



December 2, 2016

By FEDERAL EXPRESS

Mr. John Hohenstein, P.E.
Chief, Dams and Waterways Section
Department of Environmental Protection
Waterways and Wetlands – Southeast Regional Office
2 East Main Street
Norristown, PA 19401-4915

Re: DEP File E23-524
Technical Deficiency Response
Chapter 105 Dam Safety and Waterway Management Joint Permit Application
Sunoco Pipeline L.P. – Pennsylvania Pipeline Project (Mariner East II)
Thornbury, Edgmont, Middletown, Aston, and Upper Chichester Townships and
Brookhaven Borough, Delaware County

Dear Mr. Hohenstein:

On behalf of our client, Sunoco Pipeline L.P. (SPLP), Tetra Tech, Inc. provides the following responses to the Pennsylvania Department of Environmental Protection (DEP) Technical Deficiency letter dated September 6, 2016 regarding the Chapter 105 Joint Permit Application (Joint Permit Application) for the Pennsylvania Pipeline Project (Project or PPP as defined in the application). SPLP has had minor revisions to the proposed workspaces since submittal of the original application. These revisions have occurred as result of preparing a response to these technical deficiencies, landowner requests, further reduction of impacts to aquatic resources, or minor limit of disturbance (LOD) changes to facilitate construction. The supporting attachments represent a revision of the Joint Permit Application that not only addresses the DEP's technical deficiencies, but also provides revised sections that reflect the most current project areas. The attachment includes all necessary components of a complete application; however, excludes previously submitted aquatic resource reports. Please consider only the previously submitted aquatic resource reports as part of this application revision. We are providing two hard copies and three CDs of the revised application.

For ease of your review, each DEP item is set forth verbatim below, followed by a narrative response with supporting attachments.

Comments and Responses to September 6, 2016 Technical Deficiency Letter

DE 1	General Information Form (GIF)/Application:	NA - Heading
DE 1.a	List the types and amounts of emissions to satisfy question 13.0.1 of the GIF. [1300-PM-BIT0001 5/2012 Instructions]	Question 13.0.1 of the General Information Form in Attachment 1 has been revised to address this comment.
DE 1.b	The Application and GIF have different titles for M.L. Gordon. Provide consistent titles for Mr. Gordon and a demonstration that he is authorized to sign the Application. [25 Pa. Code Sections 105.13(i) and 106.12(f)]	The Application has been revised to provide a consistent title for M.L. Gordon. A “Delegation of Authority” letter authorizing Mr. Gordon to sign the Application on behalf of the partnership is provided with the Joint Application Form.
DE 2	Identify the proposed provisions for shut-off in the event of break or rupture for each crossing. Provide locations and description of how this action will be completed in the event a break or rupture occurs. [25 Pa. Code Section 105.301(9)]	The revised Project Description provided in Attachment 9 discusses block valves, their location, and the siting criteria that provides shutoff provisions. Valves are shut off remotely or manually. Block valves are also depicted on the aerial site plans provided in Attachment 7, Tab 7A.
DE 3	Site Plan, Drawings and Details (including Erosion and Sediment (E&S) Control Plan Drawings):	NA - Heading
DE 3.a	Several of the E&S Plan drawings appear to include design data or refer to the Mariner-1, 8-inch Anomaly Repair Project (see sheet ES-0.11, the dry bypass plan indicates a proposed 8” pipe). Perform a review of all plan drawings and remove all references to past projects. Typical detail data needs to be labeled appropriately and specific location details need to reference specific locations. Typical cross sections need to be revised to indicate the proposed 20” and 16” diameter pipes. Typical trench details needs to indicate the appropriate trench width and include trench boxes, if appropriate for depth. [25 Pa. Code Section 105.13(e)(1)(i)(C)]	The plan drawings have been reviewed and only indicate the 8-inch project where the proposed Project crosses the ROW. Typical drawings, cross section, and details have been revised to indicate the appropriate pipes, widths, and depths, where applicable.
DE 3.b	Stream and wetland crossing details are only	Stream and crossing “typical” crossing details are to be

	<p>provided in the “Notes” pages of the E&S Plan. Provide details on how each crossing will be constructed, associated E&S controls installed and how restoration will be accomplished. To facilitate your response this comment can be addressed by developing a table for placement on the drawings containing the requested information. [25 Pa. Code Sections 105.13(e)(1)(i)(c); 105.13(e)(1)(iii)(A); 105.13(e)(1)(iv); 105.15(a); 105.21(a)(1)]</p>	<p>utilized at each crossing; therefore, the notes are applicable to all crossings and best presented in the upfront sheeting. The typical crossing details are relevant and applicable to each typical resource crossing, and will be implemented at each crossing without the need to specifically depict such typical details on the plan views of the E&S Plan drawings. In several cases, site-specific drawings have been created and are referenced within the E&S Plan sheets and provided after the standard sheeting. These sites-specifics also reference the typicals which provide a consistent location for the same information.</p>
DE 3.c	<p>Provide site plans that depict proposed work for each ATWS within a floodway or floodplain. These plans need to include, at a minimum, the duration of proposed activities, the expected layout, E&S controls, and size or quantity of materials or structures proposed. [25 Pa. Code Section 105.13(e)(1)(i)(C)]</p>	<p>The E&S Plan in Attachment 12 has been revised to identify the proposed work and durations for ATWS activities. The associated erosion and sediment controls used to minimize the potential for discharge of fill material to the stream are provided on the plan drawings and/or as referenced to the E&S plan standard typical details. The duration of ATWS use will be consistent with the duration of construction.</p>
DE 3.d	<p>A number of drawings in the package, for example the auger bore drawings, state that the plans are for permitting purposes only. The plans, specifications, and reports in the application are part of a permit once a permit is issued and are considered final. Remove this language from the plans and provide final plans. [25 Pa. Code Sections 105.13); 105.44(a)]</p>	<p>All drawings and maps provided in the application have been revised to remove this language and are considered to be final plans.</p>
DE 3.e	<p>The auger bore drawings reference cathodic protection being installed. Provide plans and/or details for any proposed cathodic protection and identify on the plans where and which type of cathodic protection is proposed to be installed. [25</p>	<p>The Project Description provided in Attachment 9 includes a narrative outlining SPLP's cathodic protection plans. A typical cathodic test station detail has been added to the E&S Plan Sheets in Attachment 12.</p>

	Pa. Code Sections 105.3(4); 105.13(e)(1)(i)(C)]	
DE 3.f	Where cathodic protection is proposed to be installed in wetlands or other areas where vegetation is proposed to be undisturbed or replanted, identify how this cathodic protection will be maintained and replaced without vegetative disturbance. [25 Pa. Code Sections 105.15(a); 105.13(e)(1)(ix); 105.18a]	The Project Description provided in Attachment 9 includes a narrative outlining SPLP's cathodic protection plans.
DE 3.g	For all Bore and Horizontal Directional Drilling (HDD) locations: Identify where all pipe pull back, assembly, lay out, and construction staging areas are located. Identify all temporary crossings and impacts to streams, wetlands, and floodways associated with these areas and revise the application accordingly to include these impacts. Include site-specific plans depicting the impacts and proposed temporary matting. [25 Pa. Code Sections 105.13(e)(1)(i); 105.13(e)(1)(iii); 105.3(a)(4)]	To reduce overall impacts to the landscape and, in particular, wetlands and streams, pullback areas are sited within the same workspaces designed for the open cut installation of the pipeline to the maximum extent practicable. Pullback areas not proposed within the workspaces needed to install the pipelines via open cut are accommodated by adding Additional Temporary Workspace (ATWS), as shown on the Aerial Site Plans (Attachment 7). Although avoided to the maximum extent practicable, if streams and wetlands are crossed by the pullback activity within the ATWS, then temporary crossings or impacts, such as temporary bridges, are identified on the Aerial Site Plans and site-specific, E&S Plan sheets. Additional temporary matting and bridges to accommodate the pullback activity including pipe layout and assembly in the open cut areas are also identified on E&S Plan sheets. Temporary bridges and matting will be installed and restored in accordance with the standard typical details provided within the E&S Plan in Attachment 12. The impacts of these activities occur within the permanent and temporary workspaces within the LOD.
DE 3.h	The site plan sheets and E&S Plan sheets identify the 50-foot assumed floodway boundary to be	In absence of a FEMA NFHL Floodway, the PA 50-foot floodways have been created by buffering the stream on

	<p>measured from the centerline of the stream as opposed to the top of bank. Revise the drawings to indicate floodway boundaries that adhere to the definitions in Chapter 105. [25 Pa. Code Sections 105.13(e)(1)(i)(A) and 105.1]</p>	<p>each side of its centerline by one-half the bank width of the stream at the crossing plus 50 feet. For example, a stream that has a 5-foot bank width would be buffered by 52.5 feet on each side the stream's centerline, to ensure both the bank width and the 50-foot setback from the bank was encapsulated within the Chapter 105 floodway, as per the definitions identified in Chapter 105. FEMA NFHL data was downloaded and re-analyzed for this Project on September 27, 2016. The 105 and 102 E&S Plans have been checked to assure consistent presentation of these areas.</p>
DE 3.i	<p>The Typical Wetland Crossing detail on the E&S Plans, ES-0.09, indicates soil will be stockpiled in the wetland along the trench. Revise the detail to include a means of separating the stockpiled soil from the wetlands, such as geo-fabric and matting, to ensure full removal of the stockpiles soil and minimize impacts. [25 Pa. Code Sections 105.423; 105.18a(a); 105.18a(b); 105.15(a); 105.14(b)(4); 105.14(b)(11); 105.14(b)(13)]</p>	<p>The standard typical detail has been revised to show topsoil segregation. The standard typical detail also notes that topsoil and wetland spoils are to have a physical separation to ensure full restoration and to minimize impacts. Separation may be achieved by geo-fabric, physical space, or matting.</p>
DE 3.j	<p>Installation of the trench plugs as depicted in the Trench Plug Detail 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 Sections 105.18a; 105.15(a)]</p>	<p>The typical standard trench plug detail provided within the E&S Plan provided in Attachment 12 has been revised to show the trench plug continuing to the bottom of the trench.</p>
DE 3.k	<p>The Typical Wetland Crossing detail on the E&S Plans states that the detail does not apply to active cultivated or rotated cropland. Revise the detail to apply to all wetland crossings or provide a separate</p>	<p>The note for this standard typical detail has been removed so that the detail is applicable to all wetland crossings.</p>

	detail for wetland crossings in active cropland. [25 Pa. Code Sections 105.18a; 105.15(a)]	
DE 3.1	Provide a description of the expected duration each temporary stream crossing will remain in place. If the temporary stream crossing will be in place for greater than 1 year, then risk analysis will be necessary. [25 Pa. Code Section 105.13(1)(iii)(A)]	The temporary stream crossings will remain in place for no greater than one year.
DE 3.m	Additional comments relating to the drawings can be found in specific comments below.	NA - Heading
DE 4	There are several comments regarding Agency Coordination, including Pennsylvania Natural Diversity Inventory (PNDI) and Pennsylvania Historical and Museum Commission (PHMC). See specific comments below.	NA - Heading
DE 5	There are several comments regarding the Environmental Assessment (EA). See specific comments below.	NA - Heading
DE 6	There are several comments regarding the Avoidance, Minimization, and Mitigation Plan. See specific comments below.	NA - Heading
DE 7	There are several comments regarding the Alternatives Analysis. See specific comments below.	NA - Heading
DE 8	Comprehensive Environmental Evaluation - The following technical deficiencies are related to the overall project comprised by the 17 Chapter 105 Water Obstruction and Encroachment permit applications associated with this pipeline. Provide the Department with a Comprehensive Environmental Assessment of the Entire Pipeline Project as a Whole (“Comprehensive Environmental Evaluation”) which, at a minimum,	NA - Heading

	includes the following:	
DE 8.a	Use the Environmental Assessment Form (3150-PM- BWEW0017, 2/2013) as a guide and provide a detailed narrative and other appropriate documentation that comprehensively evaluates the project as a whole under each of the categories therein (Part 1 – Resource Identification; Part 2 – Project Description – including all the analyses listed in the form, as well as in 25 Pa. Code Sections 105.13(f)(1)(vii-x), (2); (3); (g); (j); 105.15; Article I, §27 (Pa. Constitution).	A Comprehensive Evaluation of Compliance for the Project has been added to the application materials and is located in Attachment 11, Enclosure E, Part 1 This Comprehensive Evaluation of Compliance references application materials that apply to each requirement pursuant to 25 Pa. Code § 105.18a and associated referenced regulations, including 25 Pa. Code §§ 105.13(e)(1)(vii-x), (2), (3), (g), and (j); and 25 Pa. Code § 105.15.
DE 8.b	The Comprehensive Environmental Evaluation also needs to provide a detailed narrative and other appropriate documentation that comprehensively evaluates the project as a whole for compliance with the requirements associated with the Department’s review of the application listed in 25 Pa. Code Section 105.14 in its entirety, with particular emphasis on:	A Comprehensive Evaluation of Compliance for the entire project has been added to the application materials and is located in Attachment 11, Enclosure E, Part 1 This Comprehensive Evaluation of Compliance references application materials that apply to each requirement pursuant to 25 Pa. Code § 105.18a and associated referenced regulations, including 25 Pa. Code § 105.14.
DE 8.b.i	Antidegradation Analysis - Prepare and submit an analysis and information that addresses consistency with State antidegradation requirements contained in Chapters 93, 95 and 102 (relating to water quality standards; wastewater treatment requirements; and erosion and sediment control) and the Clean Water Act (33 U.S.C. §§ 1251—1376) for this entire project and other potential or existing projects. [25 Pa. Code Section 105.14(b)(11)]	An Antidegradation Analysis consistent with 25 Pa. Code § 105.14(b)(11) has been prepared and is provided in Attachment 11, Enclosure E, Part 5.
DE 8.b.ii	Secondary Impact Analysis – Prepare and submit an analysis and information that addresses secondary impacts associated with but not the	A Secondary Impact Analysis consistent with 25 Pa. Code § 105.14(b)(12) has been prepared and is provided in Attachment 11, Enclosure E, Part 2.

	<p>direct result of the construction or substantial modification of the water obstruction or encroachment in the areas of the entire project and in areas adjacent thereto and future impacts associated with water obstructions or encroachments, the construction of which would result in the need for additional dams, water obstructions or encroachments to fulfill the project purpose. [25 Pa. Code Section 105.14(b)(12)]</p>	
DE 8.b.iii	<p>Project Wide Cumulative Impacts Analysis. Prepare and submit an analysis and information that addresses the cumulative impact for this entire project and other potential or existing projects. As part of this analysis evaluate whether numerous piecemeal changes associated with all the Chapter 105 applications related to this pipeline project may result in a major impairment of the wetland resources. The analysis must be undertaken for each alternative prepared for the proposed pipelines and facilities of Mariner East II, on a statewide basis and must be completed for the entire project, as a whole referencing each of the applications for the entire project. [25 Pa. Code Sections 105.14(b)(14); 105.15]</p>	<p>A stand-alone Cumulative Impacts Analysis has been added to the application materials and is located in Attachment 11, Enclosure E, Part 6.</p>
DE 8.b.iv	<p>Comprehensive Evaluation of Compliance with 25 Pa. Code § 105.18a. Prepare and submit an analysis and information that evaluates the project as a whole with all the requirements found in 25 Pa. Code §105.18a for each wetland or wetland complex in or along the project area as a whole. [25 Pa. Code Section 105.18a]</p>	<p>A Comprehensive Evaluation of Compliance for the entire project has been added to the application materials and is located in Attachment 11, Enclosure E, Part 1. This Comprehensive Evaluation of Compliance references application materials that apply to each requirement pursuant to 25 Pa. Code § 105.18a and associated referenced regulations, including 25 Pa. Code § 105.14.</p>

DE 8.b.v	Comprehensive Alternatives Analysis, Avoidance and Minimization and Mitigation. The applicant needs to demonstrate that the alternatives chosen for the entire project will avoid cumulative impacts to the maximum extent practicable, and where such impacts are not avoidable, describe in detail with appropriate supporting documentation, how such impacts will be minimized and mitigated to the satisfaction of the Department. [25 Pa Code Sections 105.1; 105.13(e)(1)(viii)-(x)]	A comprehensive Alternatives Analysis has been added to the application materials to address this comment and is located in Attachment 11, Enclosure E, Part 3. A Cumulative Impacts Analysis has been added to the application materials to address this comment and is located in Attachment 11, Enclosure E, Part 6. An Impact Avoidance, Minimization, and Mitigation Procedures document has also been added to address this comment, located in Attachment 11, Enclosure E, Part 4.
DE 1	General Information Form (GIF) - No additional comment.	NA - Heading
DE 2	Application Fee and Worksheet - No additional comment.	NA - Heading
DE 3	Act 14 Notification - No additional comment.	NA - Heading
DE 4	Cultural Resources	NA - Heading
DE 4.a	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 and areas necessary to construct the water obstructions and encroachments. [25 Pa. Code Sections 105.13(e)(1)(x); 105.14(b)(5); 105.15(a); 105.15(a)(1); 105.15(b); 105.14(b)(4); EA Instructions & Joint Permit Application Instructions for a Water Obstruction and Encroachment Permit Application, III., Section F. d. & Implementation of the Pennsylvania State History Code: Policy and Procedures for Applicants for DEP Permits and Plan Approvals, Document No. 012-0700-001]	While DEP is required to consider potential impacts to historic resources under 25 Pa. Code Chapter 105 when DEP conducts reviews of a water obstruction, encroachment or dam permit application, none of the regulations or guidance referenced in DEP's comment require SPLP to provide clearance or approval from the PHMC as part of a Chapter 102 or Chapter 105 permit application. Furthermore, as noted in a letter from Alexandra C. Chiaruttini, Esq., DEP's Chief Counsel concerning the SPLP Pennsylvania Pipeline Project, "the [Pennsylvania] History Code does not authorize our agency or any Commonwealth agency to stop the processing of permits solely due to possible or actual presence of archaeological or historic resources, unless the agency's enabling legislation contains specific statutory authorization for such action. DEP does not

		<p>have such authorization here.” A copy of the February 1, 2016, letter from Ms. Chiaruttini is provided in Attachment 4. See also Pennsylvania History Code §508(a)(4). Accordingly, SPLP requests that DEP continue its review of SPLP’s applications.</p> <p>SPLP will continue to work with the PHMC to ensure that impacts to cultural resources are avoided where possible. In addition, SPLP has included with its Chapter 102 application a Cultural Resources Unanticipated Discovery Plan to be implemented during construction that outlines the protocols SPLP will follow if SPLP unexpectedly encounters archaeological or historic resources, including notification to DEP and PHMC and cessation of earth disturbance.</p>
DE 4.b	<p>The project description provided in the Cultural Resource Notice states that the second pipe is to be installed within 5 years. The application Project Description or other descriptions in the application do not mention that the second pipe will be installed within 5 years. Revise and clarify the application to clearly identify if both pipelines will be installed at the same time, or if they will be installed at separate times. If the pipelines will be installed at separate times, revise the application to indicate this, and identify the temporary and permanent impacts from the second pipeline installation separately, and discuss the alternative of installing them at the same time to avoid and minimize impacts. [25 Pa. Code Sections 105.13(e)(1)(iii)(A); 105.13(e)(1)(iii)(B); 105.301(7); 105.15(a); 105.15(a)(1); 105.15(b); 105.14(b)(4); 105.18a(a);</p>	<p>The Project Description in Attachment 9 to the Application has been updated to reflect the timing of the installation of the 20-inch and the 16-inch pipeline. The two pipelines will be installed during the same time period, with the 20-inch pipeline preceding the 16-inch pipeline. For safety purposes, the installation would be staggered by what is estimated to be no more than 60 days. At some HDDs with longer drills, however, the time period between installation of the two pipelines may exceed 60 days. Both pipelines will be installed within the same limit of disturbance so there would be no additional, temporary disturbance resulting from a second separate installation. Any temporary stabilization required would be implemented in accordance with project’s E&S Plans.</p>

	105.18a(b);105.13(e)(1)(ix)]	
DE 5	PASPGP Cumulative Impact Form.	NA - Heading
DE 5.a	PASPGP-4 has expired. Prepare and submit PASPGP-5 Reporting Checklist and Aquatic Impact Table forms and acknowledgement of application of Section 404 Permit Application made to U.S. Army Corps of Engineers. [25 Pa. Code Section 105.13]	DEP has agreed that if the USACE does not require the PASPGP-5 Reporting Checklist and Aquatic Impact Table form that it would not be needed for this applications. The aquatic resource impact tables found in Attachment 11 have all of the information of included it the new PASPGP-5 forms. The USACE Districts have agreed that the checklist and form are not needed. That acknowledgement is provided in Attachment 5.
DE 6	PNDI and Agency Coordination	NA
DE 6.a	Provide a PNDI Search clearance letter from the Pennsylvania Game Commission for threatened and endangered species under their jurisdiction. [25 Pa. Code Sections 105.13; 105.14; 105.21]	The PGC provided clearance in a letter dated June 8, 2016 based on implementation of the approved mitigation plans.. A copy of this letter is provided in Attachment 6, Tab 6B.
DE 6.b	Provide details and clearance status of Migratory Bird issue requested by the U.S. Fish and Wildlife Service. [25 Pa. Code Sections 105.13; 105.14; 105.21; 105.411(3)]	SPLP has coordinated with United States Fish and Wildlife Service (USFWS) regarding migratory birds. A revised Migratory Bird Conservation Plan was submitted to the USFWS in correspondence dated November 23, 2016. That correspondence and plan are included in Attachment 6, Tab 6B.
DE 6.c	Consultations with the agencies [Pennsylvania Game Commission (PGC), Pennsylvania Fish and Boat Commission(PFBC), Pennsylvania Department of Conservation and Natural Resources(DCNR), and the U.S. Fish and Wildlife Service(USFWS)] have resulted in the incorporation of avoidance measures, seasonal restrictions and other recommendations being provided to the applicant in the various clearance letters. In an effort to clarify and implement these measures and restrictions, the applicant needs to	To ensure contractor compliance, SPLP has developed a state-of-the-art web-based mapping applications that is required to be used by the contractor to determine all special environmental restrictions such as PNDI and trout stream restrictions. All of the restrictions and avoidance measures committed to and approved by PNDI agencies are included in a summary table in the Project Description, Attachment 9, within the PNDI agency final determination letters in Attachment 6, and the accepted Conservation Plans included in Attachment 6, Tab 6B. The same notes in the Project Description are reflected

	prepare a table clearly listing all avoidance measures, seasonal restrictions, and other recommendations, specific to application No. E23-524, and provide this table to DEP as a supplement to their application. These conditions also need to be included in the Notes of the E&S Control Plan. [25 Pa. Code Sections 105.13; 105.14; 105.16(c)(3); 105.21; 93.4c(a)(2)]	within the E&S Plan notes. Trout stream restrictions and other sensitive species restrictions are also noted on aerial site plans and E&S Plans, however due to the sensitive nature of some of the information not all is depicted. SPLP will implement a comprehensive Environmental Training and Inspection program designed specifically to ensure contractors are appropriately notified and are adhering to such restrictions.
DE 7	Site Plans	NA - Heading
DE 7.a	Provide cross section drawings for all stream crossings and indicate existing and proposed conditions at each crossing site. [25 Pa. Code Sections 105.13(e)(1)(A) & (G); 105.302; 105.311]	Attachment 7, Tabs 7B, 7C, 7D, and 7G contain cross sections of all streams that are proposed to be crossed using a trenchless construction method, are complex, or are intermittent or perennial. The existing and proposed conditions are to be the same based on the full restoration of existing grade except where the project has planned aboveground facilities.
DE 7.b	Provide plans and cross sections indicating pipe size, placement, and locations for all wetlands, streams, floodways, and floodplains where the testing discharges are proposed for Mainline Testing and HDD Testing and revise the impact tables to include these impacts. The cross sections need to depict, at a minimum, the proposed structures, resource boundaries, stream bed and banks, water surface elevation. [25 Pa. Code Sections 105.3(a)(4); 105.11(a); 105.13(e)(1)(i); 105.14(b)(4); 105.301; 105.151(1); 105.411(3)]	No discharges are planned for Delaware County. All hydrostatic test water will be taken off site for disposal at DELCORA.
DE 7.c	Provide plans showing the location, type, size, and height of the proposed culvert modifications for piping placed in existing stream culverts and along and within stream channels for the Mainline Testing and HDD Testing. Provide an analysis of	No surface water withdrawals are planned for Delaware County. Therefore, there are no proposed culvert modifications associated with mainline testing and HDD testing. An analysis of the hydraulic capacity is also therefore not necessary.

	the hydraulic capacity demonstrating that the structures do not materially alter the natural regimen of the stream or increase velocities or direct flows in a manner which results in erosion of stream beds and banks. [25 Pa. Code Sections 105.3(a)(4); 105.11(a); 105.13(e)(1)(i); 105.14(b)(4); 105.301; 105.151(1) & (3);105.161(a)(3) & (4)]	
DE 8	Location Map - No additional comment.	NA - Heading
DE 9	Project Description	NA - Heading
DE 9.a	Descriptions and locations of valve stations are not provided. Provide descriptions and locations of these valve stations located in Delaware County. [25 Pa. Code Sections 105.13; 105.14]	Two block valves are proposed in Delaware County; one would be newly created and one would be located at existing SPLP facility locations. Block valves are described and locations are identified/listed in the Project Description (Attachment 9, Table 3).
DE 9.b	Provide the shut-off protocol for each project location that is in proximity to any stream or wetland that could potentially be impacted by a break or rupture to protect the environmental resource 25 Pa. Code Section 105.302(5). This protocol needs to be explained in the description and referenced on the drawings.	The revised Project Description provided in Attachment 9 discusses block valves, their location, and the siting criteria that provides shutoff provisions. Valves are shut off remotely or manually. Block valves are also depicted on the aerial site plans provided in Attachment 7, Tab 7A.
DE 10	Color Photographs - No additional comment.	NA - Heading
DE 11	Environmental Assessment	NA - Heading
DE 11.a	The application identifies a number of watercourses (streams) as ephemeral (see Table 3, Section F, Attachment 11). No methods for the determination of ephemeral flow status of the streams are provided. It appears that only a desk top evaluations and/or cursory field observations were utilized. Ephemeral streams are not identified separately in Chapter 105 and are included in the	Attachment 11, Enclosure A, provides a Supplemental Aquatic Resources report and provides the methodology for identification of the flow regime. Ephemeral and intermittent streams are called out within Table 3 to allow a better understanding of those streams that are primarily driven by stormwater runoff, versus those with storm and groundwater support. This designation will aid in the selection of the appropriate dry stream crossing method

	definition of intermittent stream. Revise the application materials accordingly to identify the ephemeral streams as intermittent. [25 Pa. Code Section 105.1]	and temporary equipment bridge installation upon construction. A footnote has been added to Table 3 to indicate that in accordance with Chapter 105 ephemeral streams are included in the definition of intermittent streams.
DE 11.b	The application classifies watercourses as “drains to” and there is no stream classification in 25 Pa. Code Chapter 93 of “drains to.” All tributaries not noted separately in Chapter 93 are given the classification of their downstream reaches and thus receive the appropriate level of protection. Revise relevant tables to include the correct stream classification for all streams and their tributaries. [25 Pa. Code Section 93.1]	The "drains to" qualifier was added to reflect that the crossed portion of the stream has not been formally classified in Chapter 93, however SPLP understands that the designation extends beyond the designated reach. The qualifier assists with an understanding of how the stream was designated. Table 3 in Attachment 11 contains the correct classification for all the stream and has been updated with a footnote to clarify how the designation was reached.
DE 11.c	Revise the application to include an analysis on whether the wetlands are “Exceptional Value” (EV) or “Other” wetlands. This needs to include an analysis based on each of the 7 factors listed in 25 Pa. Code Section 105.17 including wetlands associated with EV streams and Wild Trout Streams, habitat for threatened or endangered (T&E) species, wetlands that are hydrologically connected to T&E habitats, wetlands along a public or private water supply including both surface water and groundwater, scenic rivers and, natural or wild areas (see 25 Pa. Code Section 105.17 for complete criteria). Re-evaluate the classification of streams and wetlands based on 25 Pa Code Section 105.17 and then revise Table 2, Section F, Attachment 11 to identify EV and Other wetlands. [25 Pa. Code Sections 105.1; 105.15(a); 105.17; 105.21(a)(1); 58 Pa. Code Section 57.11(b)(4)]	The Exceptional Value Wetland analysis methodology is detailed in Attachment 11, Enclosure E, Part 2, and is consistent with 25 Pa. Code § 105.17. The entire application, including Tables 9 and 10 in Attachment 11 has been revised to reflect the accurate designation of “EV” and “Other” wetlands.

DE 11.d	Provide an assessment of the functions and values of all additional Exceptional Value wetlands as a result of the response to Section 11c. [25 Pa. Code Sections 105.13(e)(3); 105.14(b)(13); 105.15(a); 105.15(a)(1); 105.15(b)]	Functions and values of wetlands were assessed using the methodology and guidelines contained within the US Army Corp of Engineers The Highway Methodology Workbook Supplement: Wetland Functions and Values A Descriptive Approach NAEEP-360-1-30a (SEPTEMBER 1999). Functions and values were assessed by a variety of methods including site specific data collected during field visits and desktop analysis, as well as, information collected as part of the PA PNDI process. This list of functions and values was also compared to Enclosure C of the PA DEP EA form to ensure those functions were also considered during the identification of functions and values using the Highway Methodology. For Exceptional value wetlands, a full Functions and Values Assessment package is provided, which includes a Wetland Function-Value Evaluation Form and vegetation data sheet. For all other wetlands, functions and values were evaluated and are listed in a matrix format. The functions and values assessments are provided in Attachment 11, Enclosure C.
DE 11.e	EV wetlands are defined as EV waters by Chapter 93. Therefore, explain the measures the applicant will implement to comply with the anti-degradation requirements of the Department's water quality standards program. [25 Pa. Code Sections 93.4c(b); 93.4c(b)(2); 93.1 (defn. of surface water of exceptional ecological significance); 105.14(b)(11); 105.18a(a)(4); 24 Pa.B. 922 (February 12, 1994)(Incorporation of the Department's Existing Wetlands Protection Program into Water Quality Standards Program)]	An Antidegradation Analysis, provided in Attachment 11, Enclosure E, Part 5, fully explains the measures that SPLP will implement to comply with the antidegradation requirements of DEP's water quality standards program.
DE 11.f	Section F, Attachment 11, EA Form, page 2, Item 7 states, "Is the water resource part of or located	Water supply impacts have been analyzed and addressed within three supplemental plans to the Preparedness,

	<p>along a private or public water supply?” The Applicant checked “No.” However, no documentation validating this statement is provided in the application. DEP is concerned that private and perhaps public water supply wells are located along crossed stream and wetland water resources and/or along the length of the HDD operations.</p>	<p>Prevention, and Contingency Plan (PPC Plan): the Water Supply Assessment, Preparedness Prevention and Contingency Plan, the IR Plan, and the Void Mitigation Plan for Karst Terrain and Underground Mining. These plans are provided in Attachment 12 and the EAF revised accordingly. These plans provide instructions and procedures to facilitate the avoidance and minimization of impacts and provides the framework to investigate and resolve impacts caused by spills, releases, and other pollution events should they occur. Applicable public private downstream user information is compiled within the Water Supply plan and identification, notification, and testing procedure for private wells discussed.</p>
<p>DE 11.f (cont.)</p>	<p>The applicant needs to propose measures to protect all public water uses, both surface intakes and groundwater sources, located along and/or downstream of the proposed work areas. Special attention needs to be applied to the potential unplanned impacts that HDD and inadvertent releases (IR) may have on groundwater sources. In addition, where a structure or activity is in a wetland, the applicant must demonstrate that this project will not cause or contribute to the pollution of groundwater or surface water resources or diminution of resources sufficient to interfere with their uses, including use as a public or private water supply. Your assessment needs to include identification, notification and consultations with water suppliers, and/or well owners. A notification contact list needs to be included in your PPC Plan and Inadvertent Release Plan. [25 Pa. Code Sections 105.13; 105.14(b)(4); 105.14(b)(5);</p>	<p>Water supply impacts have been analyzed and addressed within three supplemental plans to the PPC Plan, the Water Supply Assessment, Preparedness Prevention and Contingency Plan, the IR Plan, and the Void Mitigation Plan for Karst Terrain and Underground Mining. These plans are provided in Attachment 12.</p>

	105.18a(5); 105.18a(b)(5)]	
DE 11.g	Item B.2.a of Section F, Attachment 11, Enclosure D of the EA states the natural drainage patterns of the wetlands and small or headwater streams will be maintained. However, no information has been provided or detailed contours or cross sections depicting the drainage patterns, or what the drainage patterns are in the wetlands in the existing conditions. Provide site-specific cross sections for the streams, wetlands, and associated drainage patterns which depict the existing and proposed conditions of the streams and wetlands, proposed pipes and depths and, the existing stream bed and banks dimensions. [25 Pa. Code §§105.13(e)(1)(i)(G); 105.13(e)(1)(x); 105.14(b)(4); 105.14(b)(13); 105.13(e)(1)(ix); 105.1; 105.14(b)(11); 105.15(a); 105.15(a)(1); 105.16(d); 105.18a(a)(1); 105.18a(a)(5); 105.18a(b)(1); 105.18a(b)(5); 105.301(3); 105.301(4); 105.301(5)]	Additional cross sections are located in Attachment 7, Tab 7G for intermittent and perennial stream crossings that do not have site-specific (Attachment 12), HDD (Attachment 7, Tab 7B), or bore (Attachment 7, Tab 7C) drawings prepared which contain profile information. All existing bank and wetland dimensions are provided within the aquatic resource tables provided in Attachment 11. Typical cross-sectional details provided within the E&S Plan Sheets accommodate the lesser and more minor stream crossings (e.g., those designated ephemeral). All bed and bank and wetland contours are to be restored to the existing condition in accordance with the Impact Avoidance, Minimization, and Mitigation Procedures provided in Attachment 11, Enclosure E, Part 4.
DE 11.h	Revise Section A.9 of Enclosure D of the EA to discuss and identify impacts to preserved farms and/or farms with agriculture preservation easements or restrictions. Discuss how the minimization measures would affect preserved farms and how they will be affected, such as not being able to replant an orchard or vineyard. [25 Pa. Code 105.13(e)(1)(x); 105.21(a)(1); 105.15(a); 105.15(a)(1); 105.14(b)(5); 105.14(b)(4)]	Impacts of the Project, which includes an evaluation of water resource impacts, on these designations are provided in Attachment 11, Enclosure D, A.11 and Enclosure E, Part 2.
DE 12	Erosion and Sediment Control Plan	NA - Heading
DE 12.a	The E&S Plan drawings and, plan sheets that indicate no improvements are proposed for the	The E&S Plan has been updated to clarify that there are no permanent improvements at the referenced resource

	<p>resource crossings. However, the impact plan drawings and impact tables indicate temporary crossings and bridges are proposed. Revise the application accordingly to be accurate. If temporary crossings are proposed, revise the E&S Plan drawings to depict the impacts. If an existing road with existing obstructions crossing streams or wetlands is proposed to be utilized and no improvements are proposed to the road, then provide color photographs of the resources and existing road crossings. Note: the provided photographs do not depict or clearly depict these crossings. [25 Pa. Code Sections 105.13(e)(1)(i)(C); 105.13(e)(1)(iii)(A); 105.13(e)(1)(iv); 105.15(a); 105.21(a)(1)]</p>	<p>crossings. Project areas identified as Temporary Access Roads will need varying level of improvement to facilitate construction, but are to be restored to pre-existing conditions. Temporary impacts to the floodway at existing culverted crossings are quantified and accounted within Table 3 Waterbody Impact Summary located in Attachment 11 and on the plan sheets within the E&S Plan in Attachment 12 of the application.</p>
DE 12.b	<p>Stream and wetland crossing details are only provided in the “Notes” pages of the E&S Plan. Provide details on how each crossing will be constructed, associated E&S controls installed and how restoration will be accomplished. To facilitate your response this comment can be addressed by developing a table, specific to application No. E23-524, containing the requested information. [25 Pa. Code Sections 105.13(e)(1)(i)(C); 105.13(e)(1)(iii)(A); 105.13(e)(1)(iv); 105.15(a); 105.21(a)(1)]</p>	<p>Stream and crossing “typical” crossing details are to be utilized at each crossing; therefore, the notes are applicable to all crossings and best presented in the upfront sheeting. The typical crossing details are relevant and applicable to each typical resource crossing, and will be implemented at each crossing without the need to specifically depict such typical details on the plan views of the E&S Plan drawings. In several cases, site-specific drawings have been created and are referenced within the E&S Plan sheets and provided after the standard sheeting. These sites-specifics also reference the typicals which provide a consistent location for the same information.</p>
DE 12.c	<p>The “typical” wetland crossing details shown on the E&S Plans, ES-0.09, indicates Trench Breakers are to be installed in the trench in the wetlands; however, it is not clear what Trench Breakers are or if Trench Plugs are what is meant. Revise this</p>	<p>The standard typical detail on the E&S plans has been revised to better detail ditch trench plug installation (Attachment 12). Additionally, the trench plugs have been moved to the outside of the wetland boundaries and a note added that additional trench plugs will be installed</p>

	<p>detail to identify if Trench Plugs are meant by this term or provide a detail for trench breakers. In addition, if trench plugs are proposed to maintain wetland hydrology, revise the detail to include trench plugs within the wetland for wetland crossings, and specify the distance increments. Furthermore, the E&S Plan drawings depict trench plugs which are inconsistent with the detail. Revise the site plans to be consistent with the detail. [25 Pa. Code Sections 105.18a(a)(1); 105.18a(a)(3); 105.18a(a)(4); 105.18a(a)(5); 105.18a(b)(2); 105.18a(b)(3); 105.18a(b)(4); 105.18a(b)(5); 105.15(a)(1); 105.14(b)(4); 105.14(b)(11); 105.14(b)(13); 105.13(e)(1)(i)]</p>	<p>for long open-cut wetland crossings. The project's Environmental Compliance Program team will ensure appropriate spacing.</p>
DE 12.d	<p>Provide plans showing the location, type, size, and height of any proposed culvert construction and/or modifications of culverts within streams or wetlands. Provide an analysis of the hydraulic capacity demonstrating that the structures do not have: (1) an adverse impact on EV wetlands; (2) a significant adverse impact on Other wetlands; and (3) materially alter the natural regimen of the stream or increase velocities or direct flows in a manner which results in erosion of stream beds and banks. [25 Pa. Code §§105.18a(a)(1); 105.18a(a)(3); 105.18a(a)(4); 105.18a(a)(5); 105.18a(b)(1); 105.18a(b)(2); 105.18a(b)(3); 105.18a(b)(4); 105.18a(b)(5); 105.15(a)(1); 105.14(b)(4); 105.14(b)(11); 105.14(b)(13); 105.13(e)(1)(i)]</p>	<p>No permanent culverts are planned to be installed in Delaware County. Temporary bridge installation will be in accordance with the E&S Plan provided in Attachment 12.</p>
DE 12.e	<p>Provide site-specific plans and cross sections depicting the size and height for the proposed</p>	<p>There are no new block valve setting LODs, permanent access roads, or permanent grading or structures located</p>

	<p>“Block Valve Settings,” their limits of disturbance, permanent access roads, and all other permanent grading and structures located in Waters of the Commonwealth and floodplains. This needs to include plans depicting the size and height of structures located in the floodway and floodplain. [25 Pa. Code Sections 105.13(1)(i); 106.12(d)(2)]</p>	<p>in Waters of the Commonwealth or floodplains. There is an existing access road located off of Martin’s Land that SPLP is designating as permanent, however the streams are culverted and no improvements are planned.</p>
DE 12.f	<p>Sheet ES-0.11 indicates a 8" pipeline is proposed. This cross section needs to be revised to indicate 20" and 16" pipes (w/trench box, if appropriate), and width of trench. [25 Pa. Code Section 105.13(e)(1)(i)(C)]</p>	<p>The E&S Plan notes and detail sheets have been revised accordingly. The 8” reference has been removed. The pipes are indicated as “proposed pipe” because the details are a general typical representation of the proposed work.</p>
DE 12.g	<p>Proposed plantings relating to immediate stabilization on restoration plans need to eliminate Crown Vetch (<i>Coronilla varia</i>).</p>	<p>Crown vetch has been eliminated for use on the Project.</p>
DE 13	<p>Hydrologic and Hydraulic Analysis - No additional comment.</p>	<p>NA - Heading</p>
DE 14	<p>Stormwater and Floodplain Management Analysis</p>	<p>NA - Heading</p>
DE 14.a	<p>An Act 167 Stormwater Management Plan has been prepared/adopted by Delaware County under the Stormwater Management Act. Provide an analysis of the project’s impact on, and consistency with, the stormwater management plan, along with a letter from the municipalities and county commenting on this analysis. If a letter is not provided, provide all correspondence (including municipal requests for more information) with the county and municipalities on this subject. [25 Pa. Code Section 105.13(e)(1)(v)]</p>	<p>In accordance with 25 Pa. Code § 105.13 (e)(1)(v), SPLP submitted requests for consistency determination to Delaware County and municipalities crossed by the Project within Delaware County in November 2015, February 2016, and September and October 2016. The requests for consistency determination provide an analysis of the Project’s potential impacts on and how the Project intends to comply with the applicable stormwater management plans for the County and municipalities, including the restoration of disturbed soils and the implementation of Erosion and Sediment Control Stormwater Best Management Practices such as Antidegradation Best Available Combination of Technologies (ABACT) at post-construction to minimize</p>

		<p>stormwater runoff, rate and volumes. The letters requesting consistency verification from the municipalities and the respective responses received were provided as part of SPLP's last Chapter 105 Permit Application submittal in May 2016.</p> <p>At DEP's request, these are provided again in Attachment 14 of this application including additional correspondence with the County and municipalities since the last Chapter 105 application submittal. The letters indicated that the proposed work associated with the Project is consistent with the respective stormwater management plan or ordinance in place for each of the municipalities. As shown in Attachment 14, a response was received from Delaware County Conservation District on September 29, 2016, indicating that consistency letters must be obtained from the impacted municipalities. Consistency determination letters were received from Aston Township on February 17, 2016, and Brookhaven Borough on August 11, 2016. No response has been received from Middletown, Chester, Thornbury, Edgmont, or Upper Chichester Townships to date. Ongoing coordination is occurring with the remaining municipalities to ensure consistency with their respective stormwater management plans. Copies of the correspondence with these municipalities regarding stormwater consistency are provided in Attachment 14.</p>
DE 14.b	The proposed project is located within a floodway delineated on the municipal FEMA map. Provide an analysis of the project's consistency with municipal flood plain management programs and provide a letter from each local municipality indicating consistency with their respective	25 Pa. Code §105.13(e)(1)(vi) requires that a project application include an analysis of the Project's impact on floodway delineation and water surface profiles and a letter from the respective municipality commenting on the analysis if the Project encroaches within a floodway delineated on a FEMA map. It is noted that the Project

	<p>municipal flood plain management programs. If a consistency letter is not provided, provide all correspondence (including municipal requests for more information) with the municipalities on this subject. [25 Pa. Code Section 105.13(e)(1)(vi)]</p>	<p>does not cross/would not encroach upon a FEMA designated floodway in Chester, Edgmont, Thornbury, and Upper Chichester Townships in Delaware County. Therefore, SPLP is not required to provide as part of its Chapter 105 permit application a response from these municipalities regarding floodplain management consistency.</p> <p>The project crosses FEMA delineated floodways in Aston Township and Brookhaven Borough. The consistency requests sent to those municipalities provided an analysis of the project's potential impacts on floodways/floodplains in the area. As discussed therein, no aboveground facilities or new access roads are proposed in FEMA designated floodways or 100-year floodplains. In most areas where the pipeline ROW crosses a floodway, the Project would incorporate HDD construction techniques, minimizing surface disturbance and potential Project impacts to these waterbodies; therefore, the Project is not anticipated to result in or increase flood heights or increase the risk of flood damage within these areas. In all areas including where open cut trenching construction will occur, the entire pipeline will be buried and preconstruction contours and elevations will be restored following pipeline installation. No fill will be required for the project and E&S best management practices will be implemented for the Project following construction. Therefore, flood flows will remain similar to existing conditions, and adequate drainage will be maintained to minimize the potential for exposure to flood hazards or minimize the chance of impairment during a flood. The responses received from Aston Township on February 17, 2016 and Brookhaven Borough on August</p>
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		11, 2016, confirm that the Project is consistent with the respective Floodplain Management program or ordinance in place for the municipality. Copies of correspondence with all municipalities referenced in this response are provided in Attachment 14 of this application.
DE 15	Risk Assessment - No additional comment.	NA - Heading
DE 16	Professional Engineer's Seal/Certification - No additional comment.	NA - Heading
DE 17	Alternatives Analysis (AA)	NA - Heading
DE 17.a	The AA needs to include a summary of major actions taken to avoid/minimize impacts. The AA must be a detailed analysis of alternatives, including alternative locations, routings, or designs to avoid or minimize adverse impacts. Document and provide evidence that there is no practicable alternative which would not involve a wetland or that would have less adverse impact on a wetland. Revise the AA to provide a detailed analysis of alternative routings, locations, and designs to avoid and minimize impacts and provide detailed documentation and evidence that there are not practicable alternatives which would further avoid and minimize impacts. [25 Pa. Code Sections 105.13(e)(1)(viii); 105.14(b)(7); 105.18a(a)(2); 105.18a(a)(3); 105.18a(b)(2); 105.18a(b)(3)]	The Alternatives Analysis in Attachment 11, Enclosure E, Part 3 has been revised to provide a detailed analysis of alternative routings, locations, and designs to avoid and minimize impacts and to provide documentation/evidence that there are no practicable alternatives that would further avoid and minimize impacts.
DE 17.b	According to Table 2, Section F, Attachment 11 within Delaware County, there are nine wetland crossings, three of these are proposed to be made by open cut, seven (7) crossings by HDD. Of these nine crossings, one (C23) is classified as EV wetlands, due to its connection to a wild trout stream, and is proposed to be crossed by open cut.	The Alternatives Analysis in Attachment 11, Enclosure E, Part 3 has been revised to address this comment.

	<p>The applicant’s AA does not provide any justification for their selection of which water resource (streams and wetlands) crossings will be made by HDD. This information needs to be provided.</p>	
DE 17.b (cont.)	<p>It appears, but is not described in the application, that HDD was assumed by the applicant to be the crossing method presenting the least potential impact to water resources and aquatic species. However, their basis for this decision is not provided. It also appears that HDD is proposed only for crossings of known and suspected bog turtle habitats and residential/commercial areas. A full discussion of these HDD issues needs to be provided in the AA. If HDD is the least impactful method, then the applicant needs to provide explanations why all the remaining EV wetlands cannot be crossed by HDD.</p>	<p>A stand-alone Alternatives Analysis, which presents the justification for the selected wetland and stream crossings that will be made by HDD, has been added to the application materials and is located in Attachment 11, Enclosure E, Part 3. TThe Alternatives Analysis also incorporates relevant information presented in a separate trenchless feasibility assessment, which is located in Attachment 11, Enclosure E, Part 3, Appendix C.</p>
DE 17.b (cont.)	<p>Section 105.18a(a) (1 through 7) provide criteria for assessing impacts to EV wetlands. Each of these seven (7) criteria must be fully discussed in AA to justify proposed impacts to EV wetlands. Likewise, Section 105.18a(b) (1 through 7) provide criteria for “Other” wetlands. Each of these seven (7) criteria must also be discussed in the AA to account for proposed impacts to “Other” wetlands. Provide a revised alternatives analysis that incorporates a discussion of alternative crossing techniques (conventional bore, HDD, micro-tunneling, etc.) addressing each EV and Other resource crossing individually, and explaining why trenchless installation methods are or are not</p>	<p>Attachment 11 of the application has been revised to demonstrate that each Exceptional Value wetland crossing meets the requirements of 25 Pa. Code §105.18a(a) and that each Other wetland crossing meets the requirements of 25 Pa. Code §105.18a(b). Compliance with 25 Pa. Code §105.18a(a)(1) that the Project will not have an adverse impact on the Exceptional Value wetland, and 25 Pa. Code §105.18a(b)(1) that the project will not have a significant adverse impact on the Other wetland, is demonstrated in the Project Impacts and is provided in Enclosure D (County-specific) and Enclosure E, Part 2 (Project-wide). Compliance with 25 Pa. Code §105.18a(a)(2) that the (Exceptional Value wetland) Project is water-dependent is demonstrated in the</p>

	<p>appropriate. Provide justification based on Section 105.18a for selecting method of crossings. [25 Pa. Code Sections 105.13(e)(1)(viii); 105.14(b)(7); 105.18a(a)(2); 105.18a(a)(3); 105.18a(b)(2); 105.18a(b)(3)]</p>	<p>Alternatives Analysis and is provided in Enclosure E, Part 3.</p> <p>Compliance with 25 Pa. Code §105.18a(b)(2) that adverse environmental impacts on the Other wetland will be avoided or reduced to the maximum extent possible is demonstrated in the Alternatives Analysis and is provided in Enclosure E, Part 3. Compliance with 25 Pa. Code §105.18a(a)(3) and §105.18a(b)(3) regarding practicable alternatives to the proposed Project, including consideration of alternative trenchless crossing techniques, is addressed in the Alternatives Analysis and is provided in Enclosure E, Part 3.</p> <p>Compliance with 25 Pa. Code §105.18a(a)(4) and §105.18a(b)(4) that the Project will not cause or contribute to a violation of an applicable State water quality standard is demonstrated in the Project Impacts and is provided in Enclosure D (County-specific) and Enclosure E, Part 2 (Project-wide), and in the Antidegradation Analysis and is provided in Enclosure E, Part 5. Compliance with 25 Pa. Code §105.18a(a)(5) and §105.18a(b)(5) that the Project will not cause or contribute to pollution of groundwater or surface water resources or diminution of resources sufficient to interfere with their uses is demonstrated in the Project Impacts and is provided in Enclosure D (County-specific) and Enclosure E, Part 2 (Project-wide), and in the Antidegradation Analysis and is provided in Enclosure E, Part 5.</p> <p>Compliance with 25 Pa. Code §105.18a(a)(6) and §105.18a(b)(6) that the cumulative effect of this Project and other projects will not result in the impairment of the</p>
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		<p>Commonwealth's exceptional value wetland resources is demonstrated in the Cumulative Impacts Analysis and is provided in Enclosure E, Part 6. Compliance with 25 Pa. Code §105.18a(a)(7) that the applicant shall replace affected Exceptional Value wetlands in accordance with §105.20a (relating to wetland replacement criteria) is demonstrated in Attachment 11, Enclosure E, Part 4. Compliance with 25 Pa. Code §105.18a(b)(7) that the Project will not have a significant adverse impact on the Other wetland is demonstrated in the Project Impacts and is provided in Enclosure D (County-specific) and Enclosure E, Part 2 (Project-wide).</p>
<p>DE 17.c</p>	<p>The applicant has selected HDD to cross selected sensitive environmental and residential/commercial areas but has not presented supporting data that documents the suitability of the substrate and geology for HDD utilization. The Revised Bog Turtle Conservation Plan (February 20, 2016) prepared by the applicant includes geotechnical data that was obtained at selected sites. However, similar geotechnical and risk analysis were not included in the application package for all proposed HDD crossings. The applicant needs to submit such data and documentation. In addition, the applicant has not presented contingency plans in the case that HDD fails at certain sites. Such contingency plans must be developed and submitted to DEP. Resultant impacts of utilizing other construction methods must also be documented and submitted to DEP. [25 Pa. Code Sections 105.13(e)(1)(viii); 105.14(b)(7); 105.18a(a)(2); 105.18a(a)(3); 105.18a(b)(2);</p>	<p>The revised IR Plan provided in Attachment 12C includes a IR risk assessment for each of the HDDs. SPLP is requesting a Chapter 105 permit to perform the crossing as presented within the application. The planned HDDs are not expected to fail, therefore contingencies for failure on not presented. Each HDD is carefully engineered for success. The project has proposed 237 HDDs (132 20-inch and 105 16-inch). Contingency planning and impact assessment for failure for all 237 HDDs would be considered unnecessary, given the historic success SPLP has had with HDD installation on other projects along this alignment. If an HDD were to fail, alternate crossing methods or routing would be assessed at that time and the appropriate agency authorizations sought.</p>

	105.18a(b)(3)]	
DE 18	Avoidance, Minimization, and Mitigation Plan	NA - Heading
DE 18.a	<p>The application references stream and wetland restoration, but sufficient details and plans for stream and wetland restorations have not been provided. Provide a mitigation/restoration plan for the impacted streams and wetlands in accordance with Section 105.20a (a) and (b). This plan needs to include all phases of restoration and replacement, including detailed grading plans, stabilization, in-stream control measures, planting plans, schedules, and monitoring plans. [25 Pa. Code Sections 105.13(e)(1)(ix and x); 105.18(a and b), 105.16(d); 105.20a(a) and (b)]</p>	<p>Stream and wetland restoration methods are identified in the Impact Avoidance, Minimization, and Mitigation Procedures (Attachment 11, Enclosure E, Part 4) The E&S Plan drawings in Attachment 12 also provide notes and details on stream and wetland crossing methods and restoration. Detailed grading plans are not provided for streams and wetlands, as the preconstruction grades will be restored in accordance with pre-construction photos and visual estimation/matching of the elevations and contours with adjacent undisturbed areas. Stabilization will be achieved through restoration of grade, seeding, use of erosion control blanket (where required), and installation of temporary erosion controls until revegetation is successful. Except for areas where rip-rap is proposed in streams, no in-stream control measures will be placed as obstructions in streams. Seeding plans are provided in the E&S Plan Drawings, and planting plans for restoration of woody species in PSS and PFO wetland areas are provided in the Impact Avoidance, Minimization, and Mitigation Procedures (Attachment 11, Enclosure E, Part 4) Site Specific Plans located within the E&S Plan sheet set address complex aquatic resource crossings and will aid in the restoration of contours. For other areas, the construction and restoration methods are the same methods commonly used and standard for the industry, and are described in the Impact Minimization, Avoidance, and Mitigation Procedures (Attachment 11, Enclosure E, Part 4). These standards include adhering to DEP's General Permit - Utility Line Stream Crossings and the USACE's Pennsylvania State Programmatic General</p>

		Permit requirement that original grades must be restored after trenching and backfilling in wetlands, and that any excess fill material must be removed from the wetland and not spread onsite. These performance standards will be adhered to for this Project.
DE 18.b	Revise Enclosures C&D to assess the condition and discuss the condition of and impacts to forested and scrub shrub riparian areas. Revise the enclosures to discuss the primary and secondary impacts, as well as consideration of antidegradation, on watercourses for each watercourse crossing from the riparian vegetation impacts. [25 Pa. Code Sections 105.15(a); 105.13(E)(1)(x); 105.14(b)(4); 105.14(b)(11); 105.14(b)(12); 105.14(b)(14)]	Attachment 11, Enclosure E, Part 2 discusses primary and secondary impacts to forested and scrub-shrub riparian areas; and Attachment 11, Enclosure E, Part 5 has been expanded to include an analysis of Chapter 105 antidegradation requirements related to forested riparian buffer impacts along watercourses crossed by the Project.
DE 18.b.i	Evaluate the riparian areas from the top of bank landward 100ft, and if the area utilized is less than 100ft, justification should be given as to why. [25 Pa. Code Sections 105.15(a); 105.13(E)(1)(x); 105.14(b)(4); 105.14(b)(11); 105.14(b)(12); 105.14(b)(14); Riparian Forest Buffer Guidance, Document # 394-5600-001]	Attachment 11, Enclosure D discusses primary and secondary impacts to forested and scrub-shrub riparian areas, including an evaluation of the area 100 feet landward of the top of bank.
DE 18.b.ii	To avoid and minimize the impacts to the watercourses, provide a plan to replace the vegetation lost in both permanent and temporary ROW and workspaces. Alternatively, where it cannot be replaced and protected from clearing during the proposed project's operation and maintenance, provide an explanation as to why it cannot be replaced. [25 Pa. Code Sections 105.15(a); 105.13(E)(1)(x); 105.14(b)(4); 105.14(b)(11); 105.14(b)(12); 105.14(b)(14); 105.1; 105.14(b)(7)]	Except at above ground facilities including valve and pump stations, all previously vegetated temporary and permanent workspaces are restored to a vegetated state in accordance with the E&S Plan provided in Attachment 12. Also the BMPs for restoring and maintenance of these areas are discussed within the Impact Avoidance, Minimization, and Mitigation Procedures found in Attachment 11, Enclosure E, Part 4.

DE 18.b.iii	<p>Revise the application plan drawings and project description, to clearly and specifically state if vegetation clearing, cutting, removal, or other alteration is proposed as part of the proposed projects' construction, operation, and maintenance. Revise the plan drawings to clearly indicate all locations where maintenance clearing, cutting, removal, or other alteration is not part of proposed maintenance activities. [25 Pa. Code Sections 105.13(e)(1)(ix); 105.14(b)(4); 105.14(b)(12); 105.14(b)(13); 105.14(b)(14); 105.11(d)]</p>	<p>SPLP did not revise the plan drawings. Instead, SPLP revised both the Project Description located in Attachment 9 to define the terms used within the plan drawings such as "Permanent Access Road," "Permanent ROW," "Temporary ROW," and "Additional Temporary Workspace" and the aerial site plans located in Attachment 7, Tab 7A to more clearly explain these designated areas. The Impact Avoidance, Minimization, and Mitigation Procedures in Attachment 11, Enclosure E, Part 4 details the construction, operation, and maintenance procedures in these designated areas.</p> <p>As depicted on the aerial site plans, the DEP Chapter 105 jurisdictional areas defined as "Permanent Impact" are areas where the "Permanent ROW", "Permanent Access Road", "ROW-Travel and Clearing LOD", "Station-LOD", and "Block Valve Setting-LOD" intersect waters of the Commonwealth. These areas will receive both direct and indirect impacts resulting from the placement or construction of a water obstruction or encroachment and include areas necessary for the operation and maintenance of the water obstruction or encroachment located in, along or across, or projecting into a watercourse, floodway or body of water. These "Permanent Impacts" areas are proposed for permanent vegetation clearing, cutting, grubbing, removal, and maintenance. However, wetlands will not be cut or mowed during general operation and maintenance.</p> <p>As depicted on the aerial site plans, the DEP Chapter 105 jurisdictional areas defined as "Temporary Impacts" are areas where "Temporary ROW", Additional Temporary Workspace ("ATWS"), "ROW-Travel LOD", and</p>
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		<p>“Temporary Access Road” intersect waters of the Commonwealth. These areas will receive both direct and indirect impacts resulting from the construction of a water obstruction or encroachment located in, along or across, or projecting into a watercourse, floodway or body of water that are restored upon completion of construction. These “Temporary Impacts” areas are proposed for temporary vegetation cutting, clearing, grubbing, and removal. These areas will be allowed to revert, no future maintenance or operations will occur.</p> <p>The “Permanent Easement” depicted on the aerial site plans identifies the limits of SPLP’s agreement with the affected landowner, and is an independent designation from proposed “Permanent Impacts” and “Temporary Impacts”. In areas not identified as “Permanent Impacts” or “Temporary Impacts” within the “Permanent Easement”, no permanent or temporary vegetation cutting, clearing, grubbing, removal, and/or maintenance is proposed. The “Permanent Easement” is depicted on the aerial site plans in response to previous DEP requests to show the limits of the permanent easement in areas where “Permanent Impacts” and “Temporary Impacts” are not proposed, and does not represent a DEP Chapter 105 jurisdictional area.</p>
DE 18.c	<p>In regards to the mitigation plan, explain how preexisting conditions (bank grades, bank slopes, bed and bank elevations, and habitat) will be documented and used as a basis to restore impacted streams and wetlands to preexisting or better habitat conditions. Explain under what conditions the restoration design based on preexisting design will be modified when the preexisting conditions</p>	<p>The Impact Avoidance, Minimization, and Mitigation Procedures provided in Attachment 11, Enclosure E, Part 4 includes the details for stream restoration. The E&S Plan included in Attachment 12 provides the plan and details, including standard typical details and site-specific plans for select crossings, as well as conditions for stream bed materials segregation and installation of BMPs to protect on-site and adjacent waters from storm-event</p>

	<p>are degraded (areas of severe bank erosion, bank undercutting, unnatural substrate, and similar conditions). Provide plans and details for the restoration of stream habitat at open cut stream crossings. This needs to include stockpiling and segregation and replacement of native stream bed material. Contingency plans addressing measures to stabilize the work area in the event of sudden precipitation also need to be included. [25 Pa. Code Sections 105.13(e)(1)(i)(G); 105.13(e)(1)(i)(C); 105.311(2); 105.15(a); 105.14(b)(4); 105.16(d)]</p>	<p>sedimentation and erosion. The Environmental Inspection Program and conditions for inspection of BMPs post-significant rain events is also discussed.</p> <p>The construction and restoration methods are the same methods commonly used and standard for the industry, and are described in the Impact Minimization, Avoidance, and Mitigation Procedures (Attachment 11, Enclosure E, Part 4). These standards include adhering to DEP's General Permit- Utility Line Stream Crossings and the USACE's Pennsylvania State Programmatic General Permit requirement that original grades, hydrology, and wetland vegetation must be restored after trenching and backfilling of wetlands, and that any excess fill material must be removed. These performance standards will be adhered to for this Project. These standard stream utility installation crossing methods have been documented to result in successful restoration of cross sections and profiles.</p>
DE 18.d	<p>The application states that temporarily impacted Palustrine Scrub Shrub (PSS) and Palustrine Forested Wetlands (PFO) wetlands will be replanted with native trees and shrubs, PSS wetlands in the permanent ROW will be planted with wetland shrubs, and PFO wetlands in the permanent ROW will be allowed to revert to PSS/PEM wetlands. PFO areas in temporary impacted areas, outside the 50-ft right-of-way will be replanted with native forest tree species. Provide planting plans and details for these restoration areas, including the replanting of PFO areas in the permanent ROW. Identify the locations of the plantings and wetlands, the species</p>	<p>The planting plans for the restoration of PSS and PFO areas is provided in the Impact Avoidance, Minimization, and Mitigation Procedures provided in Attachment 11, Enclosure E, Part 4. The procedures provide for the locations, species to be planted, density, size, timing, goals, and objectives, and monitoring for successful restoration.</p>

	to be planted, the planting density, the proposed size of the plantings, planting timing, goals and objectives for success, and a monitoring plan to ensure reestablishment. [25 Pa. Code Sections 105.13(e)(1)(ix); 105.1, Mitigation; 105.14(b)(4);105.14(b)(13); 105.18a(a)(1); 105.18a(a)(3); 105.18a(a)(6); 105.18a(b)(1); 105.18a(b)(2); 105.18a(b)(6)]	
DE 18.e	Section 2.2.2.1 of the Mitigation Plan identifies that wetlands will be reseeded with a native wetland seed mixture; however, the mixture, application rates and other factors are not specified nor are they proposed on the plans. Revise the application to identify the seed mixture to be used and revise the E&S Plans to indicate its use for wetland restoration. Provide similar information for the replanting of wetland shrubs and forest species (as discussed in 18.c). Note that not planting and allowing natural colonization of impacted areas will likely result in areas dominated by invasive, non-native species and is not an acceptable approach to restoration. [25 Pa. Code Sections 105.13(e)(1)(ix); 105.1, Mitigation; 105.14(b)(4); 105.14(b)(13); 105.18a(a)(1); 105.18a(a)(3); 105.18a(a)(6); 105.18a(b)(1); 105.18a(b)(2);105.18a(b)(6)]	The Impact Avoidance, Minimization, and Mitigation Procedures provided in Attachment 11, Enclosure E, Part 4 includes the details for standard and site-specific (including restored PSS and PFO habitats) wetland restoration, as well as invasive species control, monitoring, and reporting. The E&S Plans have been revised accordingly.
DE 18.f	Section 2.2.2.1 of the Mitigation Plan, entitled “Construction in Wetlands with Unsaturated Soils,” conflicts with the rest of the application, which identifies that all wetland crossings will be crossed with mats or pads. Crossing unsaturated wetlands without timber mats would contribute to soil	The Impact Avoidance, Minimization, and Mitigation Procedures provided in Attachment 11, Enclosure E, Part 4 has been revised to indicate that temporary wetland matting will be used along the travel lane where any staging or work areas are proposed in wetlands regardless of the wetlands saturated condition.

	<p>compaction, rutting, and disturbance of the cut vegetation's roots. Therefore, revise the Mitigation Plan to identify that all wetland crossings shall use mats or pads. [25 Pa. Code Sections 105.21(a)(1); 105.13(e)(1)(ix); 105.13(e)(1)(i); 105.13(e)(1)(iii); 105.13(e)(1)(x); 105.14(b)(4); 105.14(b)(13); 105.15(a); 105.15(a)(1); 105.15(b); 105.18a(a)(3); 105.18a(a)(1), 105.18a(b)(1); 105.18a(b)(2); 105.422]</p>	
DE 18.g	<p>Prepare a monitoring plan verifying that the permittee will monitor the stream and wetland restoration sites for at least 5 years. Monitoring reports should be submitted to DEP every 6 months for the first 2 years after construction and annually for 3 years thereafter. The monitoring reports shall contain information describing the success of the site at the time of inspection, an inventory of the surviving plant species and percent aerial coverage, photographs of the replacement sites with plans showing the location and orientation of each of the photographs, and a written plan to correct any deficiencies identified during the monitoring phase. [25 Pa. Code Sections 105.20a; 105.18a(a)(7); 105.18a(b)(7); 105.13(e)(1)(ix); 105.16(a); and 105.1 (defn. of mitigation); 105.53(4); 105.54]</p>	<p>The Project Impact Avoidance, Minimization, and Mitigation Procedures presents details of SPLP's annual Wetland Monitoring Program (Attachment 11, Enclosure E, Part 4). The program reflects the elements noted in this comment. Details of SPLP's Environmental Inspection Program are provided in the Project Description (Attachment 9), and also in the Project Impact Avoidance, Minimization, and Mitigation Procedures (Attachment 11, Enclosure E, Part 4).</p>
DE 18.h	<p>DEP disagrees with the statement made in several sections of the application that secondary effects will not occur to impacted wetlands. Secondary (indirect) effects are defined in the EPA Regulations (40 CFR 230.11) as effects on an aquatic ecosystem that are associated with a discharge of dredged or fill materials, but do not</p>	<p>The project impact assessment document has been revised to include a Secondary Impact Analysis for the entire project, adjacent areas thereto, and future impacts, and is located in Attachment 11, Enclosure E, Part 2. The Secondary Impact Analysis addresses monitoring, prevention and, control strategies.</p>

	<p>result from the actual placement of the dredged or fill material. Secondary effects that may possibly occur on the impacted wetlands include alteration of wildlife and aquatic habitats, changes in hydrology due to factors such as over-compaction of soils, changes in species composition and densities and colonization by invasive species. Address secondary impacts, their monitoring, prevention and, control strategies in the requested restoration and mitigation plan. [25 Pa. Code Sections 105.14(b)(12); 105.21(a)(1); 105.13(e)(1)(ix); 105.13(e)(1)(i); 105.13(e)(1)(iii); 105.13(e)(1)(x); 105.14(b)(4); 105.14(b)(13); 105.15(a); 105.15(a)(1); 105.15(b); 105.18a(a)(3); 105.18a(a)(1); 105.18a(b)(1); 105.18a(b)(2); 105.53(4); 105.54; 105.422]</p>	
DE 18.i	<p>Provide details of SPLP’s annual Wetland Monitoring and Environmental Inspection Programs. [25 Pa. Code Sections 105.13(e)(1)(ix); 105.1, Mitigation;105.14(b)(4); 105.18a(a)(1); 105.18a(b)(1); 105.18a(b)(2); 105.18a(b)(6); 105.53(4); 105.54]</p>	<p>Details of SPLP’s annual Wetland Monitoring Program are provided in the Project Impact Avoidance, Minimization, and Mitigation Procedures (Attachment 11, Enclosure E, Part 4; refer to Section 11.0). Details of SPLP’s Environmental Inspection Program are provided in the Project Description (Attachment 9), and also in the Project Impact Avoidance, Minimization, and Mitigation Procedures (Attachment 11, Enclosure E, Part 4).</p>
DE 18.j	<p>The Mitigation Plan does mention placement of “No Mowing” signs as replanted PSS areas, but this does not provide for long-term protection if repairs are needed, replanting of these areas if accidental mowing occurs, and that such signs could become not visible over time. Provide “No Mowing” stones to demarcate the area. Stones needs to be placed and of size to prevent mowing equipment</p>	<p>PSS and PFO restoration areas will be sufficiently protected with “no now” signs or other restrictive barriers as determined by SPLP. Use of “mowing stones” would deviate from the stated plan of restoring the area to preconstruction contours. In addition, SPLP has an easement but not the surface rights necessary to place large stones in the right of way. Finally, such mowing stones could impede access to the area in the event of an</p>

	access. [25 Pa. Code Sections 105.13(e)(1)(ix); 105.1, Mitigation; 105.14(b)(4); 105.14(b)(13); 105.18a(a)(1); 105.18a(b)(1); 105.18a(b)(2); 105.18a(b)(6)]	emergency. For these reasons, SPLP has elected to use “no mow” signs, consistent with DEP regulations. The Impact Avoidance, Minimization, and Mitigation Procedures in Attachment 11, Enclosure E, Part 4 details the construction, operation, and maintenance procedures in these designated areas.
DE 19	General and Other Comments	NA
DE 19.a	The application will need a comprehensive Preparedness Prevention Contingency Plan (PPC) combined with the Inadvertent Release Plan (IRP). The Plan needs to include downstream c and public and private water wells along the ROW, noting those water users along areas where HDD will be utilized.	The PPC Plans provided in Attachment 12, Tabs 12 A-C provide instructions and procedures to facilitate the avoidance and minimization of impacts and provides the framework to investigate and resolve impacts caused by spills, releases, and other pollution events should they occur. Applicable public private downstream user information is compiled within the Water Supply Plan and identification, notification, and testing procedure for private wells discussed.
DE 19.b	The application includes separate documents covering PPC activities. Due to the scope of this project, you must consolidate these plans into one stand-alone document that can be used in the field. This single document will be the primary document used for emergency response, and as such, needs to provide a complete and useable reference for contractors and other on-site personnel. The PPC needs to include the following:	The Preparedness, Prevention, and Contingency Plan (PPC Plan) has been updated to be applicable project-wide, and is the overarching plan to three supplemental plans: the Water Supply Assessment, Preparedness Prevention and Contingency Plan, the Inadvertent Return Assessment, Preparedness, Prevention and Contingency Plan (IR Plan), and the Void Mitigation Plan for Karst Terrain and Underground Mining. Due to the size and distinct subject matters of each plan, these three plans are separate but reference each other and work together to provide protection to on-site and off-site water resources. These plans are found in Attachment 12 of this application are also consistent and part of the Chapter 102 application.
DE 19.b.i	Instructions and procedures to facilitate the avoidance and minimization of impacts and provide	The PPC Plans provided in Attachment 12, Tabs 12 A-C provide instructions and procedures to facilitate the

	the framework to investigate and resolve impacts caused by spills, releases, and other pollution events should they occur.	avoidance and minimization of impacts and provides the framework to investigate and resolve impacts caused by spills, releases, and other pollution events should they occur.
DE 19.b.ii	Notification protocols and an up to date list of agencies and local governments. Specifically missing from the current submitted application is the contact information for the U.S. Fish and Wildlife Service, PADEP Southeast Regional Office and Counties in the Southeast Region.	The IR Plan in Attachment 12C has been updated and contains a complete list of contacts, should an IR occur.
DE 19.b.iii	The management of excess drilling mud/liquids that may be encountered at the individual bore pits.	The PPC Plan and the IR Plan were updated to include standard operating procedures pertaining to conventional bore drilling. These plans are provided in Attachment 12.
DE 19.b.iv	Appendix B needs to be revised to state that all discharges to a stream, wetland or groundwater must be contained, and PADEP must be notified. [25 Pa. Code Sections 105.2(1 and 2) and 91.33(a) and (b)]	Attachments 12A, 12B, 12C, and 12D discuss in depth groundwater and surface water protection preparedness, prevention, and mitigation measures, including all required notifications.
DE 19.c	While you provided a narrative discussing how impacts to private water supplies will be investigated and addressed, a formal plan has not been provided. Revise the PPC Plan to include the following on public and private water supplies: [25 Pa. Code Sections 105.14(b)(4) and 105.14(b)(5)]	NA - Heading
DE 19.c.i	A copy of the FERC standards SPLP Plans to use in accepting and investigating landowner complaints of spring and well water supply impairment.	The PPC Plan has been revised to remove the reference to FERC standards in accepting and investigating landowner complaints of spring and well water supply impairment. A separate, stand-alone Water Supply Assessment, Prevention, Preparedness, and Contingency Plan has been prepared that details the procedures and standards for accepting and investigating landowner complaints regarding spring and well water supply impairment. This

		Water Supply Assessment, Prevention, Preparedness, and Contingency Plan is provided in Attachment 12, Tab 12B.
DE 19.c.ii	Measures the applicant will take to investigate for the presence of public and private water supplies in areas where HDD crossings are proposed. Utilize the attached instructions for searching eMAP for Public Water Supply locational information. You will not be able to obtain the exact source location, but you will be able to find any in the vicinity and obtain the name of the Public Water Supplier. If any are identified in the vicinity of your project, you need to contact the water supplier to discuss the project with them and work to determine if your project will have an impact on the water supply. Both surface and groundwater supplies need to be evaluated and included in your review and response documents.	Water supply impacts have been analyzed and addressed within three supplemental plans to the PPC Plan, the Water Supply Assessment, Preparedness Prevention and Contingency Plan, the IR Plan, and the Void Mitigation Plan for Karst Terrain and Underground Mining. These plans are provided in Attachment 12.
DE 19.c.iii	Procedures that will be followed to investigate and resolve impacts to public and private water supplies should they occur as a result of the proposed activities. This procedure needs to discuss how water supply owners will be alerted in the event of an inadvertent return.	Attachment 12, Tab 12B includes a Water Supply Assessment, Prevention, Preparedness, and Contingency Plan that addresses potential impacts and describes the procedures to prevent and prepare for resolution of water supply impacts should they occur, including notification procedures.
DE 19.c.iv	Here are some options for the pipeline drilling to protect drinking water wells. Most of these suggestions are derived from requirements for new public water wells.	Water supply impacts have been analyzed and addressed within three supplemental plans to PPC Plan, the Water Supply Assessment, Preparedness Prevention and Contingency Plan, the IR Plan, and the Void Mitigation Plan for Karst Terrain and Underground Mining. These plans are provided in Attachment 12.
DE 19.c.iv.a	Map where the pipeline crosses sensitive geology and aquifers. Maps are available from the state geologic survey of unconsolidated sand and gravel,	Attachment 12D - Void Mitigation Plan for Karst Terrain and Underground Mining, has been created to address and map sensitive geology.

	carbonate, and known karst feature density.	
DE 19.c.iv.b	Location and contact information for drinking water wells in the vicinity of the pipeline. Well contact information can be searched for by location in the eMAP PA's website for public wells and PAGWIS's website for driller registered private wells.	Potential impacts to public and private water supplies have been analyzed and addressed within three supplemental plans to the PPC Plan, the Water Supply Assessment, Preparedness Prevention and Contingency Plan, the IR Plan, and the Void Mitigation Plan for Karst Terrain and Underground Mining. The IR Plan outlines the preconstruction activities implemented to ensure sound geological features are included in the drill profile, the measures to prevent impact, and the preparedness plan if an impact were to occur. These plans are provided in Attachment 12.
DE 19.c.iv.c	Within 0.5 mile, wells are potentially vulnerable over a long time period, and within 400 feet wells are vulnerable in short time periods. Some wells may have more accurately modelled protection zones available.	Potential impacts to public and private water supplies have been analyzed and addressed within three supplemental plans to the PPC Plan, the Water Supply Assessment, Preparedness Prevention and Contingency Plan, the IR Plan, and the Void Mitigation Plan for Karst Terrain and Underground Mining. The IR Plan outlines the preconstruction activities implemented to ensure sound geological features are included in the drill profile, the measures to prevent impact, and the preparedness plan if an impact were to occur. These plans are provided in Attachment 12.
DE 19.c.iv.d	Continuous monitoring of water levels in nearby wells could show a hydraulic connection that may have quantity or quality impacts. Water quality sampling and analysis of nearby wells could monitor for quality impacts.	Water supply impacts have been analyzed and addressed within three supplemental plans to the PPC Plan, the Water Supply Assessment, Preparedness Prevention and Contingency Plan, the IR Plan, and the Void Mitigation Plan for Karst Terrain and Underground Mining. These plans are provided in Attachment 12. The Water Supply Plan indicates the sampling over 120 wells.
DE 19.d	HDD Inadvertent Return Contingency Plan includes profiles identifying Geotechnical profiles;	The revised IR Plan provided in Attachment 12, Tab 12C includes an IR risk assessment for each of the HDDs.

	<p>however, no analysis has been provided on the risk of an inadvertent return occurring. Provide an analysis on the risk of an inadvertent return occurring for all proposed HDD crossings. Include in-depth detail, discussion, and data in the analysis of the risk of a return occurring. [25 Pa. Code Sections 105.14(b)(7); 105.18a(b)(3); 105.18a(b)(4); 105.18a(b)(5), 105.14(b)(4); 105.14(b)(11)]</p>	
DE 19.d.i	<p>Provide information/details on previous HDD activities on the prior Mariner East pipeline project where IRs occurred. At a minimum, this needs to include a topographic map with locations and latitude/longitude of each occurrence, description of event, amount of discharge, whether the discharge entered waterways and/or wetlands, mitigation/clean-up measures taken, etc. Also, provide a list of areas where Mariner East 1 had issues with inadvertent returns to the surface when conducting HDD crossings, and discuss how you have taken these historic issues into account in your design of the proposed project.</p>	<p>An HDD Risk Assessment is included as part of the revised Inadvertent Return Assessment, Prevention, Preparedness and Contingency Plan (IR Plan) provided in Attachment 12C. The assessment discusses previous inadvertent returns (IR) and provides the data and analysis requested.</p>
DE 19.d.ii	<p>A stand-alone attachment needs to be created to address the pre-boring geologic evaluation of the existence and potential to impact local drinking water supplies or aquifers around the boring location. The plan needs to include what measures will be employed to verify that no supplies or aquifer are impacted (i.e. pre and post water quality and quantity analysis). The plan also needs to specify what notifications and remediation measures will be employed if there are impacts.</p>	<p>The Water Supply Plan provides for the assessment of the existing public and private water supplies in or along the Project, as well as identifies prevention and preparedness measures to be implemented to protect those supplies. The IR Plan outlines the preconstruction activities implemented to ensure sound geological features are included in the drill profile, the measures to prevent impact, and the preparedness plan if an impact were to occur. These plans are provided in Attachment 12.</p>

Delaware County

SPLP appreciates your timely review of the revision. Please contact Sandy Lare of Tetra Tech, Inc. with any questions at 716-849-9419, or email sandy.lare@tetrattech.com.

Sincerely,
Tetra Tech, Inc.



Sandra J. Lare
Environmental Planner/Permitting Specialist

Enclosures: Revised Chapter 105 Joint Permit Application

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