoidance of impacts and shall be relocated. *[25 PA Code §105.14]*	This access road has been removed from the Project.
48	The drawing index sheets exhibit plan drawing numbers for which plans do not exist. Correct in re-submission. *[25 PA Code §105.13(e)]*	The revised Application includes index sheets and plans match (Attachment H-2).

Technical Deficiency Number	Technical Deficiency Description	Response
49	Provide PNDI clearance letters from the USFWS for Indiana Bat and Northern Long-Eared Bat, and Northeastern Bulrush, PGC for Allegheny Woodrat, and DCNR for Northeastern Bulrush, and Jeweled Shooting Star. *[25 PA Code §105.16(c)(3)]*	Transco has received final clearance letters from the PGC, PFBC, and DCNR for the Project. The USFWS is consulting with the FERC regarding federally listed species, and Transco expects resolution in fourth quarter 2016. Attachment G of the revised Application has been updated to include a current summary of endangered species agency consultation, as well as copies of agency clearance letters. Refer to Technical Deficiencies 4 and 26.
50	E&S drawings are at too high of a scale to discern E&S BMPs around water resources. Provide detailed mapping of water resources showing E&S BMPs to be used to protect water quality during construction. *[25 PA Code §105.18a(b)(4)]*	Attachment H-2 (Impact Mapping) provides additional site-specific detail of the BMP locations at wetland and waterbody crossings. Perimeter BMPs, trench plugs, and timber matting shown are included on the above-referenced drawings, as developed per coordination with the PA DEP Northcentral Regional Office during the review of the proposed CPL North and CPL South, as part of the Project.
51	Provide justification for use of open trench methods of all water resource crossings, as opposed to conventional bore or HDD. *[25 PA Code §105.18a(b)(2)]*	Attachment P-1, Appendix P-2 of the revised Application includes a revised alternatives analysis that incorporates a discussion of alternative crossing techniques for each resource crossing and whether a trenchless method is or is not appropriate. See also response to Technical Deficiency 8.

Technical Deficiency Number	Technical Deficiency Description	Response
52	Is it the intention that PFO and PSS wetlands identified with temporary impacts be allowed to naturally revert to pre-existing wetland condition? How will mowing and other maintenance be restricted to only the 10-foot-wide corridor through PEM and PSS and 30' wide through PFO, as identified in the permit application? Once the construction corridor is cleared, it will be difficult to differentiate the area that will require routine maintenance versus the area that should be allowed to regrow into pre-existing conditions, especially if a wider corridor is maintained outside of wetland areas. *[25 PA Code §105.13(e)(1)(ix)]*	It is Transco's intention to allow the temporary PSS and PFO impacts identified within the Chapter 105 Impact Table (Attachment E-2) to regenerate to the respective, pre-existing wetland cover types. Transco will permanently maintain a 10-foot wide corridor centered over the pipeline in an herbaceous state, except in areas crossed by Horizontal Directional Drills. Outside of this 10-foot wide area, Transco will allow shrubs to regrow within the permanent ROW; however, periodic maintenance will be required. In forested wetlands and within 25-feet from top-of-bank of a stream riparian area (e.g., riparian strip), Transco will allow trees to regrow in the outer 10 feet of the permanent ROW, reducing the operational corridor to 30-feet (per FERC Procedures). In all cases, the temporary ROW will be allowed to revert to original pre-construction conditions. Transco will provide post-construction as-built drawings with detailed wetland and stream information to Operations in addition to post-construction maintenance and compliance requirements.
53	Permanent impacts are identified for PSS wetlands, with no mitigation proposed. Justify that the functions and values of the PSS wetlands would not be impacted by ROW maintenance or provide mitigation for PSS wetland impacts. *[25 PA Code §105.13(e)(1)(ix)]*	Transco is providing off-site compensatory mitigation for temporal conversion of PSS wetlands to palustrine emergent wetlands within a 10-foot wide operation and maintenance corridor centered over the pipeline within the permanent easement. The Mitigation Master Plan and Permittee Responsible Mitigation Plan are provided as Attachments Q-1 and Q-2 within the revised Application.

Technical Deficiency Number	Technical Deficiency Description	Response
54	For CPL North, a 90' LOD was generally used and was narrowed to 75' through some wetland areas. For CPL South, a 100' LOD was generally used, and was narrowed to 90' or 75' in some wetland areas. Justify why the LOD was not reduced through all water resources, as a reduced LOD would provide for a minimization of impacts. The LOD should be reduced to the maximum extent feasible through all water resources. [*25 PA Code §105.18a(b)(2)]*	Transco has re-evaluated each individual crossing and modified or reduced the construction limits wherever possible to eliminate or reduce impacts. Modifications to the construction limits for each individual crossing are provided in Attachment P-1, Appendix P-1 of the revised Application. Appendix P-1 includes justifications for any crossings where workspace reduction was not possible.
55	Impact #1-7 - Data provided and confirmed during field observations on 7/2/15 and 7/14/15 is not represented by the wetland boundaries and streams identified in the application (Drawing number F-AS-CPLN-A-01 Sheet 1 and associated impact mapping). Provide updated data and mapping that accurately represents the streams and wetlands on site and update associated impacts accordingly. *25 PA Code §105.13(e)(1)]*	Data provided and confirmed during field observations of the referenced stream (WW-91-15001) and wetlands (W-T02-15001A and W-T02-15001C) are included with the updated data and mapping in the revised Application (see Attachment E-2, and Drawing 24-1601-70-20-A/0.20-01 in Attachment H-2).
56	Impact #3 - Stream WW-T91-15001 is identified as an Unnamed Tributary (UNT) to Fishing Creek. The correct identification of the stream is an UNT to West Creek. West Creek is a Wild Trout stream. *25 PA Code §105.13(e)(1)]*	Stream WW-T91-15001 has been identified as an UNT to West Creek and noted as a Wild Trout stream in the revised Application (see revised impact number 3 in Attachment E-2, and Drawing 24-1601-70-09-A/0.20-01 in Attachment H-2).
57	Impact # 1-2, 6-7 - Wetlands W-T02-15001 A and W-T02-15001C are adjacent to an UNT to West Creek, which is a tributary to a wild trout stream. Therefore, these wetlands should be identified as exceptional value. *[25 PA Code §105.17(1)(iii)]*	Wetlands W-T02-15001 A and W-T02-l 5001C are identified as EV in the revised Application (see revised impact numbers 1-2 and 6-7 in Attachment E-2, and Drawing 24-1601-70-09-A/0.20-01 in Attachment H-2).

Technical Deficiency Number	Technical Deficiency Description	Response
58	Impact #1-2, 6-7 - Provide impact mapping that clearly shows the boundaries between PEM and PFO wetlands and their associated impacts*. [25 PA Code §105.13(e)(1)]*	Impact mapping in the revised Application clearly shows the boundaries between wetland types through the adjustment of the boundary line weights between differing wetland cover types (see Drawing 24-1601-70-09-A/0.20-01 in Attachment H-2).
59	Impact #8 - Wetland W-T02-15002 can be avoided through a minor change to the LOD around the edge of the wetland. Adjust LOD or justify why the impact is necessary. *[25 PA Code §105.18a(b)(2)]*	The Project LOD for W-T02-15002 has been modified to avoid impacts for this resource (see revised impact number 8 strikethrough text in Attachment E-2, and Drawing 24-1601-70-20-A/0.59-01 in Attachment H-2).
60	Impacts # 17-20 - Wetlands W-T02-15004A and W-T02-15004C are adjacent to UNT to Fishing Creek, which is a tributary to a wild trout stream. Therefore, these wetlands should be identified as EV. *[25 PA Code §105.17(1)(iii)]*	Wetlands W-T02-15004A and W-T02-15004C are identified as EV in the revised Application (see revised impact numbers 17-20 in Attachment E-2, and Drawing 24-1601-70-20-A/0.92-01 in Attachment H-2).
61	Impacts #17-20 - Provide impact mapping provided that clearly shows the boundaries between PEM and PFO wetlands and their associated impacts. *[25 PA Code §105.13(e)(1)]*	Impact mapping in the revised Application clearly shows the boundaries between wetland types through the adjustment of the boundary line weights between differing wetland cover types (see Drawing 24-1601-70-20-A/0.92-01 in Attachment H-2).

Technical Deficiency Number	Technical Deficiency Description	Response
62	Impact #21-22 -The pipeline is shown to parallel at least 150' of the UNT to Fishing Creek (WW-T02-15004), generally within 10' of the stream. The current cover of the stream is primarily PFO. Describe how construction of the pipeline will take place in close proximity to the stream as to not result in a permanent impact to the stream. This location does not fit a typical stream crossing and may require specific detail. As the streambanks will be maintained without its current forested vegetation, describe how stabilization of the stream will occur such that erosion is prevented. Severe erosion at this location has a higher potential to result in loss of cover of the pipeline and exposure of the pipeline. The UNT is a wild trout stream. Loss of PFO cover raises concerns of thermal impacts to the stream, especially since headwater stream are more susceptible to thermal impacts as a result of cover loss. Explain how this impact will be minimized. *[25 PA Code §105.13(e)(1)] [25 PA Code §105.314] 25 PA Code §105.14(b)(4)]*	Transco is currently evaluating a route deviation at this location and will provide updated information upon completion of the evaluation. The revised Application includes measures to minimize impacts to WW-T02-15004 along the current alignment (see Attachment L-5, Attachment P-1, and Drawing 24-1601-70-90-A/0.92-01 in Attachment H-2).
63	Impact #26-27 -The pipeline is shown to makes bends that results in increased wetland impacts. Justify the wetland impacts at this location by explaining the feasibility of locating the pipeline bends either before or after the wetland, which would reduce or avoid the wetland crossing. *[25 PA Code §105.13 (e)(1)(viii)]*	The current pipeline alignment through this area is co-located with Transco Existing Leidy Line A. A crossover of the existing Leidy Line A is required at this location to avoid a residential development located east of Camp Lavigne Road. Relocation of the crossover to the west to avoid impacts to wetland W-T02-15005 would result in impacts to stream WW-T02-15005. A relocation of the crossover to the east between its current location and Camp Lavigne Road would not be constructible due to the close proximity of the road and an existing power pole (see Drawing 24-1601-70-20-A/1.11-01 in Attachment H-2).

Technical Deficiency Number	Technical Deficiency Description	Response
64	Impacts #29-34 - Data provided and confirmed during field observations on 7/2/15 and 7/14/15 is not represented by the wetland boundaries and streams identified in the application (Drawing number F-AS-CPLN-A-01 Sheet 3 and associated impact mapping). Provide updated data and mapping that accurately represents the streams and wetlands on site and update associated impacts accordingly. *[25 PA Code §105.13(e)(1)]*	Wetland W-T02-15006C / W-T02-15006C-1 (impact #29-30) is no longer impacted by the Project. Data provided and confirmed during field observations of the referenced stream (WW-T02-15006) and wetland (W-T02-15006A / W-T02-15006A-1) are included with the updated data and mapping in the revised Application (see revised impact numbers 29-34 in Attachment E-2, and Drawing 24-1601-70-09-A/1.16-011 and 24-1601-70-09-A/1.17-01 in Attachment H-2).
65	Impacts #29-32 - Provide impact mapping that clearly shows the boundaries between PEM and PFO wetlands and their associated impacts. *[25 PA Code §105.13(e)(1)]*	Impact mapping in the revised Application clearly shows the boundaries between wetland types through the adjustment of the boundary line weights between differing wetland cover types. Wetland W-T02-15006C/ W-T02-15006C-1 is no longer impact by the Project (see strikethrough in Attachment E-2, and Drawing 24-1601-70-09-A/1.17-01 in Attachment H-2).
66	Impact #47-51 and 53-56 -Wetlands W-T02-15008A, W-T02-15008B, W-T02-15008C, W-T02-15009A and W-T02-15009C are adjacent to an UNT to Coles Creek, which is a tributary to a wild trout stream. Therefore, these wetlands should be identified as EV. *[25 PA Code §105.17(1)(iii)]*	Wetland W-T02-15008A, W-T02-15008B, W-T02-15008C are no longer impacted by the Project and have been removed from the revised Application (see strikethrough text in revised impact numbers 47-51 in Attachment E-2). Wetland W-T02-15009A and W-T02-15009C are identified as EV in the revised Application (see revised impact numbers 57-58 and 63-64 in Attachment E-2, and Drawing 24-1601-70-20-A/M-0086-0.21-01 in Attachment H-2).

Technical Deficiency Number	Technical Deficiency Description	Response
67	Impact #53-56 - Provide impact mapping that clearly shows the boundaries between PEM and PFO wetlands and their associated impacts. *[25 PA Code §105.13(e)(1)]*	Impact mapping in the revised Application clearly shows the boundaries between wetland types through the adjustment of the boundary line weights between differing wetland cover types (see Drawing 24-1601-70-20-A/M-0086-0.21-01 in Attachment H-2).
68	Impact # 61-72 - Data provided and confirmed during field observations on 7/2/15 and 7/ I 4/15 is not represented by the wetland boundaries and streams identified in the application (Drawing number F-AS-CPLN-A-01 Sheet 6 and associated impact mapping). Provide updated data and mapping that accurately represents the streams and wetlands on site and update associated impacts accordingly. *[25 PA Code §105.13(e)(1)]*	Data provided and confirmed during field observations of the referenced streams (WW-T02-15010 and WW-T92-15001) and wetlands (W-T02-15010C / W-T02-15010C-1 / W-T02-15010C-2 and W-T02-15010A / W-T02-15010A-1) are included with the updated data and mapping in the revised Application (see revised impact numbers 65-76 in Attachment E-2, and Drawing 24-1601-70-20-A/2.85-01 and 24-1601-70-09-A/2.87-01 in Attachment H-2).
69	Impacts #67-70 - Provide impact mapping that clearly shows the boundaries between PEM and PFO wetlands and their associated impacts. *[25 PA Code § 105.13(e)(1)]*	Impact mapping in the revised Application clearly shows the boundaries between wetland types through the adjustment of the boundary line weights between differing wetland cover types (see Drawing 24-1601-70-20-A/2.85-01 in Attachment H-2).
70	Impact #87-90, 97-100 - Provide impact mapping that clearly shows the boundaries between PEM and PFO wetlands and their associated impacts. *[25 PA Code §105.13(e)(1)]*	Impact mapping in the revised Application clearly shows the boundaries between wetlands types through the adjustment of the boundary line weights between differing wetland cover types (see Drawings 24-1601-70-20-A/3.96-01, and 24-1601-70-09-A/4.12-01 in Attachment H-2).

Technical Deficiency Number	Technical Deficiency Description	Response
71	Impact #87-100 - Data provided and confirmed during field observations on 7/2/15 and 7/14/15 is not represented by the wetland boundaries and streams identified in the application (Drawing number F-AS-CPLN-A-01 Sheet 9 and associated impact mapping). Provide updated data and mapping that accurately represents the streams and wetlands on site and update associated impacts accordingly. *[25 PA Code §105.13(e)(1)]*	Data provided and confirmed during field observations of the referenced streams (WW-T02-15012C and WW-T02-15012) and wetlands (W-T02-15015C, W-T02-15015A, W-T02-15012A, and W-T02-15012C / W-T02-15012C-1 / W-T02-15012C-2) are included with the updated data and mapping in the revised Application (see revised impact numbers 93-106 in Attachment E-2 and Drawings 24-1601-70-20-A/3.96-01, and 24-1601-70-20-A/4.12-01 in Attachment H-2).
72	Impacts# 87-90, 97-100 - Wetland W-T02-15015A and W-T02-15015C, W-T02-15012A and W-T02-15012C are a part of a significant wetland complex that drain into to Coles Creek, which is a wild trout stream. Therefore, these wetlands should be identified as EV. *[25 PA Code§105.17(1)(iii)]*	Wetlands W-T02-15015A and W-T02-15015C, W-T02-15012A, and W-T02-15012C are identified as EV in the revised Application (see revised impact numbers 93-96 and 103-106 in Attachment E-2, and Drawings 24-1601-70-20-A/3.96-01, and 24-1601-70-20-A/4.12-01 in Attachment H-2).
73	Impact 101-103 -Wetlands W-T02-15016A/W-T02-15016A-1 and W-T02-15016C are adjacent to UNTs to Marsh Creek which are tributaries to a wild trout stream. Therefore, these wetlands should be identified as EV. *[25 PA Code §105.17(1)(iii)]*	Wetlands W-T02-15016A/W-T02-15016A-1 and W-T02-15016C are identified as EV in the revised Application (see revised impact numbers 110-112 in Attachment E-2, and Drawing 24-1601-70-20-A/4.64-01 in Attachment H-2).
74	Impact #132-133 -Mugser Run is not Class at the location of this crossing. It is, however, a wild trout stream and is trout stocked. Update permit submission accordingly. *[25 PA Code §105.13(e)(1)]*	Mugser Run and its UNTs are identified as a wild trout stream and trout stocked stream in the revised Application (see revised impact numbers 144-145 and 148-149 in Attachment E-2, and Drawing 24-1600-70-09-A/94.43-01 in Attachment H-2).

Technical Deficiency Number	Technical Deficiency Description	Response
75	Impact # 134 - Wetland W-T04- 11004 is in the floodplain to Mugser Run, which is a wild trout stream. Therefore, this wetland should be identified as EV. [*25 PA Code §105.17(1)(iii)]*	Wetland W-T04-11004 is no longer impacted by the Project and has been removed from the revised Application (see strikethrough text for revised impact number 143 in Attachment E-2).
76	Impact #134 - Wetland W-T04-11004 is on the edge of the LOD. Adjust LOD to avoid this impact or justify why impact to this wetland is necessary at this location. *[25 PA Code §105.18a(b)(2)]*	The LOD in the area of this wetland has been modified to avoid impacts to this wetland and is no longer represented in the Project drawings. (see Attachment H-2).
77	Impact #157-177 -Data provided and confirmed during field observations on 7/2/15 and 7/14/15 is not represented by the wetland boundaries and streams identified in the application (Drawing number F-AS-CPLS-A-01 Sheet 205 and associated impact mapping). Provide updated data and mapping that accurately represents the streams *and* wetlands on site and update associated impacts accordingly. *[25 PA Code §105.13(e)(1)]*	Data provided and confirmed during field observations of the referenced streams (WW-T04-12002, WW-T04-12003, WW-T04-12004, WW-T04-12005, WW-T04-12005A, WW-T04-12006) and wetlands (W-T04-12002C, W-T04-12002A, W-T04-12004, and W-T04-12004-1) are included with the updated data and mapping in the revised Application (see revised impact numbers 176-183 and 186-197 in Attachment E-2, and Drawings 24-1600-70-20-A/101.50-01, 24-1600-70-09-A/101.61-01, 24-1600-70-09-A/101.64-01, 24-1600-70-20-A/101.65-01, and 24-1600-70-09-A/102.1-01 in Attachment H-2). Pond WB-T04-12007 is no longer impacted by the Project (see removed impact numbers184-185 in Attachment E-2).

Technical Deficiency Number	Technical Deficiency Description	Response
78	Impact #159 -Wetland W-T04- 12002A is on the edge of the LOD. Adjust LOD to avoid this impact or justify why the impact is necessary. *[25 PA Code §105.18a(b)(2)]*	Wetland W-T04-12002A, which is the emergent wetland portion of wetland W-T04-12002, extends across the entire LOD. Reduction of the LOD across this feature was not possible due to the saturated nature of the wetland complex, unconsolidated soils in area, and adjacent streams. The additional workspace will provide storage for spoil within the wetland and will result in less impact than transporting material to a stockpile area outside the wetland. Please refer to Attachment P-1, Appendix P-1 for a description of routing considerations at this crossing.
79	Impact #164 - UNT to Montour Run (WW-T04-12003) runs parallel to the construction corridor. Adjust LOD to the stream bank or justify why the impact is necessary. *[25 PA Code§105.14(b)(4)]*	The LOD has been reduced by 10 feet to reduce impacts to the UNT to Montour Run (WW-T04-12003) to the maximum extent practicable (see Drawing 24-1600-70-09-A/101.61-01 in Attachment H-2).
80	Impact #193 - Wetland W-T47-12002 is primarily on the edge of the LOD. Reduce LOD to minimize this impact or justify why the LOD cannot be reduced. *[25 PA Code §105.18a(b)(2)]*	The LOD has been modified to avoid impacts to wetland W-T47-12002 (see Attachment H-2).
81	Impact # 194-195 - The pipeline is shown to parallel an UNT to Frozen Run (WW-T21- CS610Di01 A) for at least 400'. This stream is a headwaters stream to a wild trout stream. The current cover is forested. Justify how long-term impacts to the stream will be avoided. *[25 PA Code §105.14(b)(4)]*	Stream WW-T21-CS610Di01-A is no longer being impacted by the Project (see strikethrough text in revised impact numbers 213-214 in Attachment E-2).
82	Describe how construction of the pipeline will take place in close proximity to the stream as to not result in a permanent impact to the stream. This location does not fit a typical stream crossing and may require specific detail. *[25 PA Code §105.13(e)(1)]*	Stream WW-T21-CS610Di01-A is no longer being impacted by the Project (see strikethrough text in revised impact numbers 213-214 in Attachment E-2).

Technical Deficiency Number	Technical Deficiency Description	Response
83	As the streambanks will be maintained without its current forested vegetation, describe how stabilization of the stream will occur such that erosion is prevented. Severe erosion at this location has a higher potential to result in loss of cover of the pipeline and exposure of the pipeline. *[25 PA Code §105.314]*	Stream WW-T21-CS610Di01-A is no longer being impacted by the Project (see strikethrough text in revised impact numbers 213-214 in Attachment E-2).
84	The UNT is a wild trout stream. Loss of PFO cover raises concerns of thermal impacts to the stream, especially since headwater stream are more susceptible to thermal impacts as a result of cover loss. Explain how this impact will be minimized. *[25 PA Code §105.14(b)(4)]*	Stream WW-T21-CS610Di01-A is no longer being impacted by the Project (see strikethrough text in revised impact numbers 213-214 in Attachment E-2).
85	Drawing F-AS-CPLS-A-01 Sheet 210 shows a remote sensed stream and wetland. On-the- ground survey data will be required for this stream and wetland in order to conduct a complete review of the application. *[25 PA Code §105.13(e)(1)(i)(A)]*	Refer to Response for Technical Deficiency 1.
86	Impact #208-211 - Wetlands W-T01-12001A and W-T01-12001 B are located along the floodplain of Frozen Run and are adjacent to an UNT to Frozen Run. Frozen Run is a tributary to Hemlock Creek, which is a wild trout stream. Therefore, these wetlands should be identified EV. *[25 PA Code §105.17(1)(iii)]*	Wetlands W-T01-12001A and W-T01-12001B are no longer impacted by the Project and have been removed from the revised Application (see strikethrough text in revised impact numbers 229-232 in Attachment E-2).
87	Impact #208-211 - Provide impact mapping provided that clearly shows the boundaries between PEM and PSS wetlands and their associated impacts. *[25 PA Code §105.13(e)(1)]*	Wetlands W-T01-12001A and W-T01-12001B are no longer impacted by the Project and have been removed from the revised Application (see strikethrough text in revised impact numbers 229-232 in Attachment E-2).
88	Impact #214-215 -Wetland W-T01-12002 is adjacent to floodplain to Frozen Run and is part of the same wetland complex as impacts #208-211. This wetland should be identified as EV. *[25 PA Code §105.17(1)(iii)]*	Wetland W-T01-12002 is no longer impacted by the Project and has been removed from the revised Application (see strikethrough text in revised impact numbers 235-236 in Attachment E-2).

Technical Deficiency Number	Technical Deficiency Description	Response
89	Impact # 225 -UNT to Little Fishing Creek (WW-T01 -12006) is on the edge of the LOD. Revise LOD to the edge of the streambank or provide justification for why this impact cannot be avoided. *[25 PA Code §105.14(b)(4)]*	The LOD has been modified to avoid impacts to this stream (see Drawing 24-1600-70-09-A/M-0236-0.48-01 in Attachment H-2).
90	Drawing F-AS-CPLS-A-01 Sheet 216 of 332 identifies a remote sensed stream and wetland. On-the-ground survey data will be required for this stream and wetland in order to conduct a complete review of the application. *[25 PA Code §105. 13(e)(1)(i)(A)]*	Refer to Response for Technical Deficiency 1.
91	Drawing F-AS-CPLS-A-01 sheet 217 of 332 shows a small section of stream WW-T21 -13004 that does not extend into the pipeline corridor. This area is a valley between steep slopes paralleling Coleman Hollow Road. Aerial photography shows a channel both upstream and downstream of the crossing location. Confirm the presence or absence of a stream crossing at this location, with documentation. If a stream, as defined by 25 PA Code §105.1 is present, then the impact should be added to the permit application. *[25 PA Code §105.13(e)(1)(i)(A)]*	The route has been shifted such that the area near the stream and valley paralleling Coleman Hollow Road is no longer impacted (see strikethrough text in revised impact 339 and 340 in Attachment E-2)
92	Impacts #235-237 -Wetland W-T01-13001 is along the edge of the LOD. Reduce LOD to avoid impacts to the wetland and minimize impacts to the UNT to Little Fishing Creek (WW-T01- 13004) or justify why the LOD cannot be narrowed in this location. *[25 PA Code §105.18a(b)(2)]*	The LOD has been modified to avoid impacts to this wetland and minimize impacts to the UNT to Little Fishing Creek (see removed impact number 300 in Attachment E-2 and Drawing 24-1600-70-09-A/109.17-01 in Attachment H-2).
93	Impacts #246-254 -Drawing number F-AS-CPLS-A-01 Sheet 222 shows ATWS C0-1415 in a wetland area. Justify the placement of the ATWS within the wetland versus in an upland area. *[25 PA Code §105.18a(b)(2)]*	The LOD has been reduced from 90 feet to 75 feet to minimize impacts, and the ATWS has been removed from the wetland (see Drawing 24-1600-70-09-A/110.20-01 in Attachment H-2).

Technical Deficiency Number	Technical Deficiency Description	Response
94	Impacts #250-254 - Provide impact mapping that clearly shows the boundaries between PEM PSS, and PFO wetlands and their associated impacts. *[25 PA Code §105.13(e)(1)]*	Impact mapping in the revised Application clearly shows the boundaries between wetland types through the adjustment of the boundary line weights between differing wetland cover types (see Drawing 24-1600-70-20-A/110.19-01 in Attachment H-2).
95	Impact #255 - UNT to Deerlick Run (WW-T90-13001) is along the edge of the LOD and could be avoided with a minor change to the LOD. Adjust LOD to the edge of the stream bank to avoid this impact or justify why the impact cannot be avoided. *[25 PA Code §105.14(b)(4)]*	The LOD has been modified to avoid impacts to the UNT to Deerlick Run (WW-T90-13001) (see removed impact number 320 in Attachment E-2 and Drawing 24-1600-70-09-A/110.53-01 in Attachment H-2).
96	Drawing F-AS-CPLS-A-01 Sheet 224 of 332 identifies a remote sensed wetlands. On-the- ground survey data will be required for this stream and wetland in order to conduct a complete review of the application. *[25 PA Code §105. 13(e)(1)(i)(A)]*	Refer to Response for Technical Deficiency 1.
97	Impact #272-273 - For waterbody WB-T21-13001, impacts are indicated on the impact table but no impact mapping was provided. *[25 PA Code §105.13(e)(1)]*	This feature has been deleted from the Impact Table and is not being impacted (see strikethrough text in revised impact numbers 339-340 in Attachment E-2).
98	Impact #272-273 - Drawing F-AS-CPLS-A-01 Sheet 228 depicts waterbody WB-T21-13001 completely outside of the LOD. However, aerial photography suggests the possible presence of a stream or wetland within the crossing location. Verify the presence or absence of a water resource at this location, with documentation. Update the permit application with correct impacts and mapping. *[25 PA Code §105.13(e)(1)(i)(A)]*	The area near WB-T21-13001 within the LOD was resurveyed in October 2016 and no stream or wetland was present. Photo documentation of this upland area is provided in within the Wetland Delineation Report, as Attachment L-2 of the revised Application.

Technical Deficiency Number	Technical Deficiency Description	Response
99	Impact #274-275, 281-282, 285-286 - Mud Run is a tributary to Green Creek, which is a wild trout stream. Therefore, Mud Run (WW-T21-13001) and its unnamed tributaries (WW-T90-14003 and WW-T21-13001A) are considered wild trout streams, in accordance with 58 §57.11 (b)(4): tributary linkages. *[25 PA Code §105.13(e)(1)]*	Mud Run (WW-T21-13001) and its unnamed tributaries (WW-T90-14003 and WW-T21-13001A) are identified as wild trout streams in the revised Application (see strikethrough text in revised impact numbers 341-342, 348-349, and 352-353 in Attachment E-2, and Drawings 24-1600-70-09-A/113.37-01, 24-1600-70-20-A/113.43-01, and 24-1600-70-09-A/113.54-01 in Attachment H-2).
100	Impact #278-279 -The wetland W-T21- 13002 is adjacent to the UNT to Mud Run, which is tributary to Green Creek, which is a wild trout stream. Therefore, the wetland should be identified as EV. *[25 PA Code §105.17(1)(iii)]*	Wetland W-T21- 13002 is identified as EV in the revised Application (see strikethrough text in revised impact numbers 345-346 in Attachment E-2, and Drawing 24-1600-70-20-A/113.37-01 in Attachment H-2).
101	Impacts #280-282 - Wetland W-T21-13001 is located along the edge of the LOD. Reduce LOD to minimize impacts to this wetland and Mud Run or justify why the impact is necessary. *[25 PA Code §105.18a(b)(2)]*	Wetland W-T21-13001 encroaches within the western portion of the LOD only. This portion of the LOD was reduced as much as possible (10 feet) to minimize impacts to the wetland (see revised impact number 347 in Attachment E-2, and Drawing 24-1600-70-20-A/113.43-01 in Attachment H-2). Further LOD reduction to completely avoid this wetland was not possible. Please refer to Attachment P-1, Appendix P-1 for a description of routing considerations at this crossing.
102	Impact #280 - Wetland W-T21-13001 is in the floodplain to Mud Run, which is tributary to Green Creek, a wild trout stream. Therefore, this wetland should be identified as EV. *[25 PA Code §105.17(1)(iii)]*	Wetland W-T21-13001 is identified as EV in the revised Application (see revised impact number 347 in Attachment E-2, and Drawing 24-1600-70-20-A/113.43-01 in Attachment H-2).

Technical Deficiency Number	Technical Deficiency Description	Response
103	Impact #299 - Justify the placement of the ATWS CO-1485 and CO-1486 within wetland W-T44-14001 as opposed to an upland area. *[25 PA Code §105.18a(b)(2)]*	ATWS CO-1485 and CO-1486 have been eliminated from the Project (see strikethrough text in revised impact number 369 in Attachment E-2).
104	Impact #300 - Impacts to the UNT to Green Creek (WW-T16-14001) can be reduced through a reduction in LOD. Reduce LOD or justify impacts at this location. *[25 PA Code §105.14(b)(4)]*	The LOD has not been adjusted due to constructability issues associated with side-slope construction to the east which would require additional ATWS within the existing forested areas. A residence also restricts the relocation of the alignment to the west. Additionally, the relocation of the alignment at this location would result in additional stream impact if the route were to be moved to the west (see Drawing 24-1600-70-09-A/116.01-01 in Attachment H-2).
105	Impact drawing 24-1600-70-20-A/118.06-01 does not clearly show wetland impacts. An area in the center of the image is marked with a wetland symbol, but is not included in the wetland impact area. Clarify whether the area is wetland or an upland inclusion within the surrounding wetland. *[25 PA Code §105.13(e)(1)(i)(A)]*	This area is an upland inclusion within an existing wetland. The revised Application clearly shows the identification (see Drawing 24-1600-70-20-A/118.06-01 in Attachment H-2).
106	Impacts #303-306 - Provide impact mapping provided that clearly shows the boundaries between PEM and PSS wetlands and their associated impacts. *[25 PA Code §105.13(e)(1)]*	Impact mapping in the revised Application clearly shows the boundaries between wetland types through the adjustment of the boundary line weights between differing wetland cover types (see revised Drawing 24-1600-70-20-A/118.06-01 in Attachment H-2).
107	Impact # 348-349 - Wetland W-T02-14001 is adjacent to an UNT to York Hollow, which is a tributary to a wild trout stream. Therefore, the wetland should be identified as EV. *[25 PA Code §105.17(1)(iii)]*	Wetland W-T02-14001 is identified as EV in the revised Application (see revised impact numbers 418-419 in Attachment E-2, and Drawing 24-1600-70-20-A/123.34-01 in Attachment H-2).

Technical Deficiency Number	Technical Deficiency Description	Response
108	Impact 356-357 -Wetland W-T06-14001 is located in the floodplain to an UNT to West Creek, which is a tributary to a wild trout stream. Therefore, the wetland should be identified as EV. *[25 PA Code §105.17(1)(iii)]*	W-T06-14001 is identified as EV in the revised Application (see revised impact numbers 428-429 in Attachment E-2, and Drawing 24-1600-70-20-A/124.69-01 in Attachment H-2).

Technical Deficiency Number	Technical Deficiency Description	Response
109	Provide details depicting the amount of mitigation that is anticipated at Briar Creek, the amount of mitigation that is needed in all counties that will be using the Briar Creek mitigation site, and the amount of mitigation that Briar Creek will be used to mitigate of impacts in each county [*25 PA Code § 105.13(e)(1)(ix)]*.	The Briar Creek PRM Site is no longer being used as a mitigation site for PFO/PSS wetland impacts occurring in Columbia County. Mitigation for impacts occurring in Columbia County will be offset by the Swatara Creek PRM Site. A breakdown of the mitigation anticipated at Swatara Creek, the amount of mitigation that is needed in all counties that will be using the Swatara Creek Mitigation Site, and the amount of mitigation that Swatara Creek Mitigation Site will be used to mitigate impacts in each county is provided in Table 1 below. The Swatara Creek PRM Site will provide a total of 5.37 acres of mitigation, of which 3.59 acres of mitigation will be used to offset mitigation needs of 0.74 acres in Schuylkill County, 0.35 acres in Northumberland County, and 2.50 acres in Columbia County. The Swatara Creek PRM Site will have a surplus of mitigation of approximately 1.78 mitigation acres. The Briar Creek PRM Site will provide mitigation offsets for PFO/PSS wetland impacts in Wyoming and Luzerne counties. As demonstrated in Table 2 below. The Briar Creek PRM Site will provide a total of 8.94 acres of mitigation total, of which 1.02 acres will be allocated for impacts occurring in Wyoming County, and 7.53 acres in Luzerne County. See Attachments Q-1 and Q-2 of the revised Application.

Technical Deficiency Number	Technical Deficiency Description	Response
110	Update all mitigation information to reflect corrections in EV PFO wetland identification. *[25 PA Code § 105.13(e)(1)(ix)]*	Mitigation information provided in the Swatara Creek PRM Site Plan has been updated to reflect correction in EV PFO wetland identification (see Attachments Q-1 and Q-2). The Briar Creek PRM Site is no longer being used as a mitigation site for PFO/PSS wetland impacts occurring in Columbia County.
111	Update mitigation plan to include PSS wetland impacts. *[25 PA Code §105.13(e)(1)(ix)]*	The Swatara Creek Mitigation PRM Site Plan has been revised to include permanent PSS wetland impacts (see Attachments Q-1 and Q-2). The Briar Creek PRM Site is no longer being used as a mitigation site for PFO/PSS wetland impacts occurring in Columbia County.
112	Mitigation Plan will need to be updated once field surveys are completed on all parcels where impacts are to occur. *[25 PA Code §105.13(e)(1)(ix)]*	The revised Application includes an updated mitigation plan with new survey data (see Attachments Q-1 and Q-2). See also response to Technical Deficiency 1.

Technical Deficiency Number	Technical Deficiency Description	Response
113	The mitigation plan shows the re-establishment of 0.46 acres of PFO wetland. The plan does not indicate how hydrology is planned to be restored to the area in order for it to become wetland. In addition, the planting plan shows "upland planting" indicated in the area where wetland is indicated to be re-established. Explain how the area, located along the eastern edge of the site, is planned to be re-established as wetland. *[25 PA Code §105.13(e)(1)(ix)]*	The revised mitigation plan addresses the restoration of hydrology for the PFO wetland and resolves where and how the wetland will be re-established as wetland. Swatara Creek Mitigation Site: The Briar Creek Mitigation Site is no longer being used as a mitigation site for PFO/PSS wetland impacts in Columbia County. The Swatara Creek Mitigation Site will now provide mitigation for PFO/PSS impacts in Columbia County. Restoration activities at the Swatara Creek Mitigation Site will include plugging the ditch that runs east to west along the eastern border of the site, and grading non-wetland areas to existing surrounding wetland elevations. The grading associated with the ditch plug installation combined with the planting and seeding of native wetland vegetation will allow water to spread more evenly throughout the area and should re-establish wetland conditions. These activities will restore hydrology and support the re-establishment wetland acreage proposed as shown in Figure 9: Resource Development Map (Appendix A: Figures of the Swatara Creek Mitigation Site Plan). Refer to the Swatara Creek PRM Site Plan for additional details (see Attachment Q-2).

114	Describe how the proposed mitigation at Briar Creek is appropriate to compensate for the conversion of PFO/PSS wetlands as a result of the project. Specifically, discuss the functions lost as a result of the project (vegetation clearing and maintenance in wetlands) to the functional uplift expected at the mitigation site. *[25 PA Code §105.13(e)(1)(ix)]*	The Briar Creek PRM Site is no longer being used as a mitigation site for PFO/PSS wetland impacts in Columbia County. The Swatara Creek PRM Site will now provide mitigation for PFO/PSS impacts in Columbia County. As described in the Swatara Creek PRM Plan, the majority of the wetlands identified within the PRM Site have been degraded to varying degrees through anthropogenic alterations including agricultural activities and the introduction of non-native pasture grasses, which are consistent with historic land use trends across central PA. The biological integrity of the PRM Site has been ecologically and physically altered through the installation of drainage ditches, manipulation of the existing stream channel dimensions and characteristics, and through general land use for agricultural purposes. Wetlands within the PRM Site are routinely mowed, are dominated by invasive species including reed canary grass, and provide little function and value to the surrounding landscape. The *Wetland Function-Value Evaluation Form* in the Supplement was completed at the Swatara Creek PRM Site in order to capture the existing, or pre-restoration conditions at the PRM Site as well as the anticipated ecological lift the site will experience as a result of the restoration activities. The wetland functions and values assessments performed at the Project impact locations and the PRM Site indicate that the mitigation site, once restored, will compensate and replace the functions and values impacted as a result of the Project by providing improved wildlife habitat, flood flow alteration, and nutrient removal/retention (the top three functions and values lost as a result

		of Project construction) at comparatively high levels. By following the USACE Highway Supplement for identifying wetland functions and values, and completing pre- and post-*Wetland Function-Value Evaluation Forms* for the Swatara Creek PRM Site, it was determined that the wetland identified within the PRM Site is currently suitable for two functions and values (Appendix F: Wetland Function and Values Assessment Forms of the PRM Plan). However, given the current degraded state of the wetland and its immediate surroundings, only one of the functions and values (flood flow alteration) is considered a principal function. Post restoration, it is anticipated that the wetlands within Swatara Creek PRM Site will be suitable for eight functions and values, of which six of those will be performing at principal levels (flood flow alternation, sediment/toxicant retention, nutrient removal, wildlife habitat, uniqueness/heritage, and endangered species habitat). A vast majority of the wetlands will experience an increase in the level of suitability and principality for the given functions and values. Removing invasive and non-native vegetation and re-planting the Swatara Creek PRM Site with a native-community will increase the vegetative diversity and density of the PRM Site. This restoration activity proposed for the PRM Site will most notably enhance the quality and quantity of wildlife habitat available within the PRM Site. Increasing wetland acreage within the PRM Site through re-establishment methods, coupled with vegetative enhancement, will improve the effectiveness of the wetland in reducing flood damage by increasing water retentions for prolonged

		periods following precipitations events and the gradual release of floodwaters. Increased vegetative diversity, including plant community structure, and density will be able to retain higher volumes of water than under normal or average rainfall conditions, supporting additional stability of the wetland ecological system and its buffering characteristics, and thereby providing social and economic value related to erosion and flood prone areas. Sources of excess sediment exist surrounding the wetland, and with the proposed restoration activities, this wetland will be better capable of reduces or preventing degradation of water quality as it will act as a trap for sediments, toxicants and/or pathogens in runoff in runoff water. Post-restoration, wetlands at the PRM Site will become significantly more effective for nutrient removal/retention/transformation as they will be better able to trap nutrients in runoff water and process then into other forms or trophic levels. The enhancement and establishment of improved vegetative density and diversity will be enable the wetland to utilize the nutrients. Enhancement of the wetland and riparian habitats surrounding the waters within the PRM Site will improve the effectiveness as a streambank stabilizer, complete with large trees and shrubs that post-restoration, will be more effectively able to withstand larger flood events or erosive incidents. Post restoration, the wetland will exhibit a higher degree of plant community structure, density and diversity, and will offer greater usable products for living organism, thereby improving production export functionality. Habitat for known species of special concern will be improved, an invaluable functional uplift.

Technical Deficiency Number	Technical Deficiency Description	Response
		Refer to the Swatara Creek PRM Site Plan for additional details including the functions and values forms provided as Appendix F: Wetland Function and Values Assessment Forms.

115	Tree and shrub plantings in the mitigation plan for Briar Creek are not well discussed. Plans show that the majority of the site is to be planted, including upland and wetland areas. Confirm that the intention of the project is to both restore an upland forested buffer as well as establish trees and shrubs within existing PSS/PFO wetlands. Discuss the likelihood of the wetland areas converting from the existing PEM/PSS to PSS/PFO. *[25 PA Code §105.13(e)(1)(ix)]*	The revised mitigation plan explains the intention of the project and the likelihood of conversion from existing PEM/PSS to PSS/PFO. Swatara Creek Mitigation Site: The Briar Creek Mitigation Site is no longer being used as a mitigation site for PFO/PSS wetland impacts in Columbia County. The Swatara Creek Mitigation Site will now provide mitigation for PFO/PSS impacts in Columbia County. Planting plans and details describing and depicting the anticipated wetland and upland seeding and tree and shrub plantings are provided as part of Appendix G: Design Plan of the PRM Plan. Please note that the species and amount to be planted may vary based on stock availability and time of year in which planting occurs. The wetland areas at the Swatara Creek PRM Site will be eradicated of invasive species. Following the herbicide treatment, the wetland areas will be planted with species that are conducive to the hydrological conditions found throughout the site. Transco uses a mix of larger stock and smaller bare root stock to give the site a healthy and diverse age vegetative community structure. Wetland plantings will be maintained for optimum growth throughout the first five years with herbicide and deer repellant treatments on a monthly to bi-monthly schedule. Transco will restore the PRM Site such that non-wetland areas will develop into PFO wetlands and existing PEM wetlands will be enhanced and grow into healthy PFO wetland complexes. Transco will revegetate the PRM Site with a wetland seed mix in addition to hydrophytic plants and shrubs that will be monitored and maintained to ensure success. Transco will

Technical Deficiency Number	Technical Deficiency Description	Response
		follow the monitoring protocol and performance standards established in the PRM Plan to assure that the appropriate mitigation is successful. Additional details can be found in Sections *8.0 Maintenance Plan, 9.0 Performance Standards,* and *10.0 Monitoring Requirements* of the PRM Plan. Furthermore, as stated in *Section 4.0 Site Protection Instrument* of the PRM Plan, the PRM Project will be protected by a declaration of restrictive covenant in advance of the proposed activities outlined in this mitigation plan, ensuring the long-term protection of the site. The site protection instrument will be recorded within 60 days in the county courthouse after USACE/PA DEP approval, with subsequent approval from the Permittee to move forward with mitigation. This will ensure that the PRM Site will be permanently protected from uses that are incompatible with the restrictive covenant.

Technical Deficiency Number	Technical Deficiency Description	Response
116	Due to the irregular boundary between the mitigation area and surrounding farmed and maintained areas, a method of demarcation of the boundary to the mitigation area should be included in the plan. *[25 PA Code §105.13(e)(1)(ix)]*	The revised mitigation plan includes a method of demarcation. The perimeter of the PRM Site will be demarcated in the field in a manner that is easily identifiable. The permanent markers will be installed prior to or concurrent with construction of the components of the mitigation plan and be maintained and permanently visible for the life of the protected site. The boundary of the PRM Site will be demarcated using 8-foot PVC pipe anchored with a metal T post. Signage will be posted on the metal T posts to indicate that the site is a PRM Site protected under a conservation easement, and will include PA DEP and U.S. Army Corps of Engineers authorization numbers.
Lancaster County TD Number 58	It appears that many of the stream crossings can be accessed from both banks, thereby eliminating the need for temporary road crossings and limiting impacts to the watercourses. Revise the alternatives analysis to explain why each proposed temporary road crossing is necessary. *[25 PA Code §105.13(e)(1)(viii)]*	While many of the streams could be accessed from both banks, this is not practical for the linear and sequential nature of pipeline construction. The bridge equipment crossings are essential for safe and efficient stream crossing installations. The bridge equipment crossings are necessary to install the prefabricated pipe segments for each stream crossing, as backhoes and side boom pipe-layers traverse the equipment bridges to safely and efficiently lower in the prefabricated pipe segment. The prefabricated pipe segment is typically covered with concrete coating and set-on concrete weights to provide for negative buoyancy after installation. These weights and coatings are extremely heavy, and would be out of reach for the equipment to install them safely without the use of the bridge equipment

Technical Deficiency Number	Technical Deficiency Description	Response
		crossings. The prefabricated pipe segments cannot be drug into place from either side, as this would damage the protective coating. Coating damage can lead to accelerated corrosion and the potential for leaks to develop. Furthermore, the bridge equipment crossings are necessary to maintain a contiguous pipeline construction corridor. If the construction equipment had to turn around ("move-around") at each stream crossing, larger additional workspaces and impacts would be required to facilitate bi-directional traffic. Typically, move-around workspaces are approximately 100' wide X 200' long, adjacent to the pipeline temporary workspace needed for the stream crossing. This would result in additional impacts to forested areas and/or agricultural lands. Additionally, equipment move-arounds require each piece of equipment to be loaded onto trailers and trucked around from one road crossing to the next. This results in extended road use and subsequent damages as well as increased road traffic, creating additional hazards to public road users and creating slow traffic conditions as each piece of equipment is loaded and unloaded from the road. A typical drawing depicting the additional temporary workspace for equipment turnaround is attached to this Technical Deficiency response for reference.

Technical Deficiency Response #109

Table 1. Swatara Creek PRM Site Summary							
County	Impact Acreage by Wetland Type				Total Impact & Total Mitigation Needed After Ratio Applied	Swatara Creek Mitigation Allocation (Acres)	Total Mitigation Available at Swatara Creek (Acres)
	Non-EV PSS (1.5:1)	EV PSS (1.75:1)	Non-EV PFO (2:1)	EV PFO (2.5:1)			
Columbia	0.01 (0.02)	0.01 (0.02)	0.48 (0.96)	0.60 (1.50)	1.10 (2.50)	2.50	**5.37**
Northumberland	-	-	-	0.14 (0.35)	0.14 (0.35)	0.35	
Schuylkill	0.03 (0.05)	0.01 (0.02)	0.34 (0.68)	-	0.38 (0.74) *	0.74	
Totals	**0.04 (0.06**)**	**0.02 (0.04)**	**0.82 (1.64)**	**0.74 (1.85)**	**1.62 (3.59)**	**3.59**	

*Note that this number reflects the total actual mitigation need. There summed amounts based on Cowardin classification are aggregated and result in a rounding discrepancy of 0.01 acre.

**The summed amounts have been aggregated and result in a rounding discrepancy of 0.01 acre.

Table 2. Briar Creek PRM Site Summary							
County	Impact Acreage by Wetland Type				Total Impact & Total Mitigation Needed After Ratio Applied	Briar Creek Mitigation Allocation (Acres)	Total Mitigation Available at Briar Creek (Acres)
	Non-EV PSS (1.5:1)	EV PSS (1.75:1)	Non-EV PFO (2:1)	EV PFO (2.5:1)			
Wyoming*	0.17 (0.26)	-	0.79 (1.58)	1.13 (2.83)	2.09 (4.67)	1.02	**8.94**
Luzerne**	-	0.14 (0.25)	1.52 (3.04)	2.91 (7.28)	4.57 (10.57)	7.53	
Totals	**0.17 (0.26)**	**0.14 (0.25)**	**2.31 (4.62)**	**4.04 (10.11)**	**6.66 (15.24)**	**8.55**	

*The additional 3.65 acres of mitigation needed for PSS/PFO impacts occurring in Wyoming County will come from the Towanda Creek Mitigation Site.

**The remaining 3.04 acres of mitigation needed for PSS/PFO impacts occurring in Luzerne County will come from the Headwaters of Larrys Creek Mitigation Site.