Transcontinental Gas Pipe Line Company, LLC

Response to Technical Deficiency
Pennsylvania Department of Environmental Protection

Atlantic Sunrise Project

November 18, 2016

DEP Application No. E49-336, APS No. 878980
East Cameron, Coal and Ralpho Townships,
Northumberland 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 Protection (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 has provided 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 100 percent of Northumberland County. Transco continues to coordinate with landowners to obtain survey access for the remaining four percent of the project area outside of Northumberland County, and will periodically file updated survey information for survey in remaining counties as access is granted in these areas. Field verified data collected to date is included in Attachment L-5, Enclosure D, Section B, and the impacts are included in Attachment E-2 and 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.

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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.

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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.

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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. Swatara Creek PRM Site: 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. *[§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.
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.

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9	The following deficiencies relate to the proposed HDD *[25 PA Code §105.11(a)(4), §105.13(e)(1)(i), §105.13(e)(1)(iii), §105.13(e)(1)(x), §105.14(b)(4), §105.301(1), §105.301(7), §105.301(5), §105.301(3), §105.151(1), §105.161(a)(3)]:* a. Provide plans and cross sections indicating pipe size, placement, and locations for all wetlands, streams, flood ways and floodplains where the proposed water withdrawal piping is to be installed. The cross sections should depict, at a minimum, the proposed structures, resource boundaries, stream bed and banks, and water surface elevations. b. 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. 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 and analysis to show that the wire will not present a hazard to river users.	No water withdrawal locations or HDDs are currently planned for Northumberland County. Transco is evaluating the feasibility of an HDD crossing at the South Branch Roaring Creek (WW-T47-11002) location in Northumberland County (Attachment P-1, Appendix P-2). Geological assessments are currently being conducted to further assess the feasibility of this HDD.

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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 the PA DEP's eMap to identify public water supplies in the vicinity of your project. [*25 PA Code §105.13 (e)(1)(ii), §105.13 (e)(1)(x), §105.14(b)(5)*]	Based on a desktop analysis, no potable water intakes or public water supplies were identified within the Project vicinity (less than three miles downstream of a Project watercourse crossing) within Northumberland County. Attachment L-5, Enclosure D, Items B2d and e of the revised Application have been updated to address public water supplies.

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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

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		cover within the 10-foot corridor centered over 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

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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.

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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)-1 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), three locations in Northumberland County will require an ATON permit; which were submitted to the PFBC on October 4, 2016 (see Attachment L-5, Enclosure D, 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".

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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)(viii), §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

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		at the time of construction; • At least one back up pump available 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.

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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.
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 2 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 (Attachment D-1) and copies of the relevant clearance/approval letters (Attachment D-2) identified within the summary. See also response to Technical Deficiency 5.

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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)*]	The revised Application provides field-verified data for 96 percent of Northumberland County. See response to Technical Deficiency 1.

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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. The re-submission shall be a complete standalone submission that will be used for authorization under E49-336. [*25 PA Code §105.2, §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.

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30	Attachment H-2 shows waterbody crossings buried with a minimum cover above the pipe of 5 feet. Provide alternative design in plans detailing all methods of installation for areas that may have consolidated rock installations. [*25 PA Code §105.313*]	The revised Application (Attachment H-2) includes revised impact maps including Note 11 in the General Notes, indicating: "During the construction phase, if shallow bedrock is present, then the pipeline will be installed through the waterbody with a minimum of 2 foot of cover, as the required 5 foot of minimum cover will not be feasible.
31	According to CPLS Peak Flow Calculations table submitted in appendix "B" of the Hydrologic and Hydraulic (H&H) report for permit application El 9-311, H&H calculations were completed for this permit application. Submit H&H data for waterbody crossings. [*25 PA Code §105.161*]	Inconsistencies have been addressed in the revised Application. See also response to Technical Deficiency 22.
32	CPLS Peak Flow Calculations table submitted in appendix "B" of the (H&H) report for permit application E 19-311 depicts 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.

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33	Crossing WW-T04-10001, Shamokin Creek is shown to be crossed by a dam and pump method. Excessive Peak Flows of greater than 400,000 gallons per minute are shown on the table CPLS Peak Flow Calculations located in appendix "B" of the (H&H) report for permit application El 9-311. Detail how this crossing will be stable and how the waterbody 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 §105.161*]	See response to Technical Deficiency 22.
34	Tables don't provide any temporary culvert sizing information to be used by the contractor or any length of crossing information. Correct tables to mimic the information. [*25 PA Code §105.161*]	Inconsistencies have been addressed in the revised Application. The H&H calculations include an updated table for temporary flume pipe(s) and length of crossing at waterbodies crossed by centerline. The BMP plan sheets include two (2) flume stream crossing details (FX). The plan sheets include an updated Table 3 for each waterbody crossing of temporary flume pipe(s), sizes, and length of crossing for implementation by the contractor. Refer to Attachment M within the revised Application. See also response to Technical Deficiency 22.
35	The impact table for the individual permit application found in E-2 incorrectly labels resource names of waterbody crossings. Mahoney Creek should be Mahanoy Creek. Evaluate all other resource identifications and correct. [*25 PA Code §105.13(e)(1)*]	The correct name of Mahanoy Creek is included in the revised Application, and all other resources have been evaluated to confirm correct naming.
36	The impact table for the individual permit application found in E-2, utilizes the resource name; however, does not utilize the impact numbers as found in Attachment H-2 and Plans. Additionally, the impacts table in the Joint Permit Application Narrative and attachment H-2 provides impact areas but do not correspond to each other nor does attachment H-2 depict all of the crossings found in the impacts table. The impacts in each of these documents are not consistent with each other, correct with re-submission. [*25 PA Code §105.13(e)*]	The revised Application presents impacts consistently between all impact tables and drawings in Attachments E-2, H-2, and Plans.

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37	Floodway impact shown in Attachment H-2 on dwg number 24-1600-70-09-A/83.42-02 do not match the impacts shown on dwg number 24-1600-70-28-A/LL113_9. Correct drawings to match. [*25 PA Code §105.13(e)(1)*]	Floodway impacts associated with WW-T18-10003 are no longer impacted by project (see revised impact number 7 strikethrough text in Attachment E-2).
38	Impacts associated with impact number WW-T45-11001 are not listed in the impacts table nor are there details shown in Attachment H-2. [*25 PA Code §105.13(e)(1)*]	Watercourse WW-T45-11001 is located in Columbia County and is therefore included in the Columbia County Application tables.
39	Crossing WB-T44-11003 does not have any details attachment H-2. The impact is shown on Dwg number 24-1600-70-28-A/LL 113_9 but is not listed in the impacts table nor are there Impact Maps for it. [*25 PA Code §105.13(e)(1)*]	Waterbody WB-T44-11003 is no longer impacted by the Project and has been removed from the revised Application.
40	Impacts associated with impact numbers WB-RS-10002, W-RS-10005, W-RS-10007 are not listed in the impacts table nor are there details shown in Attachment H-2. Since WB-RS-10002 is a waterbody or pond how will this be maintained during construction and sustainable. [*25 PA Code §105.13(e)(1)*]	WB-RS-10002, W-RS-10005, and W-RS-10007 are no longer impacted by the Project and have been removed from the revised Application.
41	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)
42	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. *[25 PA Code §105.13(e)(1)(i)(G), §105.242(c)*]	The revised Application includes a typical detail for streambed restoration. See also response to Technical Deficiency 6.
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*]	No water withdrawal sites are planned for Northumberland County. Refer to Technical Deficiency 9.

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)(x)*]	See response to Technical Deficiency 12.
45	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 Pennsylvania Fish and Boat Commission 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	Provide PNDI clearance letters from USFWS for Indiana Bat and Northern Long-Eared Bat, PGC for Allegheny Woodrat and Eastern small-footed bat, and PFBC for timber rattlesnake. [*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.

Technical Deficiency Number	Technical Deficiency Description	Response
48	Access roads AR-N0-075, AR-N0-078, and AR-N0-083 are shown to cross streams. Confirm that there are existing structures at the stream crossings and that the structures will not need to be replaced. Provide details and impacts for any crossings that will need new structures or replacement of existing structures. [*25 PA Code§105.13(e)(1)*]	AR-NO-078 AND AR-NO-083 have been removed from the Application. The existing structures that cross AR-NO-075 will be field inspected prior to construction to determine condition. E&S plans for access roads with existing culverts have been revised to include a note indicating; “Install bridge equipment crossings, rather than timber matting, over existing culverts with less than minimum cover over the pipe, or that show signs of loss of structural integrity such as cracking or spalling.” Refer to revised E&S plans in Attachment M of the revised Application.
49	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, as part of the Project.
50	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)*]	The Trenchless Analysis, included as Appendix P-2 within Attachment P-1 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
51	Justify 100-foot Limit of Disturbance (LOD) for water resource crossings, 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 §105.14(b)(4)*]	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.
52	Drawing F-AS-CPLS-A-01 Sheet 175 of 332 identifies a remote sensed body of water and 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)*]	The LOD within Northumberland County has been 100 percent field verified and remote sensed resources are no longer impacted. Refer to Technical Deficiency 1.
53	Drawing F-AS-CPLS-A-01 Sheet 177 of 332 identifies a remote sensed water body 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)*]	All remote sensed resources have been field verified and have been incorporated into the revised Application. Refer to Technical Deficiency 1.
54	Impact #22 - South Branch Roaring Creek is a wild trout stream. Therefore, the Unnamed Tributary to South Branch Roaring creek is wild trout, in accordance with 58. [*25 PA Code §57.11(b)(4), §105.13(e)(1)*]	The Unnamed Tributary to South Branch Roaring Creek is identified as a wild trout stream in the revised Application (see revised impact number 37 in Attachment E-2).
55	It appears that Wetland W-T18-10001 and Stream WW-T18-10003 have impacts not accounted for in Attachment H-2 or in the PA DEP Impacts Table. Provide clarification of these impacts. [*25 PA Code §105.13(e)(1)*]	The revised Application includes entries for Wetland W-T18-10001 in Attachment H-2 (see Drawing 24-1600-70-20-A/83.42-01) and the PA DEP Impact Table (see revised impact numbers 8-9 in Attachment E-2). Watercourse WW-T18-10003 (see revised impact number 7 in Attachment E-2) is no longer impacted by the Project and has been removed from the revised Application.
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	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

Technical Deficiency Number	Technical Deficiency Description	Response
	explain why each proposed temporary road crossing is necessary. *[25 PA Code §105.13(e)(1)(viii)]*	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 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

Technical Deficiency Number	Technical Deficiency Description	Response
		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.