ENVIRONMENTAL REVIEW FOR CHAPTER 105 APPLICATIONS

Permittee Sunoco Pipeline, L.P. App. No. E23-524

Environmental Recommendation:

Approval ☒
Denial ☐ Reviewer: Randall T. Brown Date 10 February 2017
Withdrawal ☐

Concur ☒ Super. Initials (DFK Date (10 February 2017
Not Concur ☐

Special Conditions

Permittee shall be responsible for compliance with each of the following special conditions. The Pennsylvania Department of Environmental Protection shall be referred to hereinafter as either "DEP" or the "Department."

Water Supplies:

A. At least 72 hours in advance of beginning any construction activities, the permittee shall notify all identified public and private water supplies along the project's corridor that may be affected by increased turbidity or other water quality changes caused by the permittee's construction activities.

1. If the project results in a pollution event which may impact any public or private water supplies, the permittee shall immediately notify the Department and the potentially affected public or private water supplies of the pollution event.

B. In the event the permittee's work causes adverse impacts to a public or private water supply source, the permittee shall also immediately notify the Department and implement a contingency plan, to the satisfaction of the public and private water supply owners that addresses all adverse impacts imposed on the public and private water supply as a result of the pollution event, including the restoration or replacement of the impacted water supply.

C. At least 72 hours in advance of beginning construction activities, the permittee shall notify all water users with downstream surface water intakes within one mile downstream, including but not limited to, drinking water users, industrial and commercial users that may be impacted by turbidity or water quality changes.

D. The permittee shall notify such downstream water users immediately of any pollution event or incident at its site that may endanger downstream users. The permittee shall also immediately implement its approved contingency plan to prevent further adverse impacts and remediate all adverse impacts as a result of the pollution event or incident.

E. If a public or private drinking water source not previously identified by the permittee is discovered by the permittee during construction, the permittee shall immediately notify the Department of the identified water source and shall notify that source of the permittee's construction activities.

PHMC General Conditions:

F. The permittee and its agents shall visually inspect for archaeological artifacts and shall immediately cease earth disturbance activities upon discovery of archaeological artifacts.

G. If archaeological artifacts are discovered, the permittee shall immediately notify the DEP Regional Office in the DEP region where the artifact is found and shall concurrently notify the Pennsylvania Historical and Museum Commission (PHMC) at P.O. Box 1026, Harrisburg, PA 17120-1026, telephone 717.783.8947.

H. At all times, the permittee shall protect historic, cultural and archaeological sites as identified in the latest published version of the Pennsylvania Inventory of Historical Places and the National Register of Historical Places.

PHMC Areas Subject to Phase I or Phase II Surveys:

I. The permittee shall not begin work in areas subject to Phase I or Phase II archeological investigations recommended by the PHMC until the permittee secures the necessary clearances for these areas from PHMC. (Permit specific condition as applicable. Specify location in each permit).

Submerged Lands License Agreements:

J. The permittee shall comply with all terms and conditions of the Submerged Lands License Agreement entered into between the Department and the permittee for the (identification of crossing), which is incorporated herein by reference. (This condition is permit-specific. Add when applicable and attach finalized SLLA to permit).

Temporary Road Crossings:

K. All temporary road crossings of streams and wetlands must meet all of the following conditions:

1. The permittee shall restore and stabilize all temporary crossing sites, except fords, within five (5) days after termination of its permitted use.

2. Permittee shall not utilize or construct fords on any stream or watercourse within High Quality (HQ) and Exceptional Value (EV) watersheds as specified in 25 Pa. Code Chapter 93, or in watersheds tributary to drinking water intakes or reservoirs for public water supply users, where the ford is within 2,000 feet upstream of such intake or reservoir.

3. The permittee shall adequately block and stabilize all approaches for fords used as temporary crossings within five (5) days after termination of their permitted use in order to prevent future use.

4. The permittee is prohibited from skidding across fords.

5. Where a streambed at the site of a ford does not have a rock bottom, a layer of clean rock over geo-fabric must be placed and maintained. This layer of clean rock must not obstruct the stream flow. In addition, the ford's approaches must: (1) be maintained in a firm and stable condition; and (2) enter the stream on less than a 10% grade within 50 feet of the stream with the flow; and (3) exit the stream against the flow on the same grade and distance limitation as specified for the entrance. Permittee shall ensure that all roads cross all watercourses at a right angle to the stream, unless permittee obtains specific and separate approval from the Department.

6. Permittee shall ensure that all culverts provide a waterway area sufficient to adequately discharge the normal flow of the watercourse or stream, and that culverts are of sufficient length to extend beyond the toe of the clean rock fill.

7. Permittee shall ensure that culverts are installed in such manner that overtopping of the roadway will occur within the stream channel. This can be accomplished by providing a depressed roadway embankment.

8. Permittee shall minimize excessive fill and excavation of stream banks by utilizing culverts with as large a diameter as possible. The minimum diameter size of a culvert to be used is no less than 12 inches.

9. Road and causeway embankments shall only consist of clean rock material to prevent stream channel sedimentation during placement, removal, and periods of overtopping.

10. Bridges shall be single span from top of bank to top of bank, and must be structurally stable.

11. Approach roads to temporary road crossings shall utilize original grades. However, clean rock material or gravel to a depth of six inches above original grade can be utilized for approaches, as necessary.

12. Causeways shall not extend streamward a distance greater than one-half the width of the stream channel.

13. Temporary road crossings shall be kept open and functioning at all times by maintaining the crossings free of debris and other obstructions.

14. The permittee shall promptly repair any damage resulting from increased backwater caused by a temporary road crossing. The permittee shall remove temporary road crossings in the event of high waters to prevent increased backwater.

15. If permittee cannot avoid a wetland crossing, the crossing is permissible if it is located at the narrowest practicable point of the wetland.

16. All wetlands crossing sites shall be stabilized by any appropriate means, including, but not limited to, using removable, temporary mats, pads or other similar devices to ensure minimization of impact on the wetlands ecology.

17. Temporary embankments for roads across wetlands shall be installed to maintain the hydrology of the wetland.

18. Pollution of any waterway with harmful chemicals, fuels, oils, greases, bituminous material, acid, or other harmful or polluting materials, is prohibited.

19. Access roads should not approach the stream channel directly downslope, but should traverse the slope obliquely to prevent high velocity road drainage flows from directly entering the stream channel. Road drainage shall include proper erosion and sediment control Best Management Practices.

20. The permittee shall remove all or any portion of a temporary road crossing upon written notification to the permittee from the Department in the event the project is causing an adverse impact on public health, safety or the environment or in any other manner violates the requirements of the Pennsylvania Clean Streams Law, 25 Pa. Code Chapter 105, or both.

21. The permittee shall be responsible for determining and documenting which method of crossing is appropriate for each resource. This documentation shall be provided to the Department with the pre- and post-construction photographs. The permittee shall submit this documentation to the respective DEP Regional Office within ninety (90) days after completion of work under the respective permit.

Site Field Verification, Restoration and Monitoring:

L. Prior to installation of pipeline crossings, the permittee shall take new pre-construction photographs of the natural resources at each of the crossings. The permittee shall prepare and maintain a record of pre- and post- conditions of each stream and wetland crossing. The permittee shall submit this documentation to the respective DEP Regional Office within ninety (90) days after completion of work under the respective permit.

M. All wetlands within the project area shall be accurately field-delineated prior to the start of construction activities and up to the time that earth disturbance activities are completed and the site has been stabilized. An acceptable means of field-identification of wetlands includes but not limited to, the use of an orange construction safety fence and/or flags.

N. For a period of up to 5 years following construction, the permittee shall monitor for secondary impacts to hydrology, i.e., the loss of hydrology, to all watercourses with a drainage area of less than 100 acres, including those watercourses that originate within the project ROW. Reports shall be submitted to DEP in the spring and fall for the first two (2) calendar years following construction and annually for three (3) years thereafter.

1. The monitoring reports shall contain information describing the presence or absence of hydrology at the time of inspection, a narrative comparison to hydrology present in the watercourse during pre-permitting field investigation(s), and photographs of the watercourse.

2. If the monitoring identifies a diminution or complete loss of hydrology, the permittee shall evaluate whether the activities authorized by this permit caused the loss of hydrology and submit this evaluation to the Department for review.

3. If the Department determines that the activities authorized by this permit are contributing to the loss of hydrology, the permittee shall prepare a written plan to correct the loss of hydrology to the watercourse. The permittee shall implement the approved plan within ninety (90) and submit this plan to DEP for review and approval. If DEP identifies any deficiencies with permittee's plan, then the permittee shall provide DEP a written response to address the stated deficiencies within 15 days of receiving written notice of DEP's deficiencies, unless DEP extends that timeframe in writing.

4. The permittee shall implement the DEP-approved plan within 90 days of receiving written approval from DEP, unless DEP extends that timeframe in writing.

5. In the event that loss of hydrology from activities conducted under this permit cannot be restored, the permittee shall submit a mitigation plan to DEP that sets forth the manner in which full loss of hydrology and associated water will be compensated for. If DEP identifies any deficiencies with the permittee's mitigation plan, then the permittee shall provide DEP a written response to address the stated deficiencies within 15 days of receiving written notice of DEP's deficiencies, unless DEP extends that timeframe in writing. The permittee shall implement the DEP-approved mitigation plan within 90 days of receiving written approval from DEP, unless DEP extends that timeframe in writing.

O. Wetland excavation shall segregate the soil horizons and replace the soil horizons to match pre-construction conditions. For areas where bore pits are proposed in or adjacent to wetlands, or if a restrictive layer, including but not limited to clay or fragipans, is encountered during the trench excavation, the permittee shall have a knowledgeable wetlands scientist on the Environmental Inspection Team that shall oversee backfilling of the trench and installation of trench plugs, in order to maintain wetland hydrology.

P. Topsoil shall be segregated from subsoil in all wetland areas.

Q. All disturbed areas are to be restored, stabilized and shall be replanted with indigenous plant species. Excess fill from disturbed areas and construction activities shall be located outside of the floodway, floodplain and wetlands. The permittee is responsible for stabilizing any excess materials spoiled onsite or offsite, whether the permittee owns the site or others own the site.

R. Rock riprap shall be used in the stream bed only where a shear stress analysis has determined that scour protection is necessary to ensure stability of the resource.

S. A trench in which the pipeline will be laid shall be backfilled in a manner that does not create the formation of a permanent ridge in a streambed or wetland.

T. Restored streams shall use a minimum of six (6) inches of native stream bed material. For streams where riprap is necessary to prevent scour, the riprap shall be depressed sufficiently to allow six (6) inches of native stream bed material over the riprap.

U. All PFO and PSS wetlands within the temporary ROW shall be replanted with woody species present in the wetland prior to the permittee conducting construction activities. The plantings need not mirror pre-construction maturity.

V. Forested Riparian Areas in the temporary ROW along watercourses shall be replanted with native tree species for a minimum distance of fifty (50) feet landward from the top of both banks of warm water fisheries and trout stocked fisheries, 100 feet from cold water fisheries, and 150 feet from HQ/EV streams, in a similar density as the trees existed prior to the permittee conducting construction activities. The density of replanted trees shall be similar to the density that existed prior to the permittee conducting construction activities but shall provide no less than 60% uniform canopy cover upon maturation and shall be appropriate to the geographic location. Maintenance and inspections shall ensure survival and growth of plantings and protection from competing plants and animals including noxious weeds and invasive species over a 5-year establishment period to ensure and proper functioning of riparian forest buffers, and shall include measures to repair damage to the buffer from storm events greater than the 2-year/24-hour storm.

W. Each stream channel shall be restored and properly stabilized upon completion of the associated stream crossing. Where riprap is proposed, the riprap shall be depressed and covered with a minimum of 6-inches of streambed material. The restored streambed elevation shall not exceed the pre-existing streambed elevation.

X. The permittee shall avoid wetland impacts, to the extent practicable, and minimize any such impacts. The permittee shall immediately restore all disturbed wetland areas to original contours, and replant with indigenous wetland vegetation in accordance with their restoration plans as presented in their permit application. Streambank and wetland disturbances shall be minimized and stabilized with indigenous vegetation within ten (10) calendar days of final earthmoving to prevent erosion and provide cover, shading, and food source for aquatic life. Any temporary wetland crossings shall be made by low ground pressure machinery and wetland mats or similar devices. Excess fill shall not be deposited in any wetland, watercourse, floodway, floodplain, or other body of water.

Y. For a period of up to five years, the permittee shall monitor the stream and wetland plantings. Monitoring reports shall be submitted to the respective DEP Regional Office in the spring (May15) and fall (November 15) for the first two (2) calendar years following construction and annually (November 15) for four (4) years thereafter.

1. The monitoring reports shall contain information describing the success of the site at the time of each inspection, an inventory of the surviving plant species and percent areal coverage, photographs of the replacement site 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.

Z. Permittee shall ensure at least an 85 percent survival rate. Additional plantings and or reports in subsequent years beyond the initial five (5) years may be required if an 85 percent survivability of planted species is not achieved.

AA. For a period of at least three years, the permittee shall monitor any exceptional value wetlands under 25 Pa. Code §§ 105.17(1)(i) and 105.17(1)(ii) that are disturbed, as authorized pursuant to this permit. Monitoring reports shall be submitted to the respective DEP regional office in the spring (May 15) and fall (November 15) for the first two (2) calendar years following construction and once (November 15) in the third year. The monitoring reports shall contain information describing the wetland restoration and function and values at the time of inspection, photographs of the wetland with plans showing the location and orientation of each photograph, and a written plan to correct any deficiencies identified during the monitoring phase.

BB. Streambank disturbance shall be minimized and stabilized with indigenous vegetation within 24 hours upon completion of final earthmoving to prevent erosion and provide cover, shading, and food source for aquatic life.

Wetland Compensatory Mitigation and Monitoring:

CC. The permittee shall create Palustrine Forested (PFO) wetlands in accordance with their "Permittee-Responsible Compensatory Wetland Mitigation Plan" to compensate for the function and value loss associated with permanently converting 0.405 acres of PFO wetlands to Palustrine Emergent (PEM) wetlands.

DD. The proposed compensatory wetland mitigation site in Cumberland County: The permittee shall only plant the 0.58 acres in the seasonally saturated areas identified in the Compensatory Wetland Mitigation Plan and shall not plant in the areas identified as saturated in the present condition in the Compensatory Wetland Mitigation Plan.

EE. For at least five (5) years after the restoration activities are completed, the permittee shall monitor the compensatory mitigation sites, wetland restoration sites, streams restoration sites and floodway restoration sites. Within sixty (60) days of completing construction, the permittee shall submit "as-built" drawings for the forested wetland creation project to the DEP. Monitoring reports shall be submitted to the respective DEP Regional Office where the mitigation project(s) is(are) located at a frequency of every

six (6) months for the first two (2) years after mitigation site construction and annually for three (3) years thereafter.

1. 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 each site 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.

2. If the restoration sites and compensatory forest wetland enhancement sites have not achieved design objectives within the monitoring period, the permittee will undertake remedial work to assure establishment of functional wetland habitats.

FF. Restored and enhanced habitats shall be considered successful when they meet the design objectives.

GG. Wetland compensation construction shall occur prior to or concurrently with wetland impacts requiring compensation as authorized by this permit.

HH. Compensatory wetland mitigation shall be started and completed within one (1) growing season from the commencement of the activities authorized by this permit. Within thirty (30) days of completing the planting plan, the permittee shall submit revised plans to the respective DEP Regional Office if as-built conditions are significantly different from the original approved plans.

II. The permittee shall provide copies of the recorded deed restrictions or conservation easements for the compensatory wetland mitigation sites within 60) days after permit issuance. Time-stamped copies of the instruments shall be sent to the respective DEP Regional Office.

Horizontal Directional Drilling:

JJ. The permittee shall construct and operate the Horizontal Directional Drilling (HDD) crossings at wetlands, streams and floodways in accordance with Tables 2, 3, and 4 of the Joint Permit Application (Section F, Attachments, Environmental Assessment, Attachment 11, Resource Tables) in a manner to prevent a release of drilling fluid to "Regulated waters of this Commonwealth" (RWC). The permittee shall immediately notify the Department at 866-825-0208 in the event of an Inadvertent Return occurring, and immediately activate and implement the Pollution Prevention Control Plans (PPC Plans) including the HDD Inadvertent Return Contingency Plan (IRCP), Water Supply and Karst PPC Plans to prevent any impacts to RWC and other natural resources.

KK. The permittee shall take measures to avoid mine voids and utilities.

LL. The permittee shall visually monitor the ground surface and within RWC generally along the path of the Horizontal Directional Drilling while drilling operations are occurring. This monitoring shall include walking, wading and use of a boat, as necessary to effectively observe and monitor for any return to the surface during all RWC crossings. If loss of circulation of drilling fluid occurs or drilling fluid pressure is lost, the permittee shall immediately investigate the drilling pathway and general surrounding area for an inadvertent return. If an inadvertent return is discovered, then drilling shall immediately cease.

MM. Inadvertent returns that impact or discharge to streams, floodways or wetlands during the Horizontal Directional Drilling operations shall be remediated in compliance with the Inadvertent Return Contingency Plans. If clean-up operations differ from the submitted plans, prior approval from the respective DEP Regional Office will be necessary for any modifications to the Inadvertent Return Contingency Plan for additional mitigation.

NN. HDD additives which are certified for conformance with ANSI/NSF Standard 60 (Drinking Water Treatment Chemicals - Health Effects) are deemed acceptable to DEP, when used in the manner indicated in the certification of the additive. All conditions included as part of the additive's certification should be followed. A current listing of certified drilling fluids is maintained by NSF at http://www.nsf.org/Certified/PwsChemicals/Listings.asp?ProductFunction=Drilling+Fluid&. Use of drilling additives certified for conformance with ANSI/NSF Standard 60 does not relieve operators from the requirement to obtain the necessary permits to conduct HDD operations. Use of certified additives does not relieve the operator of liability should an inadvertent return or other pollution of the waters of the Commonwealth occur as a result of drilling operations.

Habitat Conservation Plans and Threatened and Endangered Species Protection:

OO. The permittee shall comply with all applicable provisions of the Habitat Conservation Plan submitted and approved by the U.S. Fish and Wildlife Service (USFWS), PA Game Commission (PGC), PA Fish and Boat Commission (PFBC) and PA Department of Conservation and Natural Resources (DCNR) to protect federal and state listed species. Provide a copy of the plan to the Department prior to initiation of any work under this permit.

PP. The permittee shall implement the approved Habitat Conservation Plan and in accordance with all PA Game Commission approvals for the Allegheny Woodrat (*Neotoma magister*). This includes no blasting or the use of herbicide on the project or in the vicinity of the project on PA DCNR lands as identified in the PGC clearance. Provide a copy of the plan to the Department prior to initiation of any work under this permit.

QQ. The permittee shall implement the Migratory Bird Conservation Plan approved by the USFWS. Provide a copy of the plan to the Department prior to initiation of any work under this permit.

RR. The permittee shall implement all Avoidance Measures identified by the jurisdictional resource agencies for any threatened or endangered species or species of special concern. (permit specific avoidance measures should be listed).

SS. The permittee shall implement the Avoidance Measures identified in Appendix A of the permit for all open trench wetland crossings in bog turtle (*Clemmys muhlenbergii*) counties identified by the USFWS as occupied, potentially occupied or adjacent habitats, unless otherwise specified by the USFWS.

TT. The permittee shall comply with all protocols set forth by the USFWS for protection of the Rusty Patch Bumble Bee.

UU. Prior to conducting any future maintenance activities on the pipeline or right of way which involves disturbance, the Permittee shall conduct a then current Pennsylvania Natural Diversity Inventory search, shall obtain clearance(s) for any species or resource where a potential impact is identified, provide the avoidance and mitigation plan to the Department prior to initiating such maintenance work and shall implement and adhere to all avoidance measures outlined in such clearance(s).

Seasonal Restrictions:

VV. The permittee shall not perform any in-stream work in waters listed by the PAFBC as trout stocked streams and their tributaries between March 1 and June 15 without the prior written approval from the Pennsylvania Fish & Boat Commission's Division of Environmental Services, 450 Robinson Lane, Bellefonte, PA 16823-9620; telephone 814.359.5147.

WW. The permittee shall not perform any in-stream work in waters listed by the Pennsylvania Fish and Boat Commission as Class A wild trout fishery streams and their tributaries between October 1 and April1 without the prior written approval of the Pennsylvania Fish & Boat Commission's Division of Environmental Services, 450 Robinson Lane, Bellefonte, PA 16823-9620; telephone 814.359.5147.

XX. The permittee shall not perform any in-stream work in waters listed by the Pennsylvania Fish and Boat Commission's other wild trout streams or their tributaries between October 1 and December 31 without the prior written approval of the Pennsylvania Fish and Boat Commission's Division of Environmental Services, 450 Robinson Lane, Bellefonte, PA 16823-9620; telephone 814.359.5147. (In addition to those listed in the application this special condition also applies to streams S-CJ2, S-CJ3, S-CJ4. (the specific streams listed are permit specific).

YY. Other seasonal restrictions stated in the various Habitat Conservation Plans shall be complied with unless a written variance is issued by the appropriate resource agency.

Miscellaneous:

ZZ. Maintenance mowing or herbicide spraying of wetlands is not authorized by this permit. The permittee shall place and maintain signs or other demarcation around the boundary of each wetland to clearly delineate the areas where this maintenance is not authorized. The permittee shall place the signs or other demarcations when all restoration work is completed and prior to permit termination.

AAA. This permit does not convey any real property rights or interests or authorization to trespass on privately-owned riparian land. By accepting this permit, the permittee certifies that he/she holds title, easement, right or other real interest in the riparian land. Any dispute over ownership of this land is solely a matter for private litigation.

BBB. The permittee may not commence construction activities on Pennsylvania Game Commission (PGC) lands without prior written approval from PGC.

CCC. Riprap and stone used throughout the project, including the construction of causeways and coffer dams, shall be free of fines and silts, or other non-erodible material.

DDD. All temporary water withdrawal intake structures and all appurtenant works shall be removed from the watercourse, body of water, floodway, and floodplains within sixty (60) days of initial placement, unless otherwise extended in writing by the Department.

EEE. Trench plugs shall be placed at each of the following locations:

1. At ten (10) feet from the top of each bank of a stream
2. At fifty (50) feet from the top of each bank of a stream
3. At ten (10) feet from the edge of a wetland
4. At fifty (50) feet from the edge of a wetland

FFF. Place a minimum of one (1) trench plug at a maximum spacing of 100 feet between trench plugs within a wetland. Wetland crossings less than fifty (50) feet do not require an internal trench plug.

GGG. If during excavation, a groundwater seep is encountered, a trench plug shall be placed at ten (10) feet from each side of the seep.

HHH. Any french drains installed as part of de-watering for construction activities shall be removed or otherwise rendered inoperable prior to final site restoration.

III. Water pumped from any construction area shall be diverted into a sediment trap, basin, or a filter bag discharging into an appropriate vegetated filter area to prevent sediment from being discharged into any waters of the Commonwealth.

JJJ. Open Trench Crossings: The permittee shall construct open trench pipeline crossings in dry conditions by constructing during periods of no water flow and/or by installing stream flow bypass systems (flumed or pumped) through the affected area.

1. Each crossing shall be conducted in an uninterrupted process in the shortest period of time possible. Impacts to RWC shall be avoided, to the extent practicable, and if not practicable, then minimized in accordance with the permittee's approved plans.

2. The permittee may cross dry channels, swales and ephemeral streams without the use of stream flow bypass systems if the channel has no flow and the stream crossing and stabilization can be completed in dry conditions and within twenty-four (24) hours. Standby sandbag dams and pumps shall be located on-site and installed in the event of precipitation resulting in channel flow.

KKK. The permittee shall cross intermittent and perennial streams through the use of trenchless methods (HDD or Direct Boring [DB]) or through the use of stream flow bypass systems. Bypass systems must stay in use until streambeds and banks are adequately stabilized. Downstream flow must be maintained during the construction.

LLL. Depth of Pipeline in Stream Bed: The permittee shall locate all pipelines under stream beds such that there will be a minimum of three feet of cover between the top of the pipe or encasement and the lowest point in the stream bed, unless the pipeline is in rock, where a minimum cover of one foot shall be provided.

MMM. Aids to Navigation Plan: The permittee shall implement the approved Aids to Navigation (ATON) Plan as received under the Fish and Boat Code, 30 Pa C.S. §§5121-5124, and 58 Pa Code Chapter 113.

NNN. This permit authorizes specific impacts to *RWC* that were specifically described in the permit applications and revisions. Any proposed changes regarding the specific impacts will require a permit modification.

OOO. Any additional impacts to *RWC*, such as temporary access roads, lay-down areas, staging areas, or temporary work spaces that have not been specifically identified in the permit application are not authorized by this permit.

PPP. No deviation in the construction methodology or project design that is shown on the approved drawings is authorized under this permit unless approved through an amendment by the Department.

QQQ. This permit does not relieve the permittee of the obligation of complying with all Federal, interstate compact, State laws, regulations and standards, and local ordinances applicable to the construction, operation or maintenance of the water obstruction or encroachment.

RRR. The permittee shall follow the measures specified in the Preparedness, Prevention, and Contingency Plan during construction.

SSS. The permittee shall maintain a copy of the Preparedness, Prevention, and Contingency Plan is on-site at all times during construction, train all staff to use and implement this plan, and have this plan available to provide at the request of any Department inspector.

I. Record of Decision

Has any portion of the regulated work already occurred? ( ) Yes (X) No

Initial Proposed Acreage to be Impacted 4.3 (ac.)

Final Wetland Area Impacted 1.3 (ac.)

Compensatory Mitigation PFO Wetland Area Replaced: minimum replacement 1:1 acre (statewide total)

Length of Channel Impacted 1,306 (linear feet) Length of Channel Replaced (N/A) (feet)

Area of Open Water Impacted 0.0 (ac.) Area of Open Water Replaced (N/A) (ac)

A. **Review of Application**:

This Record of Decision (ROD) is based on the review of the Delaware County Joint Permit Application (JPA) prepared by Tetra Tech on behalf of their client Sunoco Pipeline, L.P. (SPLP) for the Pennsylvania Pipeline Project (a.k.a., Mariner East 2). The applicant seeks a Water Obstruction and Encroachment Permit to conduct activities detailed in the project description. The overall project includes work in seventeen (17) counties. A specific JPA was prepared for each of the counties. The applicant submitted a JPA on August 17, 2015 which was determined to be incomplete on October 26, 2015. The applicant responded with general revisions to their JPA on December 8, 2015 but the JPA remained incomplete. Subsequently a revised JPA was submitted and determined to be complete on June 14, 2016. However, after review the JPA was deemed technically deficient on September 6, 2016. SPLP requested a time extension on October 31, 2016 to submit additional information. An extension was granted allowing supporting information to be submitted on or before December 7, 2016. SPLP submitted a revised entire JPA on December 6, 2016. DEP sent subsequent email comments to SPLP (between December 6, 2016 and February 2, 2017) requesting additional clarifications. Final response to these technical comments were received on February 7, 2017. In addition to the applicant's supplemental information, public comments have been accepted by the DEP beginning on June 25, 2016. These submittals and comments are available in the administrative record.

Project Description:

E23-524, Sunoco Pipeline, L.P, (SPLP), 535 Fritztown Road, Sinking Spring, PA 19608, Mariner East II Pennsylvania Pipeline Project, in Aston Township, Chester Township, Brookhaven Borough, Edgmont Township, Middletown Township, Thornbury Township and Upper Chichester Township, Delaware County, ACOE Philadelphia District. The proposed project starts at the intersection of E. Street Road and Middletown Road in Thornbury Township, PA, West Chester PA Quadrangle N: 39° 57` 1.35"; W: -75° 30` 38.10", and ends at Conchester Highway in Marcus Hook PA, Marcus Hook PA Quadrangle N: 39° 50` 38.60"; W: -75° 25` 4.55"W. The project consists of the installation and maintenance of approximately 11.7 miles long, of 20 inch and 16-inch pipeline and appurtenant structures. The proposed project impacts in Delaware County include a total of 62 linear feet of temporary impacts to 1 unnamed tributary to Chester Creek, and 1306 linear feet of permanent impacts to Chester Creek (TSF, MF), 13 unnamed tributaries to Chester Creek (TSF,MF), Chrome Run (TSF), Crum Run (TSF), 1 unnamed tributary to Crum Run (TSF), Rocky Run (HQ-CWF), and 4.028 acres of permanent floodway impacts, and 1.926 acres of temporary floodway impacts, and 0.455 acres of permanent impacts to Palustrine Emergent (PEM), Palustrine Forested (PFO) and Palustrine Scrub-Shrub (PSS) wetlands, and

0.830 acres of temporary impacts to PEM wetlands. No compensation is being proposed by the applicant for the proposed permanent project impacts in Chester County. The proposed project impacts in this permit application are associated with a proposed transmission pipeline project extending approximately 306 miles and 255 miles in Pennsylvania between Houston Borough, Washington County, PA and Marcus Hook Borough, Delaware County, PA.

Purpose and Need: SPLP has identified a shortage of natural gas liquids (NGL) transportation options. Natural gas liquids (NGL) are separated from the natural gas stream before it is shipped on the natural gas piping network. SPLP has identified a shortage of natural gas liquids (NGL) transportation options and proposes the Pennsylvania Pipeline Project in response to the identified demand. In addition, the proposed project will provide exit points along its route across Pennsylvania for the provision of what are described as desperately needed propane supplies to local Pennsylvania distributors for use as heating and/or cooking fuel by consumers in Pennsylvania and neighboring states. The proposed project will also allow butane to be shipped to local markets as a component of gasoline to ensure gasoline suppliers can meet seasonal vapor pressure restrictions.

Comprehensive Environmental Assessment - On December 5, 2016, SPLP submitted a Comprehensive Environmental Assessment (CPA) for Ch. 105 Water Obstruction and Encroachment Permit Activities. The purpose of the CPA is to ensure that the regulatory requirements related to the Environmental Assessment in Ch. 105 are met by permit applicants proposing project impacts to waters of the Commonwealth. Specifically, the following items were to be addressed:

1. Measures taken to avoid and minimize the overall project's impact on waters of the Commonwealth, to the maximum extent practicable. The submittal addresses this item and references application materials that apply to each requirement pursuant to 105.18a and associated referenced regulations including 105.13(e)(1)(vii-x), (2),(3), (g) and (j); and 105.15.
2. Specific measures taken to mitigate for impacts that could not be avoided or minimized. The submittal addresses this item and references application materials that apply to each requirement pursuant to 105.18a and associated referenced regulations including 105.14.
3. Overall consistency with Antidegradation. The submittal addresses consistency with State Antidegradation requirements contained in Chapters 93, 95, 102 and 105.
4. Address alternatives analysis, impacts analysis and mitigation measures in each County-specific application. This item is addressed within the corresponding section of the Record of Decision for each county specific Ch. 105 Joint Permit Application.

5. Assess the cumulative impact of the project and other existing and potential projects on wetland resources. The applicant must utilize due diligence when identifying these impacts. The submittal addresses this item through a stand-alone Cumulative Impacts Analysis which includes: A comprehensive evaluation of compliance that addresses each requirement in 105.18a; Impact Avoidance, Minimization and Mitigation Procedures; and Agency Coordination.

☐ Additional sheets attached.

B. Potential Project Impacts	YES	NO
1. Potential Threats to Life or Property	☐	☒
2. Potential Threats to Safe Navigation	☐	☒
3. Riparian Rights Above, Below or Adjacent to Project	☐	☒
4. Regimen and Ecology of		
a. Watercourse	☒	☐
b. Body of Water	☐	☒
5. National/State Natural Areas, Wildlife Sanctuary/Refuge	☐	☒
6. National/State/Local Park or Recreation Area	☒	☐
7. National/State/Local Cultural, Archaeological, or Historical Site	☐	☒
8. Public Water Supply	☒	☐
9. Non-compliance with Applicable laws	☐	☒
10. Non-water Dependent Project	☐	☒
11. Future Development Potential	☐	☒
12. State Water Plan Program Area	☐	☒
13. Coastal Zone Management Program Area	☐	☒
14. Scenic River Corridor (Status ( ) _____)	☐	☒
15. Chapter 93 Classification ( ) _____)	☒	☐
a. Exceptional Value Watershed	☐	☒
b. High Quality Watershed	☒	☐
c. Antidegradation Consistency	☒	☐
16. Secondary Impacts	☒	☐
17. Cumulative Impacts (temporary and permanent impacts)	☒	☐
18. Wetlands		

a. Vegetation (NWI Designation - ( ) ☒ ☐

b. Soils (NRCS Designation - ( ) ☒ ☐

c. Hydrology ( ) ☒ ☐

19. Exceptional Value Wetlands ☒ ☐

20. Stocked Trout Stream ☒ ☐

21 Wild Trout Stream ☒ ☐

22. Threatened or Endangered Species ☒ ☐

23. Other Species of Special Concern (Migratory Birds) ☒ ☐

YES NO

C. Record of Decision for Project Impacts (Any adverse findings must be documented in the Record of Decision.)

1. Exceptional Value Wetlands - (check the criteria that makes the wetland EV):

☐ natural or wild areas ☐ wild or scenic river ☒ wild trout stream

☒ public or private water supply ☐ EV waters ☐ threatened or endangered species habitat

☐ threatened or endangered species (results of PNDI search)

a. Describe the primary function(s) or value(s) of the wetland: The proposed project will cross 9 wetlands in total in Delaware County. Of these, 3 wetlands were determined to be Exceptional Value (EV). Wetland identified as C23 has been determined to be EV due to the proximity to a Trout Natural Population (TSP) stream (Rocky Run, identified as SC-44). C23 will be crossed by means of open trench. The remaining EV wetlands, identified as C10 and I1, have been determined to be EV the proximity to a known Public Water Supply. The wetlands will be crossed by HDD methods.

- SPLP proposed to HDD / Bore two of the EV wetlands to avoid surface disturbances in these areas.
- A total of 0.297 acres of permanent and 0 acres of temporary impacts to the EV wetlands.
- All EV wetlands will be restored to meet wetland criteria, there will be no permanent loss of wetland area (i.e. no fill).

Wetland functions and values for EV wetlands are as follows: Wetland I1 - Groundwater Recharge/Discharge, Floodflow Alteration; Wetland C23 - Groundwater Recharge/Discharge, Floodflow Alteration, Fish and Shellfish habitat, Sediment / Toxicant

Retention, and Nutrient Removal; Wetland C10 – Groundwater Recharge/Discharge, Floodflow Alteration, Sediment / toxicant retention, nutrient removal, sediment / shoreline stabilization, and wildlife habitat, and Sediment/Toxicant Retention, Production Export.

b. Will the project have an adverse impact on the wetlands functions or values? ☐ ☒

Explain: The HDD construction method will, if conducted properly, protect the EV wetlands from adverse impacts. The applicant will institute and implement ABACT, and its IR, and PCC Plans, along with Restoration Measures and Compensatory Mitigation Plans, to prevent and minimize impacts, and mitigate for unavoidable impacts. The HDD method was determined by the applicant to be infeasible for crossing C10 and I1. The linear length of crossing at C10 is 51 LF and for I1 is 200 LF.

For the overall location and siting of the project, SPLP has considered and analyzed three alternative routings. Although alternative siting and location of the overall pipeline were determined by SPLP to not to be practicable. DEP has required SPLP to undertake numerous measures to avoid adverse impacts to stream and wetlands resources, to the extent practicable, to minimize impacts on streams and wetlands, where avoidance is not practicable, and mitigate any such impacts. These measures include: limiting the areal extent of disturbed areas during construction; requiring SPLP to restore wetlands to their original contours and drainage patterns, protect spring seeps, utilize trench plugs, avoid soil compaction, and replace excavated hydric soils to their original location and stratum, including mucky soils; restoring by enhancement of Palustrine Forested (PFO) wetland resources to compensate for the cumulative functional wetlands losses.

DEP is also requiring, as an additional anti-degradation measure, that SPLP comply with its Habitat Conservation Plans (HCP). Implementation of the HCP will protect the habitat of threatened and endangered (T&E) species that may inhabit the wetlands. Because EV wetland status in the overall project area is based upon the wetlands potentially serving as a habitat for the threatened and endangered species (25 Pa. Code § 105.17(1)(i)), implementation of the HCPs is sufficient to address the reason for the EV classification of the wetlands. It should be noted that for the three EV wetlands associated with the Delaware County portion of the project, none have the EV designation due to T&E or species of concern (see above for functions and values of EV wetlands).

If Yes, has applicant affirmatively demonstrated that project is necessary to abate a substantial threat to the public health and safety?	☐	☐
Has applicant demonstrated that requirements of Section 105.18a(b)(2)-(7) are met?	☒	☐

1. *The water obstruction or encroachment will not have an adverse impact on the wetland (§105.18a(a)(1))*

The HDD construction method will, if conducted properly, protect the EV wetlands from adverse impacts. The applicant will institute and implement ABACT, IR, and PPC Plans along with Restoration Measures and Compensatory Mitigation, to prevent and minimize impacts, and mitigate for unavoidable impacts. The HDD method was determined by the applicant to be infeasible for crossing C-23 (PEM). The linear length of crossing at C-23 is 243 LF.

For the overall location and siting of the project, SPLP has considered and analyzed three alternative routings. Although alternative siting and location of the overall pipeline is not practicable, DEP has required SPLP to undertake numerous measures to avoid adverse impacts to stream and wetlands resources, to the extent practicable, to minimize impacts on streams and wetlands, where avoidance is not practicable, and mitigate any such impacts. These measures include: limiting the areal extent of disturbed areas during construction; requiring SPLP to restore wetlands to their original contours and drainage patterns, protect spring seeps, utilize trench plugs, avoid soil compaction, and replace excavated hydric soils to their original location and stratum, including mucky soils; restoring wetland vegetation; restoring stream channels; and requiring function and value replacement by enhancement of Palustrine Forested (PFO) wetland resources to compensate for functional wetlands losses.

1. *The project is water dependent. ((§105.18a(a)(2))*

The project is water dependent because it is a linear crossing and crossing of water resources in the landscape is inevitable.

2. *There is no practicable alternative to the proposed project that would not involve a wetland or that would have less effect on the wetland, and that would not have other significant adverse effects on the environment. ((§105.18a(a)(3))*

Section 105.18a(a)(3) states that, "An alternative is practicable if it is available and capable of being carried out after taking into consideration construction cost, existing technology and

logistics." The route of the pipeline route has been determined to be the most feasible while keeping the project viable. Further, no permanent impacts of EV wetlands is proposed, as the impacts are limited to being temporary in nature.

3. *The project will not cause or contribute to a violation of an applicable State water quality standard. ((§105.18a(a)(4))*

SPLP's implementation of ABACT, and its IR, and PPC Plans, will protect water quality, when coupled with implementation of Restoration Measures and Compensatory Mitigation. In addition, 25 Pa. Code § 105.18a was incorporated into the DEP's federally-approved water quality standards program on February 12, 1994. See 24 Pa.B. 922. The DEP assures compliance with water quality standards by requiring applicants proposing impacts in wetlands to take measures to maintain and protect these wetland resources. Moreover, 25 Pa. Code § 93.4c(a)(2), also incorporated into the Commonwealth's federally-approved water quality standards program, provides that the DEP will assure protection of Federal and Pennsylvania endangered and threatened species and their critical habitat in or on a surface water, including wetlands. The general and special conditions of this Chapter 105 Permit for the protection of threatened and endangered species and habitat, along with those in the Water Quality Certification, and the applicant's implementation of the HCP, will assure protection of endangered and threatened species and their critical habitat and meet water quality standards.

4. *The project will not cause or contribute to pollution of groundwater or surface water resources or diminution of resources sufficient to interfere with their use. ((§105.18a(a)(5))*

SPLP's implementation of ABACT and its IR, and PPC Plans, will protect groundwater and surface waters, including EV wetlands, when coupled with implementation of Restoration Measures and Compensatory Mitigation.

5. *The cumulative effect of this project and other projects will not result in the impairment of the Commonwealth's exceptional value wetland resource. ((§105.18a(a)(6))*

The DEP is not aware of any additional projects within the ROW that would result in a cumulative impact to EV wetlands.

7. *The applicant shall replace affected wetlands in accordance with 105.20a (relating to wetland replacement criteria). ((§105.18a(a)(5))*

Construction of the pipeline will result in 0.0 acres of permanent conversion impacts to palustrine forested (PFO) EV wetlands for the Delaware County portion of this project.

However, compensatory mitigation is proposed to off-set cumulative impacts associated with the state-wide project.

c. Is project water-dependent? (A project is water dependent when the project requires access or proximity to or siting within the wetland or waters to fulfill the basic purpose of the project.) ☒ ☐

Explain: The project is water dependent because it is a linear crossing and crossing of water resources in the landscape is inevitable.

d. Is project the least environmentally damaging alternative? ☒ ☐

List alternatives considered and provide rationale that the least damaging alternative has been selected.

The applicant analyzed several different route locations and designs. See Alternatives Analysis, Section 3.0 – 3.4.

	YES	NO
e. Will project violate a State water quality standard?	☐	☒

Explain: SPLP's implementation of ABACT, and its IR, and PPC Plans, will protect water quality, when coupled with implementation of Restoration Measures and Compensatory Mitigation. In addition, 25 Pa. Code § 105.18a was incorporated into the DEP's federally-approved water quality standards program on February 12, 1994. *See* 24 Pa.B. 922. The DEP assures compliance with water quality standards by requiring applicants proposing impacts in wetlands to take measures to maintain and protect these wetland resources. Moreover, 25 Pa. Code § 93.4c(a)(2), also incorporated into the Commonwealth's federally-approved water quality standards program, provides that the DEP will assure protection of Federal and Pennsylvania endangered and threatened species and their critical habitat in or on a surface water, including wetlands. The general and special conditions of this Chapter 105 Permit for the protection of threatened and endangered species and habitat, along with those in the Water Quality Certification, and the applicant's implementation of the HCP's, will assure protection of endangered and threatened species and their critical habitat and meet water quality standards.

f. Will project contribute to the pollution of groundwater or surface water or diminution of resources sufficient to interfere with their uses? ☐ ☒

Explain: SPLP's implementation of their Inadvertent Release Plan, Preparedness, Prevention and Contingency Plan, along with their proposed wetland restoration measures and

compensatory wetland mitigation, will protect water quality. In addition, 25 Pa. Code § 105.18a was incorporated into the Department's federally-approved water quality standards program on February 12, 1994. *See* 24 Pa.B. 922. The DEP assures compliance with water quality standards by requiring applicants proposing impacts in wetlands to take measures to maintain and protect these wetland resources. Moreover, 25 Pa. Code § 93.4c(a)(2), also incorporated into the Commonwealth's federally-approved water quality standards program, provides that the DEP will assure protection of Federal and Pennsylvania endangered and threatened species and their critical habitat in or on a surface water, including wetlands. The general and special conditions of this Chapter 105 Permit for the protection of threatened and endangered species and habitat, along with those in the Water Quality Certification, and the applicant's implementation of their incorporated habitat conservation plans will assure protection of endangered and threatened species and their critical habitat and meet water quality standards.

g. Will the cumulative effect of this project and other projects result in impairment to exceptional value wetland resources? ☐ ☒

Explain: The DEP is not aware of any additional projects within the ROW that would result in a cumulative impact to EV wetlands.

h. Explain how wetlands have been replaced in accordance with 105.20a and list which compensatory replacement method was used.

Explain and List: Construction of the pipeline will result in 0.0 acres of permanent impacts to palustrine forested (PFO) EV wetlands due to the conversion to palustrine emergent marsh (PEM). As such, no functional change will occur in wetlands is anticipated. DEP has required an enhancement of forested wetland as Compensatory Mitigation to compensate for the cumulative functional loss of wetlands throughout the state-wide project. Additionally, impacted wetlands shall be restored; SPLP must implement Restoration Measures.

2. Other Wetlands

a. Describe the primary function(s) or value(s) of the wetland: Groundwater Recharge/Discharge, Floodflow Alteration, Sediment/Toxicant Retention, Production Export, Nutrient Removal, and Wildlife Habitat.

Explain: Permanent ROW impacts total 0.455 acre and temporary impacts total 0.830 acre for the 11.5 miles of construction ROW located in Delaware County. These impacts include no cover type conversion in forested wetlands. As indicated in Attachment B of the application, wetlands affected by the Project lack several of the 13 functions and values taken into

consideration and have been determined to be low value. Impacts are not only small-scale, but also are minimal in nature with respect to functions and values. Impacts to functions and values will be temporary, especially given restoration will occur immediately following construction and revegetation of wetlands will occur within the first growing season.

b. Will the project have an adverse impact on the wetland's functions or values? ☐ ☒

Explain: All impacts to wetland functions and values are anticipated to be temporary in nature, and therefore do not represent an adverse impact. All wetland areas temporarily impacted by the proposed project will be restored to original conditions immediately following construction and the revegetation of temporarily impacted wetlands will occur within the first growing season. No permanent adverse impacts to any wetland's functions or values are expected.

c. Will the project have a significant adverse impact on the wetland's functions or values? ☐ ☒

Explain: All impacts to wetland functions and values are anticipated to be temporary in nature, and therefore do not represent a significant adverse impact. All wetland areas temporarily impacted by the proposed project will be restored to original conditions immediately following construction and the revegetation of temporarily impacted wetlands will occur within the first growing season. No permanent adverse impacts to any wetland's functions or values are expected.

If Yes, has applicant affirmatively demonstrated that project is necessary to abate a substantial threat to the public health and safety? ☐ ☐

d. Have adverse impacts been avoided or reduced to maximum extent possible? ☒ ☐

Explain: As stated in SPLP's Impact Avoidance, Minimization, and Mitigation Procedures (EA Enclosure E-Part 4) included in the application, efforts have been made to avoid or reduce adverse impacts to wetlands. In some cases, impacts to wetlands have been eliminated through the proposed use of trenchless pipeline installation methods. Timber mats will be used for travel lanes and equipment work through wetlands. Where possible, wetland vegetation will be cut at ground level, leaving the existing root system in place. Wetland topsoil will be segregated to be used for restoration following construction. Trench plugs will be utilized at all open trench wetland crossing locations. Disturbed wetlands will be restored to the original contours, surface

flows and vegetative cover type where possible, contours and surface flow. Wetland restoration details can be found in Attachment 12- E & S Plans.

	YES	NO
e. Is project the least environmentally damaging alternative?	☒	☐

List alternatives considered and provide rationale that the least damaging alternative has been selected.

SPLP proposed several alternatives for its pipeline route. SPLP has undertaken measures to avoid wetland impacts, to the extent practicable, and to minimize impacts where avoidance is not feasible. Further, SPLP is required to restore impacted wetlands, as well as to provide compensatory mitigation by creating PFO wetland resources will be enhanced for cumulative (state-wide) functional wetlands losses.

f. Will project violate a State water quality standard?

Explain: SPLP's implementation of ABACT, IR, and PPC Plans, coupled with Restoration Measures and Compensatory Mitigation, will protect water quality. In addition, 25 Pa. Code § 105.18a was incorporated into the DEP's federally-approved water quality standards program on February 12, 1994. *See* 24 Pa.B. 922. The DEP assures compliance with water quality standards by requiring applicants proposing impacts in wetlands to take measures to maintain and protect these wetland resources. Moreover, 25 Pa. Code § 93.4c(a)(2), also incorporated into the Commonwealth's federally-approved water quality standards program, provides that the DEP will assure protection of Federal and Pennsylvania endangered and threatened species and their critical habitat in or on a surface water, including wetlands. The general and special conditions of this Chapter 105 Permit for the protection of threatened and endangered species and habitat, along with those in the Water Quality Certification, and the applicant's implementation of the HCP, will assure protection of endangered and threatened species and their critical habitat and meet water quality standards.

g. Will project contribute to the pollution of groundwater or surface water or diminution of resources sufficient to interfere with their uses?	☒	☐

Explain: SPLP's implementation of ABACT and its ESCP, IR, and PPC Plans, will protect groundwater and surface waters, including EV wetlands, when coupled with implementation of Restoration Measures and Compensatory Mitigation.

h. Will the cumulative effect of this project and other projects result in impairment to wetland resources? ☐ ☒

Explain: SPLP has included a project-wide Cumulative Impacts Assessment in their application. The assessment concludes that the proposed project, along with the consideration of other related and unrelated SPLP projects will not result in a significant impairment to wetland resources of the Commonwealth. While a cover type conversion of 0.405 acre forested wetlands to emergent wetlands is proposed, SPLP proposes to mitigate for this conversion impact by enhancing portions of offsite emergent wetlands with forested sections.

i. Explain how wetlands have been replaced in accordance with 105.20a and list which compensatory replacement method was used.

Explain and List: Wetlands will be restored in the same location and areal extent following pipeline installation. As stated above, SPLP proposes to offset the proposed project-wide forested wetland conversion impacts by enhancing offsite emergent wetlands to include sections of forested wetlands.

3. Watercourses (check all that apply)

☒ TSF ☒ HQ ☒ CWF ☐ Wild Trout ☐ EV ☒ WWF

a. Name of watercourse: See attached Impacts Chart (Attachment 1). Of the 32 streams in Delaware County, 5 are designated as WWF / MF; 2 as HQ-CWF / MF; 25 as TSF / MF; 21 TSF; and 2 as Natural Trout Reproduction.

b. Will the project have an impact on the following values of the environment?

Natural	☒	☐
Scenic	☐	☒
Historic	☐	☒
Aesthetic	☐	☒

	YES	NO
c. Have impacts been avoided and minimized?	☒	☐

Explain: The proposed project crosses thirty-two (32) watercourses in Delaware County, detailed in the attached Impacts Chart (Attachment 1), including 14 perennial streams and 18 intermittent streams. Two of these streams as designated as Trout Natural Reproduction and 21 streams are designated as both Approved Trout Water and Stocked Trout Streams by the PA Fish and Boat Commission.

The project directly impacts waters of five (5) streams in Delaware County that have a designated use under Chapter 93 as warm water fishery, migratory fishery (WWF, MF); two (2) streams are designated as high quality cold water fishery, migratory fishery (HQ-CWF, MF), and twenty-five (25) streams have a designated use for trout stocked fishery, migratory fishery (TSF, MF).

Construction and operation of the project is not anticipated to alter the designated use of the streams crossed in Delaware County or diminish stream habitat. All timing restrictions associated with trout streams will be adhered to, per Special Conditions (detailed in application Attachment 6, Tab 6C).

To minimize stream impacts, the applicant proposed to cross 16 streams in Delaware county via HDD / Bore crossing method. One of these streams is classified under Chapter 93 as High Quality (HQ). HDD / Bore crossing eliminates all temporary impacts normally associated with open cut / trench, but there is a concern for inadvertent return of drilling fluids into the stream. To address this, the applicant has prepared an Inadvertent Return Assessment, Preparedness, Prevention, and Contingency Plan for the project, as detailed in Attachment 12, Tab C. This plan has been incorporated into Special Conditions.

Streams not utilizing HDD / Bore crossing methods will be crossed by open-cut. Temporary open-cut stream impacts are proposed to be restored according to Section 11, Enclosure E Part 4 (Impact Avoidance, Minimization, and Mitigation Procedures). Native stream bed material will be separated from other materials for reinstallation after pipe installation. In areas where the stream will not be stable using native materials, riprap stabilization will be utilized. Native material will then be placed as top cover for 6-inches covering the proposed riprap. All riparian areas will be re-planted with native species as shown in the Erosion and Sediment (E&S) Control Plans. Impacts in these areas have been minimized to the maximum extent possible given

project restraints, while allowing safe installation of the pipelines (see Attachment 11, Enclosure E, Part 4 for specifics).

All streams temporarily impacted and restored will be monitored per the approved monitoring plan.

d. Is project the least environmentally damaging alternative?

List alternatives considered and provide rationale that the Least damaging alternative has been selected.

SPLP has considered major and minor route alternatives in their consideration of options available for the proposed project. From the start of the route selection process, SPLP has attempted to co-locate the proposed pipelines within existing ROW in an effort to minimize additional environmental impacts. Based on the linear nature of the proposed project, complete avoidance of streams is not practicable. Where determined to be feasible, a trenchless construction method was selected for stream crossings. Where streams will be crossed with an open trench, native stream bed material will be stockpiled for reuse during stream restoration. Dry crossing methods will be utilized to minimize downstream sedimentation. Stabilized temporary stream crossings will be used for equipment movement across all stream. A detailed discussion of alternatives considered can be found in the Alternatives Analysis, Section 3.0 – 3.4.

e. Has the applicant demonstrated that the public benefits of the proposed project out weigh the harm to the environment? ☒ ☐
Public benefits include:

1. Correction and prevention of pollution.
2. Protection of public health and safety.
3. Reduction of flood damages.
4. Development of energy resources.
5. Creation or preservation of significant employment.
6. Provision of public utility services.
7. Other essential social and economic development which benefits a substantial portion of the public.

Explain: (4) and (6). The project includes the construction and maintenance of two parallel natural gas liquid pipelines within an approximately 306.8-mile, 50-fooot-wide right-of-way (ROW) from Houston, Washington County, Pennsylvania to Sunoco Pipeline L.P.'s (SPLP's) Marcus Hook facility in Delaware County, Pennsylvania. A 20-inch diameter pipeline would be installed within the ROW from Houston to Marcus Hook (306.8 miles)

and a second, 16-inch diameter pipeline, would also be installed in the same ROW from SPLP's Delmont Station in Westmoreland County to the Marcus Hook facility (for approximately 255.8 miles). This will result in the above mentioned public benefits while keeping all impacts to temporary in nature.

f. Is the project located in or within 100 feet of a watercourse or body of water that has been designated as a National or State wild or scenic river? ☐ ☒

g. Is the project located in or within 100 feet of a Federal wilderness area? ☐ ☒

h. Is the project located within an area which serves as a habitat of a threatened or endangered species? ☒ ☐

i. Is the project located in waters classified as exceptional value in Chapter 93? ☐ ☒

	YES	NO
j. If yes to any "f" thru "i", has the applicant demonstrated that the project will not have an adverse impact upon the public natural resource?	☒	☐

PNDI conflicts have been resolved by the incorporation of the following Conservation Plans being implanted:

U.S. Fish and Wildlife Service: USFWS conflicts (bog turtle, Indiana bat), resolved by incorporation of Conservation Plan approved by UWFWS by letter dated 10/31/2016.

Pennsylvania Fish and Boat Commission: PFBC conflict (red belly turtle) resolved by incorporation of Habitat Conservation Plan approved by PFBC on 10/26/2015.

D. Sources Utilized for Review

1. Quad Sheet (__) (N) (__) (W)	☐	☒
2. National Wetlands Inventory Map	☒	☐
3. Special Protection Watersheds Map	☒	☐
4. Scenic Rivers Candidates Map	☐	☒
5. Coastal Zone Management Map	☒	☐
6. County Soil Survey	☐	☒
7. P.N.D.I. (Search Area (____) ac.)	☒	☐
8. State Water Plan	☒	☐
9. Other Agencies' Reviews (See E)	☒	☐
10. Environmental Review Committee (See F)	☐	☒
11. Other (_____)	☐	☐
12. Site Inspection (date) _____ (date)	☐	☒
13. Jurisdictional Determination from ACOE	☐	☒
14. Applicants Environmental Assessment	☒	☐

E. Other Agencies' Comments

	Recommendations			
	Approve	***Approve w/Conditions**	****Deny**	**No Comments**
1. Pennsylvania Fish & Boat Commission	☐	☒	☐	☐
2. Pennsylvania Game Commission	☒	☐	☐	☐
3. Pennsylvania Historical & Museum Commission	☐	☐	☐	☐
4. U.S. Fish & Wildlife Service	☐	☒	☐	☐
5. U.S. Army Corps of Engineers	☐	☐	☐	☒
6. National Marine Fisheries	☐	☐	☐	☒
7. Environmental Protection Agency	☐	☐	☐	☒
8. County Conservation District	☐	☐	☐	☒
9. Other __DCNR_____	☐	☒	☐	☐

* Provide explanation of how agency comments were addressed, and attach letters, memos, etc.:

U.S. Fish and Wildlife Service: USFWS conflicts (bog turtle, Indiana bat), resolved by incorporation of Conservation Plan approved by UWFWS by letter dated 10/31/2016.

Pennsylvania Fish and Boat Commission: PFBC conflict (red belly turtle) resolved by incorporation of Conservation Plan approved by PFBC on 10/26/2015.

PFBC – Division of Environmental Services (DES) - recommended the following special condition for open cut crossings of Stream S-C44 (Rocky Run) – "Since this stream is a wild trout stream, no work shall be done in the stream channel between October 1 and December 31."

PFBC DES also recommends the following special condition for open cut crossings of the UNT to Chester Creek – "The UNT to Chester Creek (identified as S-I1, S-I2, S-I6, S-15, and S-H34) within the project area have a protected water uses for trout stocking, no work shall be done in the stream channel between March 1 and June 15 without the prior written approval of the FBC (814.359-5115)."

PA Game Commission (PGC) - Potential impacts identified and resolved for all counties. No specific concerns were identified for the Delaware County portion of the overall project.

PA Department of Conservation and Natural Resources (DCNR) - Potential impacts identified and resolved for all counties. No specific concerns were identified for the Delaware County portion of the overall project.

PHMC – Final resolution of potential historic property impacts have not yet been received for this project. The project requires a federal permit, and as such potential impacts to historic properties will need to be resolved prior to the federal permit issuance. The Delaware County permit will also include a Special Condition stipulating that SPLP shall protect and promptly report any archeological artifacts discovered during its project to the Bureau for Historical Preservation, Historical and Museum Commission.

County Conservation District (CCD) - DEP will issue an individual Chapter 102 ESCGP-2 Permit for Earth Disturbance Associated with Oil and Gas Exploration, Production, Processing or Treatment issued pursuant to Pennsylvania's Clean Streams Law and Storm Water Management Act (32 P.S. §§ 680.1-680.17) and all applicable implementing regulations (including 25 Pa. Code Chapter 102) .

ACOE – ACOE will issue any federal authorizations needed.

** If "Deny" is checked, provide response to agency recommendation:

No deny checked.

F. Environmental Review Committee Comments Date Presented ( )

( )

☐ Minutes attached Do minutes accurately reflect discussion? ☐ Yes ☐ No

G. Attach Meeting Minutes if available or provide a Summary of Preapplication Meeting - Include dates and attendees

( )

ABACT Antidegradation Best Available Combination of Technologies
APE Area of Potential Effect(s)
ASME American Society of Mechanical Engineers
ATW Approved Trout Waters
ATWS Additional Temporary Workspace
BDA Biological Diversity Area
CA Crossing Area
CAB Conventional Auger Boring (jack and bore)
CIA Cumulative Impact Analysis
CIAA Cumulative Impact Assessment Area
CNHI County Natural Heritage Inventory
CRGIS Cultural Resources Geo Information System
CROW Construction Right-of-way
EFH Essential Fish habitat
IBA Important Bird Area
IR Inadvertent Return
HDD Horizontal Directional Drilling
LCA Landscape Conservation Area
MBTA Migratory Bird Treaty Act
ME1 Mariner East One
ME2 Mariner East Two
MOC Management of Change (change the baseline route alternatives to increase avoidance)
N No (not technical feasible)
NHA Natural Heritage Area
NHL National Historic Landmark
NHPA National Historic Preservation Act
NRHP National Register of Historic Places
P Potentially (potentially technical feasible)
PAGWIS DCNR's Groundwater Database
PEM Palustrine Emergent Wetland
PFO Palustrine Forested Wetland
PHMSA Pipeline and Hazardous Material Safety Administration (USDOT)
PPP Pennsylvania Pipeline Project (aka Mariner Two
PSS Palustrine Shrub-scrub Wetland
PPC Pollution Prevention and Contingency Plan
S Stream
SA Stream Area
SGL State Game Land
SHPO State Historic Preservation Office (=PHMC)
STS Stocked Trout Stream
TA Trenchless Area
TCFA Trenchless construction feasibility analysis
TFA Trenchless Feasibility Assessment
TNR Trout Natural Reproduction
USACOE Army Corps of Engineers
W Wetland
WR Water Withdrawal Point
Y Yes (technically feasible)

Table 1. Fee Calculation Summary for the Pennsylvania Pipeline Project (PPP) – Delaware County – 01/30/2017

Crossing ID[1]	Resources	Permanent Impacts area (acre)	Temporary Impact area (acre)
1	S-B36	0.123	0.046
2	S-B37	0.545	0.319
3	S-B38		
4	S-B39		
5	S-B51	0.020	-
6	S-B52		
7	S-B53		
8	S-B54		
9	S-B55		
10	S-B56	0.006	0.100
11	S-B57		
12	S-C43	0.117	0.083
13	C21	0.001	-
14	S-C42	0.012	-
15	S-C39	0.009	-
16	S-C40		
17	S-C41		
18	S-C44	0.387	0.082
19	S-C45		
20	C23	0.276	-
21	S-C26	0.008	-
22	S-C24	0.011	-
23	S-C25		
24	S-C23	0.013	0.004
25	C10	0.007	-
26	S-C15	0.829	0.099
27	S-C16		
28	S-C17		
29	S-C18		
30	S-C19		
31	S-C20		
32	S-C21		
33	S-C22		
34	I1	0.014	-
35	S-I1	0.892	0.704
36	S-I2		
37	S-I3		
38	S-I4		
39	S-I5	0.196	0.119
40	S-I6		
41	S-H29	0.174	0.224
42	S-H28	0.151	0.184
43	S-H27	0.148	0.205
44	S-H35	0.175	0.093
45	S-H36		
46	S-H34	0.190	0.151
47	S-CS6		
48	S-H37	0.244	0.030
49	S-H38		
50	S-H39*	-	-
51	S-H40	0.188	-
52	S-H41		
53	S-H42*	-	-
54	S-H43	0.102	-
55	S-H44*	-	-
56	S-H47*	-	-
57	H41	0.001	-
58	I16	0.024	-
59	S-I17*	-	-
60	S-I19*		
61	S-I20*		
62	S-I18	0.008	-
63	BA5	0.001	-
64	BA6	0.002	-
65	I5	0.129	0.830
66	S-I7*	-	-
	TOTAL AREA[2]	5.003	3.273
	IMPACT FEES[3]	$40,800	$13,200
	Administrative Fees[3]		$1,750
	TOTAL FEES		**$55,750**

Notes:

[1] Crossing ID is the sequential resource crossing from west to east. Some resources are grouped due to shared Chapter 105 Floodway areas.

[2] Total Area includes wetland impacts, Chapter 105 Floodway impacts, and Chapter 106 Floodplain Fringe impacts.

[3] Fees include the rates listed in the Chapter 105 Fee Calculation Sheet of $8,000 per acre of permanent impact, $4,000 per acre of temporary impact, and a $1,750 administrative fee. Acreages of impact presented in "Total Area" have been rounded up to the next tenth of an acre.

[4] All application fees have been previously paid unless otherwise indicated.

*PADEP-Waived stream impacts are not included in impact fee calculation

Table 3. Waterbody Impact Summary for the Pennsylvania Pipeline Project (PPP) – Delaware County – 01/30/2017

Stream ID	Stream Name	Coordinates	Flow Regime[1]	Bank to Bank Width (feet)[2]	Length of Centerline Stream Crossing at HDD/Bore[3]	Stream Disturbance Length in ROW (feet)[4]			Crossing Method[5,6]	Stream Permanent Impact (square feet)[7, 8]	Stream Temporary Impact (square feet)[7, 9]	PADEP Permanent Floodway Impact (acre)[9]	PADEP Temporary Floodway Disturbance (acre)[9]	Ch. 93 Designated Use[10]	PAFBC Stream Designation[11]	Site Plan/E&S Plan/HDD Plan Sheet Number	Permit[12]	USACE District	USACE Section 10/404 Activity	Fee Crossing Reference Number
						Perm	*Temp*	Total												
S-B36	UNT to Chester Creek	39.9437, -75.5020	Ephemeral	4	-	*29*	-	29	Dry Crossing	116	-	0.123	0.046	Drains to TSF, MF	Drains to ATW, STS	3 / ES-6.03	Individual	Philadelphia	Activity in WOUS	1
S-B37	UNT to Chester Creek	39.9421, -75.4982	Ephemeral	6	-	*289*	-	289	Dry Crossing	1,734	-	0.545	0.319	Drains to TSF, MF	Drains to ATW, STS	4 / ES-6.03, 6.04 S-B38 (A&B)	Individual	Philadelphia	Activity in WOUS	2
S-B38	UNT to Chester Creek	39.9418, -75.4974	Perennial	15	-	*54*	-	54	Dry Crossing	810	-			Drains to TSF, MF	Drains to ATW, STS	4 / ES-6.03, 6.04 S-B38 (A&B)	Individual	Philadelphia	Activity in WOUS	3
S-B39	UNT to Chester Creek	39.9421 -75.4972	Ephemeral	2	-	-	-	-	Floodway Only	-	-			Drains to TSF, MF	Drains to ATW, STS	4 / ES-6.04 S-B38 (A&B)	Individual	Philadelphia	Non-jurisdictional	4
S-B51	UNT to Chester Creek	39.9407 -75.4945	Ephemeral	1	n/a	-	-	-	HDD Floodway	-	-	0.020	-	Drains to TSF, MF	Drains to ATW, STS	5 / ES-6.04 PA-DE-0016.0000-RD	Individual	Philadelphia	Non-jurisdictional	5
S-B52	UNT to Chester Creek	39.9408, -75.4943	Intermittent	1.5	1.5	-	-	-	HDD	4.5	-			Drains to TSF, MF	Drains to ATW, STS	5 / ES-6.04 PA-DE-0016.0000-RD	Individual	Philadelphia	Non-jurisdictional	6
S-B53	UNT to Chester Creek	39.9407 -75.4940	Intermittent	2	n/a	-	-	-	HDD Floodway	-	-			Drains to TSF, MF	Drains to ATW, STS	5 / ES-6.04 PA-DE-0016.0000-RD	Individual	Philadelphia	Non-jurisdictional	7
S-B54	UNT to Chester Creek	39.9405, -75.4942	Perennial	2	2	-	-	-	HDD	6	-			Drains to TSF, MF	Drains to ATW, STS	5 / ES-6.04 PA-DE-0016.0000-RD & -16	Individual	Philadelphia	Non-jurisdictional	8
S-B55	UNT to Chester Creek	39.9405, -75.4947	Ephemeral	2	2	-	-	-	HDD	6	-			Drains to TSF, MF	Drains to ATW, STS	5 / ES-6.04 PA-DE-0016.0000-RD-16	Individual	Philadelphia	Non-jurisdictional	9
S-B56	UNT to Chester Creek	39.9401 -75.4904	Intermittent	4	-	-	-	-	Floodway Only	-	-	0.006	0.100	Drains to TSF, MF	Drains to ATW, STS	6 / ES-6.05	Individual	Philadelphia	Non-jurisdictional	10
S-B57	UNT to Chester Creek	39.9402 -75.4906	Ephemeral	1	-	-	-	-	Floodway Only	-	-			Drains to TSF, MF	Drains to ATW, STS	6 / ES-6.05	Individual	Philadelphia	Non-jurisdictional	11
S-C15	UNT to Chester Creek	39.9032 -75.4444	Ephemeral	2	-	-	-	-	Floodway Only	-	-	0.829	0.099	Drains to TSF, MF	Drains to ATW, STS	23 / ES-6.17	Individual	Philadelphia	Non-jurisdictional	26
S-C16	UNT to Chester Creek	39.9042, -75.4454	Perennial	8	-	*57*	-	57	Dry Crossing/ Temporary Bridge	456	-			Drains to TSF, MF	Drains to ATW, STS	23 / ES-6.17	Individual	Philadelphia	Activity in WOUS	27
S-C17	UNT to Chester Creek	39.9042 -75.4460	Perennial	16	-	-	-	-	Floodway Only	-	-			Drains to TSF, MF	Drains to ATW, STS	23 / ES-6.17	Individual	Philadelphia	Non-jurisdictional	28
S-C18	UNT to Chester Creek	39.9037 -75.4455	Perennial	7	-	-	-	-	Floodway Only	-	-			Drains to TSF, MF	Drains to ATW, STS	23 / ES-6.17	Individual	Philadelphia	Non-jurisdictional	29
S-C19	UNT to Chester Creek	39.9030 -75.4444	Ephemeral	9	-	-	-	-	Floodway Only	-	-			Drains to TSF, MF	Drains to ATW, STS	23 / ES-6.17	Individual	Philadelphia	Non-jurisdictional	30
S-C20	UNT to Chester Creek	39.9030 -75.4442	Ephemeral	2	-	-	-	-	Floodway Only	-	-			Drains to TSF, MF	Drains to ATW, STS	23 / ES-6.17	Individual	Philadelphia	Non-jurisdictional	31
S-C21	UNT to Chester Creek	39.9038 -75.4455	Ephemeral	3	-	-	-	-	Floodway Only	-	-			Drains to TSF, MF	Drains to ATW, STS	23 / ES-6.17	Individual	Philadelphia	Non-jurisdictional	32
S-C22	UNT to Chester Creek	39.9042 -75.4448	Intermittent	7	-	-	-	-	Floodway Only	-	-			Drains to TSF, MF	Drains to ATW, STS	23 / ES-6.17	Individual	Philadelphia	Non-jurisdictional	33
S-C23	UNT to Chester Creek	39.9054, -75.4469	Perennial	10	10	-	-	-	HDD	30	-	0.013	0.004	TSF, MF	Drains to ATW, STS	22 / ES-6.16 PA-DE-0074.0000-RD & -16	Individual	Philadelphia	Non-jurisdictional	24
S-C24	UNT to Chester Creek	39.9067, -75.4480	Ephemeral	2	2	-	-	-	HDD	6	-	0.011	-	Drains to TSF, MF	Drains to ATW, STS	22 / ES-6.16 PA-DE-0074.0000-RD & -16	Individual	Philadelphia	Non-jurisdictional	22
S-C25	UNT to Chester Creek	39.9065, -75.4480	Ephemeral	1	1	-	-	-	HDD	3	-			Drains to TSF, MF	Drains to ATW, STS	22 / ES-6.16 PA-DE-0074.0000-RD & -16	Individual	Philadelphia	Non-jurisdictional	23
S-C26	UNT to Rocky Run	39.9077, -75.4505	Ephemeral	4	4	-	-	-	HDD	12	-	0.008	-	Drains to HQ-CWF, MF	Drains to TNR	21 / ES-6.16 PA-DE-0074.0000-RD & -16	Individual	Philadelphia	Non-jurisdictional	21
S-C39	UNT to Chester Creek	39.9155 -75.4595	Ephemeral	2	n/a	-	-	-	HDD Floodway	-	-	0.009	-	Drains to TSF, MF	Drains to ATW, STS	18 / ES-6.13 PA-DE-0046.0000-RD & -16	Individual	Philadelphia	Non-jurisdictional	15
S-C40	UNT to Chester Creek	39.9156, -75.4595	Intermittent	3	3	-	-	-	HDD	9	-			Drains to TSF, MF	Drains to ATW, STS	18 / ES-6.13 PA-DE-0046.0000-RD & -16	Individual	Philadelphia	Non-jurisdictional	16
S-C41	UNT to Chester Creek	39.9159 -75.4595	Ephemeral	2.5	n/a	-	-	-	HDD Floodway	-	-			Drains to TSF, MF	Drains to ATW, STS	18 / ES-6.13 PA-DE-0046.0000-RD & -16	Individual	Philadelphia	Non-jurisdictional	17

Stream ID	Stream Name	Coordinates	Flow Regime[1]	Bank to Bank Width (feet)[2]	Length of Centerline Stream Crossing at HDD/Bore[3]	Stream Disturbance Length in ROW (feet)[4]			Crossing Method[6,8]	Stream Permanent Impact (square feet)[7, 8]	Stream Temporary Impact (square feet)[7, 9]	PADEP Permanent Floodway Impact (acre)[8]	PADEP Temporary Floodway Disturbance (acre)[9]	Ch. 93 Designated Use[10]	PAFBC Stream Designation[11]	Site Plan/E&S Plan/HDD Plan Sheet Number	Permit[12]	USACE District	USACE Section 10/404 Activity	Fee Crossing Reference Number
						Perm	*Temp*	Total												
S-I5	UNT to Chester Creek	39.8919, -75.4293	Intermittent	25	-	*54*	-	54	Dry Crossing/ Temporary Bridge	1,350	-	0.196	0.119	Drains to TSF, MF	Drains to ATW, STS	28 / ES-6.21 S-I5 (A&B)	Individual	Philadelphia	Activity in WOUS	39
S-I6	UNT to Chester Creek	39.8920, -75.4294	Ephemeral	6	-	*51*	-	51	Dry Crossing/ Temporary Bridge	306	-			Drains to TSF, MF	Drains to ATW, STS	28 / ES-6.21 S-I5 (A&B)	Individual	Philadelphia	Activity in WOUS	40
S-I7	UNT to Baldwin Run	39.8452 -75.4181	Ephemeral	1	-	-	-	-	Twin Oaks Station	-	-	0.050	-	Drains to WWF, MF	n/a	47 / ES-6.35	PADEP-Waived	Philadelphia	Non-jurisdictional	66
S-I17	UNT to Baldwin Run	39.8480 -75.4049	Ephemeral	4	n/a	-	-	-	HDD Floodway	-	-	0.022	-	Drains to WWF, MF	n/a	45 / ES-6.33 PA-DE-0104.0023-RR & -16	PADEP-Waived	Philadelphia	Non-jurisdictional	59
S-I19	UNT to Baldwin Run	39.8483 -75.4051	Ephemeral	5	n/a	-	-	-	HDD Floodway	-	-			Drains to WWF, MF	n/a	45 / ES-6.32, 6.33 PA-DE-0104.0023-RR & -16	PADEP-Waived	Philadelphia	Non-jurisdictional	60
S-I20	UNT to Baldwin Run	39.8481 -75.4057	Ephemeral	3	n/a	-	-	-	HDD Floodway	-	-			Drains to WWF, MF	n/a	45 / ES-6.33 PA-DE-0104.0023-RR & -16	PADEP-Waived	Philadelphia	Non-jurisdictional	61
S-I18	UNT to Baldwin Run	39.8476, -75.4057	Perennial	13	13	-	-	-	HDD	39	-	0.008	-	Drains to WWF, MF	n/a	45 / ES-6.33 PA-DE-0104.0023-RR & -16	Individual	Philadelphia	Non-jurisdictional	62
					TOTAL	***1,306***	***62***	***1,368***												
						57 Streams			**34 Temp. Crossings**	**14,155 sq. ft 0.325 acre**	**496 sq. ft 0.011 acre**	**4.028 acres**	**1.926 acre**							

Notes:

Many streams share a FEMA NFHL 100-year floodway or a PADEP assumed 50-foot buffer. These features have therefore been grouped together.

All direct stream impacts are temporary, and the stream bank, bed, and channel will be restored to the pre-construction conditions in accordance with the Erosion and Sediment Control Plan.

[1] Flow regime is defined according to field classification. Ephemeral streams are identified herein as "intermittent" features according to PADEP guidance on the definitions set forth in Chapter 105.

[2] The bank-to-bank width is defined at the crossing location, and may not reflect the data presented in the wetland report and stream data forms, which is an estimated measurement taken of the survey area in the field, and not at the centerline crossing.

[3] Pipe length crossing the stream is measured from bank to bank at HDDs and bores. The values listed may therefore not always be identical to the bank to bank width presented in the stream data forms, which is an estimated measurement taken of the survey area in the field, and not at the center line crossing.

[4] Length of stream traversing limits of disturbance. A "-" length indicates that the stream is not located within the construction workspaces, and only the floodway extends into the construction workspaces. The disturbance length has been supplied to show the impact to the waterbody within the 50 foot permanent ROW and temporarily impacted areas for construction, except at HDD crossing where the permanent impacts are limited to the width of the pipelines (3 feet).

[5] All streams that will be crossed using a "Dry Crossing" method will also require a temporary bridge crossing. "Open Cut Floodway" will require a travel lane across the floodway, but no matting or bridge will be used unless a wetland is present.

[6] Crossing Methods: "Dry Crossing" designates a "dry pump bypass", "dry flume", "cofferdam" or "dry open-cut" methods which temporarily convey stream flow around the in-stream workspace or construction is conducted when the waterway is and is anticipated to be dry during the crossing. Horizontal Directional Drill (HDD) avoids all surface impacts in waters, wetlands and floodways, and involves drilling below the stream; however, a travel lane across the stream may be required during construction in some cases and is noted by "Travel-LOD" or "Clearing and Travel LOD." Details of the crossing methods are provided in Attachment 12 which includes the Project's Erosion and Sediment Control Plan; additional site-specific drawings and cross sections can be found in Attachment 7.

[7] For non-HDD crossings, this number is calculated on the Bank to Bank Width multiplied by the Length of stream disturbance in the ROW for permanent and temporary workspaces. At HDD and bore crossings, this is based on 3 feet (width of the two pipes) represented in the bank width column multiplied by the Length of Centerline Stream Crossing at HDD/Bore.

[8] According to the Instructions for the Joint Permit Application, permanent impacts "are those areas affected by a water obstruction or encroachment that consist of both direct and indirect impacts that result 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." As per the Chapter 105 Fee(s) Calculation Worksheet and for fee purposes only, permanent impacts have been calculated using the area in each wetland or watercourse that is within the 50-foot-wide permanent right-of-way. All stream bed and banks are to be restored to pre-construction conditions. Per PADEP direction, Permanent disturbance impacts at HDD and bore crossings are calculated on the width of the pipes multiplied by the length of the crossing. This calculations also accounts for the temporary placement of an HDD telemetry wire along the HDD alignment. See Impact Avoidance, Minimization, and Mitigation Procedures provided in Attachment 11, Enclosure E, Part 4 for discussion of the telemetry wire installation. Although PADEP defines operation and maintenance activities as permanent impacts, all streams affected by the Project will be restored to pre-construction conditions including the elevation/contours, channel substrate, stream banks, and flow conditions/patterns. In addition, the Project does not involve any permanent fill and there will be no permanent loss of stream area associated with the Project.

[9] According to the Instructions for the Joint Permit Application, temporary impacts "are those areas affected during the construction of a water obstruction or encroachment that consists of both direct and indirect impacts located in, along or across, or projecting into a watercourse, floodway or body of water that are restored upon completion of construction. This does not include areas that will be maintained as a result of 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." For purposes of the fee calculation, temporary impact areas consist of areas such as additional temporary workspace and temporary access roads.

[10] Information listed is based on Pennsylvania Data File Access (PASDA) "Designated Use" GIS shapefile (2016/08, from PASDA). Where delineated streams are not directly classified according to Chapter 93, they have been designated as "drains to." It is assumed that all streams classified as "drains to" are afforded the same designation as the immediately downstream surface water it drains to.

[11] PAFBC Designations: ATW = Approved Trout Water; STS = Stocked Trout Stream; TNR = Trout Natural Reproduction, Class A = Class A Water, WTS = Wilderness Trout Stream. Where delineated streams are not directly classified according to PAFBC data, they have been designated as "drains to". It is assumed that all streams classified as "drains to" are afforded the same protection and analysis as streams classified directly as trout waters.

[12] Streams that drain less than 100 acres at the point of intersection are waived from PADEP Chapter 105 permitting pursuant to 25 Pa. Code §105.12(a)(2).

Table 4. Chapter 106 Floodplain Impacts on the Pennsylvania Pipeline Project (PPP) – Delaware County – 12/1/2016

Stream ID[1]	Stream Name	Coordinates	Crossing Method[2]	Permanent Floodplain Disturbance (acre)[3, 5]	Temporary Floodplain Disturbance (acre)[4, 5]	Total Floodplain Disturbance (acre)	Site Plan Sheet Number	Permit	USACE District	USACE Section 10/404 Activity	Fee Crossing Reference Number
S-C44	Rocky Run	39.9102, -75.4570	Open Cut	*0.236*	*0.047*	0.283	19	Individual	Philadelphia	Non-jurisdictional	18
S-CS6	Chester Creek	39.8733, -75.4130	Open Cut	*0.064*	-	0.064	35	Individual	Philadelphia	Non-jurisdictional	47
S-H29	Chrome Run	39.8884, -75.4239	Open Cut	*0.015*	*0.021*	0.036	29	Individual	Philadelphia	Non-jurisdictional	41
S-H37	Chester Creek	39.8700, -75.4111	HDD	*0.222*	*0.03*	0.252	36	Individual	Philadelphia	Non-jurisdictional	48
S-H43	Baldwin Run	39.8574, -75.4005	HDD	*0.023*	-	0.023	41	Individual	Philadelphia	Non-jurisdictional	54
S-I4	Chester Creek	39.8932, -75.4312	HDD/ Open Cut	*0.465*	*0.419*	0.884	27	Individual	Philadelphia	Non-jurisdictional	38
			6 Floodplains	***1.025 acres***	***0.517 acre***	**1.542 acres**					

Notes:

100-Year Floodplain data is from the FEMA National Flood Hazard Layer (NFHL) geographic dataset, downloaded 9/2016, available at: http://www.floodmaps.fema.gov/NFHL/status.shtml

The Floodplain Fringe layer was developed by "erasing" (i.e. removing) the Chapter 105 areas from the entirety of the 100-year floodplain data. The above acreages represent the floodplain fringe impacts not covered by the Chapter 105 calculations.

[1] These are the identified streams closest to the extents of the NFHL data. These areas have been named and grouped for easier review and analysis.

[2] Crossing Methods: Open Cut is conventional construction technique in uplands and Horizontal Directional Drill (HDD) and bore both involve drilling below the floodplain. Typicals of these crossing methods can be found within Attachment 12 (Erosion and Sediment Control Plan).

[3] Permanent disturbances are those areas of floodplain impact within the proposed permanent utility ROW. Permanent impacts as HDD crossings are calculated on the width of the bore (3 feet) multiplied by the length of crossing.

[4] Temporary disturbances are those areas affected during the construction of a water obstruction or encroachment that consists of both direct and indirect impacts located in, along or across, or projecting into a watercourse, floodway or body of water that are restored upon completion of construction. This does not include areas that will be maintained as a result of the operation and maintenance of the water obstruction or encroachment located in, along or across, or projecting into the floodway. These areas consist of additional temporary workspaces and temporary access roads.

[5] Permanent and temporary impact totals in have been added to the Chapter 105 impact totals in Table 3 for streams with the same stream ID, and presented in Table 1 as one record.

Table 2. Wetland Impact Summary for the Pennsylvania Pipeline Project (PPP) – Delaware County – 12/1/2016

Wetland ID	USFWS Cowardin Classification[1]	Coordinates	12-Digit HUC Code	Crossing Method[2,3]	Length of Centerline Crossing (feet)[4]	PADEP Permanent Impact[5]	PADEP Temporary Impact[6]	PADEP & USACE Permanent Loss[7]	Conversion Impact (acre)[8]	Exceptional Value	Site Plan/E&S Plan/HDD Sheet Number	Permit	USACE District	USACE Section 10/404 Activity	Fee Crossing Reference Number
BA5	PFO	39.8466, -75.4103	020402020605	HDD	6	0.001	-	-	-	-	46 / ES-6.34 PA-DE-0104.0023-RR & -16	Individual	Philadelphia	Non-jurisdictional	63
BA6	PFO	39.8465, -75.4107	020402020605	HDD	26	0.002	-	-	-	-	46 / ES-6.34 PA-DE-0104.0023-RR & -16	Individual	Philadelphia	Non-jurisdictional	64
C10	PEM	39.9053, -75.4468	020402020605	HDD	51	0.004	-	-	-	PuWS	22 / ES-6.16 PA-DE-0074.0000-RD & -16	Individual	Philadelphia	Non-jurisdictional	25
	PSS	39.9055, -75.4467	020402020605	HDD	51	0.003	-	-	-	PuWS	22 / ES-6.16 PA-DE-0074.0000-RD & -16	Individual	Philadelphia	Non-jurisdictional	25
C21	PFO	39.9214, -75.4642	020402020605	HDD	14	0.001	-	-	-	-	16 / ES-6.12 PA-DE-0046.0000-RD	Individual	Philadelphia	Non-jurisdictional	13
C23	PEM	39.9107, -75.4566	020402020605	Open Cut	243	0.276	-	-	-	Wild Trout	19 / ES-6.14 S-C44 (A&B)	Individual	Philadelphia	Activity in WOUS	20
H41	PEM	39.8542, -75.3993	020402020605	Open Cut	-	0.001	-	-	-	-	42 / ES-6.31	Individual	Philadelphia	Activity in WOUS	57
I1	PEM	39.8945, -75.4320	020402020605	HDD	200	0.014	-	-	-	PuWS	27 / ES-6.20 PA-DE-0100.0000-RR & -16	Individual	Philadelphia	Non-jurisdictional	34
I5	PEM	39.8460, -75.4139	020402020605	Open Cut/ Temporary Matting	113	0.129	0.830	-	-	-	47 / ES-6.34, 6.35	Individual	Philadelphia	Activity in WOUS	65
I16	PEM	39.8491, -75.4039	020402020607	HDD	58	0.004	-	-	-	-	44 / ES-6.32 PA-DE-0104.0023-RR & -16	Individual	Philadelphia	Non-jurisdictional	58
	PFO	39.8485, -75.4035	020402020607	HDD	295	0.020	-	-	-	-	44 / ES-6.32, 6.33 PA-DE-0104.0023-RR & -16	Individual	Philadelphia	Non-jurisdictional	58
			9 Wetlands	**3 Temp. Crossings**	**1,057 feet 0.200 mile**	**0.455 acre**	**0.830 acre**	**0 acre**	**0 acre**						

Notes:

[1] Field classification based on Cowardin et al. 1979. PEM = palustrine emergent wetland, PSS = palustrine scrub-shrub wetland, PFO = palustrine forested wetland, PuB = Palustrine unconsolidated bottom (pond).

[2] All open cut wetlands will also require a temporary road crossing (using wetland matting) placed on the travel lane within the workspace limits. HDD areas will not be traveled through unless "Travel Lane" or "Clearing LOD" is indicated. Travel Lane areas are HDD crossings where travel through with equipment is necessary to facilitate installation. Wetland matting will be placed in the Travel Lane in these cases and the impact is presented in the PADEP Temporary Impact columns. "Clearing LOD" areas are areas between HDD exit and entry points where clearing of vegetation is planned to maximize aerial inspection of the line to meet Department of Transportation regulations. "Temporary Matting" is the crossing method used when wetlands are crossed by temporary access roads.

[3] Additional crossing details can be found in Attachment 12 which includes the Project's Erosion and Sediment Control Plan; Additional site-specific drawings (HDD, bore, and site-specific open-cut) can be found in Attachment 7.

[4] A "-" in length of centerline crossing indicates the wetland is located in the construction limits of disturbance but is not directly crossed by the pipeline centerlines.

[5] According to the Instructions for the Joint Permit Application, permanent impacts "are those areas affected by a water obstruction or encroachment that consist of both direct and indirect impacts that result 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.". As per the Chapter 105 Fee(s) Calculation Worksheet and for fee purposes only, permanent impacts have been calculated using the area in each wetland or watercourse that is within the 50-foot-wide permanent right-of-way, even if the area is restored to pre-construction conditions. The only permanent impacts are noted in column labelled "PADEP and USACE Permanent Loss" and "Conversion Impact". Per PADEP direction, Permanent disturbance impacts at HDD and bore crossings are calculated on the width of the pipes multiplied by the length of the crossing. Although PADEP defines operation and maintenance activities as permanent impacts, all wetlands affected by the Project will be restored to pre-construction conditions including the presence of wetland soils, hydrology, and hydrophytic vegetation. In addition, the Project does not involve any permanent fill and there will be no permanent loss of wetland area associated with the Project. SPLP will not maintain the ROW through wetland areas (i.e., no mowing); therefore, the pre- and post-construction conditions of the wetland areas will be the same, except for any noted wetland cover type conversion impacts.

[6] According to the Instructions for the Joint Permit Application, temporary impacts "are those areas affected during the construction of a water obstruction or encroachment that consists of both direct and indirect impacts located in, along or across, or projecting into a watercourse, floodway or body of water that are restored upon completion of construction. This does not include areas that will be maintained as a result of 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.". For purposes of the fee calculation, temporary impact areas consist of areas such as additional temporary workspace and temporary access roads.

[7] Loss of wetland acreages due to permanent fill.

[8] Total conversion after on-site restoration and plantings. More details regarding restoration and planting of these areas can be found in Tab 11, Enclosure F.