

# Project Description

## *Pennsylvania Pipeline Project*

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# TABLE OF CONTENTS

Section		Page
1.0	PURPOSE AND NEED .....	1
2.0	FACILITIES AND SUPPORT SITES .....	1
2.1	PIPELINE FACILITIES.....	1
2.2	ABOVEGROUND FACILITIES.....	2
2.2.1	Support Sites (Company Material Storage Yards) .....	6
2.2.2	Support Sites (Pipe / Contractor Yards and Access Roads) .....	6
2.2.3	Support Sites (Access Roads).....	6
2.2.4	Support Sites (Power Supply).....	7
2.3	INITIAL ROUTE SELECTION .....	7
2.4	LAND REQUIREMENTS.....	9
2.5	PERMIT REQUIREMENTS.....	11
2.6	CONSTRUCTION PROCEDURES .....	12
2.7	CONSTRUCTION SCHEDULE.....	13
3.0	GENERAL CONSTRUCTION.....	13
3.1	MARKING THE CORRIDOR AND SENSITIVE AREAS .....	13
3.2	CLEARING, E&S CONTROL, GRADING, AND FENCING .....	14
3.3	TRENCHING .....	14
3.4	PIPE STRINGING.....	15
3.5	PIPE PREPARATION AND LOWERING-IN.....	15
3.6	BACKFILLING AND GRADE RESTORATION .....	15
3.7	HYDROSTATIC TESTING .....	16
3.8	CLEAN-UP AND RESTORATION.....	16
3.9	CATHODIC PROTECTION.....	16
3.10	BLOCK VALVES.....	17
3.11	PUMP STATIONS.....	17
4.0	SPECIALIZED CONSTRUCTION.....	17
4.1	STEEP TOPOGRAPHY .....	17
4.2	VOID MITIGATION .....	18
4.3	RESIDENTIAL AREAS .....	18
4.4	AGRICULTURAL LANDS .....	20
4.5	ROAD AND RAILROAD CROSSINGS.....	20
4.6	UTILITY CROSSINGS .....	20
4.7	HORIZONTAL DIRECTIONAL DRILL CROSSINGS.....	20
4.8	CONVENTIONAL BORE CROSSINGS .....	21
4.9	WATERBODY AND WETLAND CROSSING CONSTRUCTION.....	21
4.10	ROCK AND BEDROCK .....	22
5.0	PREVENTION PLANS AND WASTE MANAGEMENT .....	23
5.1	SPILL PREVENTION AND PREPAREDNESS .....	23
5.2	WASTE MANAGEMENT.....	23
5.3	IMPACTED SOIL .....	23
6.0	WATER RESOURCE IMPACTS.....	23
7.0	POST-CONSTRUCTION MONITORING.....	24
8.0	COMPENSATORY MITIGATION .....	26
9.0	THREATENED AND ENDANGERED SPECIES – SUMMARY AND COMMITMENTS .....	26
9.1	PA DCNR .....	26
9.2	PGC.....	27

9.3	PAFBC.....	27
9.4	USFWS.....	28
10.0	SUPERVISION AND INSPECTION.....	29
11.0	OPERATION AND MAINTENANCE .....	30

## TABLES

<b>Table</b>	<b>Page</b>
Table 1. Pennsylvania Pipeline Project – Pipeline Facilities .....	2
Table 2. Pennsylvania Pipeline Project – Aboveground Pump Station Facilities.....	4
Table 3. Pennsylvania Pipeline Project – Aboveground Block Valve Station Facilities .....	4
Table 4. Pennsylvania Pipeline Project – Workspace/Limits of Disturbance Descriptions .....	10
Table 5. Pennsylvania Pipeline Project – Permits, Authorizations, and Clearances .....	11
Table 6. Pennsylvania Pipeline Project – Wetland, Stream, and Floodway Impacts.....	25

## LIST OF APPENDICES

- Appendix A. Comparison of Safety and Efficiency of NGL Transport by Pipeline, Road, and Rail
- Appendix B. Pennsylvania Natural Diversity Inventory Condition Listing

## LIST OF ACRONYMS

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ATWS	Additional Temporary Workspace
ASME	American Society of Mechanical Engineers
AOCs	Areas of Concern
ATON plans	Pennsylvania Fish and Boat Commission Aids to Navigation Plans
CFR	Code of Federal Regulations
DCNR	Pennsylvania Department of Conservation and Natural Resources
ECP	Environmental Compliance Program
IR Plan	Inadvertent Return Assessment, Preparedness, Prevention and Contingency Plan
LOD	Limit of Disturbance
MOPs	maximum operating pressures
NPDES	National Pollutant Discharge Elimination System
NGL	natural gas liquid
O&M	operation and maintenance
PADEP	Pennsylvania Department of Environmental Protection
PAFBC	Pennsylvania Fish and Boat Commission
PGC	Pennsylvania Game Commission
PA PUC	Pennsylvania Public Utility Commission
PHMSA	United States Department of Transportation Pipeline and Hazardous Materials Safety Administration
PNDI	Pennsylvania Natural Diversity Inventory
PROJECT OR PPP	Pennsylvania Pipeline Project
PSIG	per square inch gauge
PHMSA	Pipeline and Hazardous Materials Safety Administration
PPC Plan	Preparedness, Prevention and Contingency Plan
PWSs	public water sources
ROW	right-of-way
SXL	Sunoco Logistics
SPLP	Sunoco Pipeline L.P.
SWs	surface water sources
USDOT	United States Department of Transportation
USFWS	United States Fish and Wildlife Service
Water Supply Plan	Water Supply Preparedness, Prevention and Contingency Plan

# **PENNSYLVANIA PIPELINE PROJECT**

## **“PROJECT DESCRIPTION”**

Sunoco Pipeline, L.P. (SPLP) proposes to construct and operate the Pennsylvania Pipeline Project (Project or PPP) that would expand existing pipeline systems to provide natural gas liquid (NGL) transportation. The Project involves the installation of two parallel pipelines within an approximately 306.8-mile, 50-foot-wide right-of-way (ROW) from Houston, Washington County, Pennsylvania to SPLP’s Marcus Hook facility in Delaware County, Pennsylvania with the purpose of interconnecting with existing SPLP Mariner East pipelines. A 20-inch diameter pipeline will be installed within the ROW from Houston to Marcus Hook (306.8 miles) and a second, 16-inch diameter pipeline, will also be installed in the same ROW. The second line is proposed to be installed from SPLP’s Delmont Station, Westmoreland County, Pennsylvania to the Marcus Hook facility, paralleling the initial line for approximately 255.8 miles. The majority of the new ROW will be co-located adjacent to existing utility corridors, including approximately 230 miles of pipeline that will be co-located in the existing SPLP Mariner East pipeline system.

### **1.0 PURPOSE AND NEED**

The Project will provide transportation service of NGLs with the combined pipelines from the Utica and Marcellus Shale formations for both domestic and international markets. This Project will transport propane, butane and ethane. SPLP’s upstream customers currently extract natural gas in the form of methane from the aforementioned geologic formations for distribution to the community. The natural gas will provide fuel for power generation, vehicle fuel, and general heating and cooking. NGLs are separated from the natural gas stream before it is shipped on the natural gas piping network. Upstream shippers are currently limited by the shortage of NGL transport systems. In addition, the Project will provide along its route across Pennsylvania to various exit points for supply of desperately needed propane supplies, at affordable prices, to local Pennsylvania distributors for use as heating and/or cooking fuel by consumers in Pennsylvania and neighboring states, especially during peak demand periods when supplies would otherwise become short. Butane will also be shipped to local markets as a component of gasoline to ensure gasoline suppliers can meet seasonal vapor pressure restrictions. In addition, when completed, the Project will promote sustained economic development and jobs-creation throughout multiple regions in Pennsylvania. Pipelines are considered to be a safer, more efficient mode of transport for many types of substances, including natural gas and NGLs, compared to road or rail transport (Appendix A).

### **2.0 FACILITIES AND SUPPORT SITES**

#### **2.1 Pipeline Facilities**

The Project includes two new, 20-inch and 16-inch diameter pipelines installed within or adjacent to 306.8 miles of existing or new ROW corridors. The majority of the new ROW will be co-located adjacent to existing utility corridors, including approximately 230 miles of pipeline that will be co-located in the existing SPLP Mariner East pipeline system that is currently used for the transportation of NGL’s. The following provides the details of the proposed pipeline facilities:

- Pipeline 1: Houston, Pennsylvania to Marcus Hook, Pennsylvania – This is an incremental expansion of the capacities of SPLP to transport NGLs to the Marcus Hook facility. This Phase of the Project will include a 20 inch diameter steel pipeline, pump stations, and valve settings. The route of the pipeline is either inside or adjacent to the existing SPLP pipeline corridor for a majority of its length and is approximately 306.8 miles long (Table 1).
- Pipeline 2: Delmont, Pennsylvania to Marcus Hook, Pennsylvania –The pipeline route for the second 16-inch pipeline will include 255.8 miles of pipeline that will parallel Pipeline 1 (Table 1).

**Table 1. Pennsylvania Pipeline Project – Pipeline Facilities**

Type of Facility	Description	State	Pipeline 1 Length (miles)	Pipeline 2 Length (miles)	Pipeline 1 (limit of disturbance acres)	Pipeline 2 (limit of disturbance acres)	County
Pipeline	Installation of a 20-inch new butane/propane line from Houston PA to Marcus Hook, PA and a 16-inch new ethane line in parallel from Delmont, PA to Marcus Hook, PA	PA	19.1	0.0	189	0	Washington
			9.0	0.0	97	0	Allegheny
			38.3	15.4	374	157	Westmoreland
			19.4	19.4	202	202	Indiana
			23.5	23.5	241	241	Cambria
			23.5	23.5	227	227	Blair
			26.9	26.9	264	264	Huntingdon
			3.0	3.0	33	33	Juniata
			10.8	10.8	117	117	Perry
			32.0	32.0	304	304	Cumberland
			6.3	6.3	68	68	York
			12.0	12.0	117	117	Dauphin
			19.8	19.8	216	216	Lebanon
			6.9	6.9	71	71	Lancaster
			21.2	21.2	230	230	Berks
23.6	23.6	165	165	Chester			
11.5	11.5	93	93	Delaware			
	Project Total		306.8	255.8	3,008	2,505	

## 2.2 Aboveground Facilities

Aboveground facilities include pump station construction and modification (Table 2) and block valve construction and modification (Table 3):

- Houston, Pennsylvania has an existing facility which will connect to the pipeline. This Project will install meters on the outlets from existing storage, injection pumps, control valves, associated piping and accessory structures. New land disturbance will be required to accommodate the injection station component.
- Delmont, Pennsylvania has an existing facility and this Project will expand the pump station with added booster pumps, associated piping and accessory structures. Some new land disturbance within the existing station site will be required to accommodate this modification.
- Ebensburg, Pennsylvania, SPLP will construct a new pump station with booster pumps, leak detection metering, associated piping and accessory structures adjacent to an existing station. Some new land disturbance within the existing station site will be required to accommodate this modification.

- Mount Union, Pennsylvania has an existing pump station and this Project will expand the pump station with added piping, pig traps and valves. Some new land disturbance will be required to accommodate this modification.
- Doylesburg, Pennsylvania has an existing pump station and this Project will expand the pump station with added booster pumps, associated piping and accessory structures. Some new land disturbance will be required to accommodate this modification.
- Middletown, Pennsylvania has an existing pump station and this Project will expand the pump station with added booster pumps, associated piping and accessory structures. Some new land disturbance will be required to accommodate this modification.
- Beckersville, Pennsylvania has an existing pump station and this Project will expand the pump station with added piping, pig traps and valves. Some new land disturbance will be required to accommodate this modification.
- Twin Oaks, Pennsylvania is an existing site and this Project will install custody transfer meters and control valves. Some new land disturbance within the existing facility will be required to accommodate this modification.
- There are 53 mainline block valve sets planned for this Project, of which 22 are sited at existing valve sites, and 5 are sited at existing pump stations (Table 3). Block valves are installed for the purpose of shutting off sections of the pipeline to allow maintenance or to stop flow in the case of emergencies. Block valves are installed in accordance with U. S. Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA) requirements, and reference recommendations from American Society of Mechanical Engineers (ASME). PHMSA requires block valves to be installed on the suction end and discharge end of a pump station, at locations along the pipeline system that will minimize damage or pollution from accidental hazardous liquid discharge, and on each side of a major water crossing. SPLP has determined that in the interest of facilitating operational control and to further enhance safety and environmental protection, it will place block valves at every railroad crossing, at every water crossing wider than 100 feet, and at a minimum of one block valve per 10 miles with closer densities in areas with denser populations.

**Table 2. Pennsylvania Pipeline Project – Aboveground Pump Station Facilities**

Type of Facility	New/ Modification	Description	State	County
Injection Station/Pump Station	New	Houston	PA	Washington
Pump Station	Modification	Delmont	PA	Westmoreland
Pump Station	Modification	Ebensburg	PA	Cambria
Pump Station	Modification	Mt. Union	PA	Huntingdon
Pump Station	Modification	Doylesburg	PA	Perry
Pump Station	Modification	Middletown	PA	Dauphin
Pump Station	Modification	Beckersville	PA	Berks
Meter Site	Modification	Twin Oaks	PA	Delaware

**Table 3. Pennsylvania Pipeline Project – Aboveground Block Valve Station Facilities**

Sunoco Assigned Facility Name	Previously Site Name	Facility Address	Latitude Longitude	Township	County	Existing or New Site
PIKE STREET EFRD	West Pike St.	1130 W Pike St (approx.) Houston, PA 15342	40D 14' 8" N 80D 12' 57" W	Chartiers	Washington	Existing
ROSS ROAD EFRD	Ross Road	Houston, PA 15342	40D 14' 8" N 80D 6' 23" W	North Strabane	Washington	Existing
PATTERSON ROAD EFRD	Monongahela River West	Rte. 88 Finleyville, PA 15332	40D 13' 47" N 79D 59' 25" W	Union	Washington	Existing
BUNOLA ROAD VALVE	Monongahela River East	Bunola Road Bunola, PA 15020 (Box number not yet assigned)	40D 13' 47" N 79D 57' 49" W	Forward	Allegheny	Existing
COLLINSBURG ROAD EFRD	Youghiogheny River South	10 Wachs Road West Newton, PA 15089	40D 13' 25" W 79D 46' 36" W	Rostraver	Westmoreland	Existing
WACHS ROAD VALVE	Youghiogheny River North	Wachs Road West Newton, PA 15089 (Box number not yet assigned)	40D 14' 9" N 79D 45' 46" W	South Huntingdon	Westmoreland	Existing
OLD HARMONY ROAD EFRD	Old Harmony Road	140 Old Harmony Road Irwin, PA 15642	40D 16' 48" N 79D 40' 39" W	Hempfield	Westmoreland	Existing
OLD CHESTNUT LANE EFRD	Old Chestnut Ln	310 Old Chestnut Road (approx.) Jeanette, PA 15664	40D 20' 41" N 79D 37' 35" W	Penn	Westmoreland	Existing
KOONTZ ROAD EFRD	Loyalhanna Lake West	580 Koontz Road, New Alexandria, PA 15670	40D 26' 10" N 79D 27' 21" W	Loyalhanna	Westmoreland	Existing
BUSH ROAD VALVE	Loyalhanna Lake East	744 Bush Road, New Alexandria PA 15670	40d 26' 17" N 79d 26' 6" W	Loyalhanna	Westmoreland	Existing
WESTINGHOUSE ROAD EFRD	Conemaugh River West	548 Westinghouse Road Blairsville, PA 15717	40D 26' 42" N 79D 18'18" W	Derry	Westmoreland	Existing
NEWPORT ROAD VALVE	Conemaugh River East	564 Newport Road Blairsville, PA 15717	40D 26'54" 79D 17' 5" W	Burrell	Indiana	New
CHESTNUT RIDGE ROAD VALVE	Chestnut Ridge Road	11 Dusty Lane Blairsville, PA 15717	40 D 20' 48" N 80D 59' 50" W	West Wheatfield	Indiana	Existing
GRANGE HALL ROAD EFRD	Grange Hall Road	2595 Grange Hall Road Seward, PA 15954	40D 25' 47" N 78D 59' 44" W	East Wheatfield	Indiana	New
WILLIAM PENN AVENUE VALVE	Vinco Terminal - Rte. 271	2866 William Penn Ave Johnstown, PA 15909	40D 24' 56" N 78D 51' 34" W	Jackson	Cambria	Existing
COONEY ROAD VALVE	Cresson RR West	879 Cooney Rd Lilly, PA 15938	40D 27' 12" N 78D 37' 19" W	Munster	Cambria	Existing
KOZAK ROAD VALVE	Cresson RR East	134 Kimberly Dr Lilly, PA 15938	40D 26' 42" N 78D 35' 38" W	Cresson	Cambria	New



Sunoco Assigned Facility Name	Previously Site Name	Facility Address	Latitude Longitude	Township	County	Existing or New Site
VALLEY FORGE ROAD EFRD	Valley Forge Road	826 Valley Forge Rd Duncansville, PA 16635	40D 24' 17" N 78D 29' 37"		Blair	New
CHARGER HIGHWAY EFRD	Hamer Dr	10503 Charger Hwy Duncansville, PA 16635	40D 24' 43" N 78D 23' 59" W		Blair	New
LOCKE MOUNTAIN ROAD VALVE	Locke Mountain Road	701 Locke Mountain Road Martinsburg, PA 16662	40D 25' 52" N 78D 20' 9" W	Frankstown	Blair	New
JUNIATA VALLEY ROAD EFRD	NA	1344 Juniata Valley Road Hollidaysburg, PA 16648	40D 15' 14" N 79D 59' 21" W	Frankstown	Blair	New
HIGH STREET VALVE	Juniata River East	4212 Piney Creek Road Williamsburg, PA 16693	40D 25' 57" N 78D 15' 51" W	Woodbury	Blair	New
RAYSTOWN ROAD EFRD	NA	14618 Raystown Road James Creek, PA 16657	40D 23' 48" N 78 D 9' 0" W	Penn	Huntingdon	New
SEVEN POINTS LOOP EFRD	Raystown Lake West	7040 Seven Points Rd Hesston, PA 16647	40D 22' 30" N 78D 4' 42" W	Penn	Huntingdon	New
HAPPY HILLS ROAD VALVE	Raystown Lake East	15171 Happy Hills Road Huntingdon PA 16652	40 D 21' 37" N 78D 1' 40" W	Union	Huntingdon	New
HARES VALLEY ROAD VALVE	Pennsylvania 655	15111 Hares Valley Road Mapleton Depot, PA 17052	40D 21' 2" N 77D 58' 11" W	Union	Huntingdon	New
SHADE VALLEY ROAD VALVE	Shade Valley/Hwy 35	16476 Shade Valley Road Blairs Mills, PA 17213	48D 15' 50" N 77D 45' 11" W	Tell	Huntingdon	Existing
DOYLESBURG	Doylesburg Station	6080 Big Spring Road Blain, PA 17006	40 D 17' 11" N 77D 36' 52" W	Toboyne	Perry	Add BV to ME1 station
BLUE MOUNTAIN	Blue Mountain	39 Pump Station Rd Newville, PA	40 D 15' 7" N 77D 26' 57" W	Lower Mifflin	Cumberland	Existing
PLAINFIELD	Plainfield Station	91 Pinedale Road Plainfield, PA 17015	40D 14' 32" N 77D 17' 29" W	Lower Frankford	Cumberland	Add BV to ME1 station
CREEK ROAD EFRD	Conodoguinet Creek Crossing	390 Creek Rd Carlisle, PA 17013	40 D 144' 32" N 77D 11' 10" W	North Middleton	Cumberland	New
WOLF BRIDGE ROAD VALVE	Conodoguinet Creek Crossing	260 Wolfs Bridge Rd Carlisle, PA 17015	40D 14' 14" n 77D 9' 54" W	Middlesex	Cumberland	New
W TRINDLE ROAD VALVE	Middlesex	1010 W Trindle Road Mechanicsburg, PA 17055	40D 12' 9" n 77D 2' 41" W	Silver Spring	Cumberland	New
ARCONA ROAD VALVE	Arcona Road/ Mechanicsburg Tie-In	3240 Strong Road Mechanicsburg, PA 17055.	40D 11' 34" N 76D 56' 47" W	Lower Allen	Cumberland	New
OLD YORK ROAD EFRD	Old York Road	410 Old York Road, New Cumberland, PA 17070	40D 11' 29" N 76D 50' 26" w	Fairview	York	Existing
WHITE HOUSE LANE VALVE	Susquehanna River East	24 White House Lane, Lower Swatara, PA	40D 12' 5" N 76D 46' 19" W	Lower Swatara	Dauphin	New
N UNION ST EFRD	Middletown Jct	1230 N Union St Middletown, PA 17057	40D 12' 54" N 76 D 44' 1"W	Middletown	Dauphin	New
GATES ROAD VALVE	Gates Road	799 Gates Rd Hershey, PA 17033	40D 14" 49" N 76D 37' 7" N	Conewago	Dauphin	Existing
CORNWALL	Cornwall Station	370 Horseshoe Pike Cornwall, PA 17042	40D 16' 59" N 76D 27' 56" W	West Cornwall	Lebanon	Add BV to ME1 station
SCHAEFFER ROAD VALVE	Schaeffers Road (also Formerly Rexamont Road)	699 Rexamont Road South Lebanon, PA 17042	40D 17' 21" n 76D 22' 31" W	South Lebanon	Lebanon	New
SINCLAIR ROAD VALVE	Schaefferstown Tie-In	111 Sinclair Road Heidelberg, PA	40 D 17' 10" N 76D 17' 55" W	Heidelberg	Lebanon	New
HOPELAND ROAD VALVE	Hopeland Road	424 Hopeland Road, Heidelberg, PA	40D 17' 7" N 76D 14' 37" W	Heidelberg	Lebanon	Existing

Sunoco Assigned Facility Name	Previously Site Name	Facility Address	Latitude Longitude	Township	County	Existing or New Site
BLAINSPORT	Blainsport Station	1060 W Rte. 897 Reinholds, PA 17569	40D 16' 57" N 76D 8' 24" W	West Cocalico	Lancaster	Add BV to ME1 Station
MONTELLO	Montello Tie-In	525 Fritztown Road Sinking Spring, PA 17569	40D 18' 51" N 76D 2' 21" W	Spring	Berks	Existing
WYOMISSING ROAD VALVE	Wyomissing	1614 Wyomissing Road Mohnton, PA 19540	40D 15' 16" N 75D 59' 22" W	Cumru	Berks	New
MORGANTOWN ROAD VALVE	NA	5395 Morgantown Road Morgantown, PA 19543	40D 11' 10" N 72D 52' 53" W	Robeson	Berks	New
S CHESTNUT ROAD VALVE	Elverson Interchange	26 W Sunnyside Drive Elverson, PA 19520	40D 9' 11" N 75 D 50' 16" W	Elverson	Chester	Existing
FAIRVIEW ROAD ME2 EFRD	Fairview Road	99 Walnut Bank Road Glenmoore, PA 19343	46D 6' 7" n 75D 45' 21" W	Wallace	Chester	New
EAGLE	Eagle	Little Conestoga Road Downingtown, PA 15335	40 D 4' 59" N 75 D 43' 3" W	Upper Uwchlan	Chester	Add BV to ME1 station
EAST LINCOLN HIGHWAY VALVE	Exton Valve	500 East Lincoln Hwy Exton, PA 193411	40D 1' 37" N 75D 36' 59" W	West Whiteland	Chester	New
BOOT ROAD EFRD	Could Change to Culbertson Drive EFRD	1295 E. Boot Road, West Chester, PA 19382	40D 0' 17" N75D 34' 51"	West Goshen	Chester	New
MIDDLETOWN ROAD EFRD	Glenn Mills	190 Middletown Rd Glenn Mills, PA 19342	39D 56' 51" N 75D 30' 23" W	Edgmont	Delaware	Existing
S PENNELL RD EFRD	West Baltimore Pike Road	130 S. Pennell Road Media, PA 19063	39D 54' 9" N 75D 26' 33" W	Middletown	Delaware	New

### 2.2.1 SUPPORT SITES (COMPANY MATERIAL STORAGE YARDS)

Materials for fabrication of the above ground facilities on the Project will be stored at an existing warehouse area located at Beach Bottom, Brooke County, WV, and at an existing warehouse at the Letterkenny Army Depot in Chambersburg, Franklin County, PA. Contractors will draw material from these Company yards as required during the construction of the Project. Neither of these locations are on Project ROW.

### 2.2.2 SUPPORT SITES (PIPE / CONTRACTOR YARDS AND ACCESS ROADS)

The contractor pipe yards will be used for equipment, miscellaneous pipe, and material storage, as well as temporary field offices and pipe preparation/field assembly areas during construction. Site selection and acquisition will continue throughout the planning and permitting stages of the Project. Contractors will be required to site pipe and contractor yards in previously developed areas that will require no new land disturbance.

### 2.2.3 SUPPORT SITES (ACCESS ROADS)

SPLP will use existing public and private roads for temporary construction access to the mainline pipeline ROWs and aboveground facilities when possible. SPLP has identified all non-public temporary and permanent access roads that are needed to allow safe installation and operation. SPLP will seek and obtain the necessary property rights and approvals from landowners and government agencies prior to the use, improvement, or construction of such roads.

## **2.2.4 SUPPORT SITES (POWER SUPPLY)**

The modifications at the Delmont Station in Westmoreland County require an upgrade to the existing electric power supply. As discussed with Pennsylvania Department of Environmental Protection's (PADEP) on March 15, 2016, while the current power supply is sufficient, the reliability to other electric customers may be diminished if additional power supply is not obtained. To support the Delmont modification as well enhancing future electric supply reliability to the area, West Penn Power proposes the Springdale – White Valley 138kV Tap to the Delmont Transmission Line Project. This Project consists of constructing a new, approximately 2 mile single-circuit 138 kV transmission line between the existing Springdale – White Valley 138kV transmission line and a new metering station to be installed at the SPLP Delmont facility. The route taps into the existing Springdale – White Valley 138 kV Transmission Line within the existing ROW approximately 120 feet south of Old William Penn Highway. West Penn Power is applying for National Pollutant Discharge Elimination System (NPDES) permit coverage through the Westmoreland County Conservation District.

Similar to the Delmont Station, the Ebensburg Station in Cambria County requires an upgrade to the existing electric power supply. To support the Ebensburg Station, as well enhancing electric supply reliability to the area, REA Energy will install the Bagley Minor Subdivision substation across Wilmore road from the proposed Station to support this Project and others. REA Energy will obtain all necessary authorizations.

Additional power supply activities at the Middletown Station modification are contained within the proposed disturbance limits and are included as part of the overall design.

## **2.3 Initial Route Selection**

The initial route selected for the Project was routing to be co-located with (abut and/or overlap) the right-of-way of an existing pipeline owned and operated by SPLP. The co-location of the Project with an existing SPLP right-of-way, and ultimately also co-location of sections of the Project with other existing utility corridors, was a major means to avoid environmental impacts and impacts to sensitive resources and communities, and to minimize the site-specific and cumulative environmental impacts arising from the Project.

In addition, as set forth above, all but one of the pump stations incorporated with the Project will be an expansion of an existing pump station. By definition, the valve sets planned for the Project are required to be located within the right-of-way of the Project. All pump station sites and valve sets were located to avoid impacts to wetlands and waterways.

Sharing existing utility right-of-way corridors, which has been implemented with the Project, is identified by resource agencies as a preferred pipeline routing method, and was also a key recommendation of Pennsylvania Governor Tom Wolf's Pipeline Infrastructure Task Force Report (the "Report"). As set forth in the Report, Governor Wolf created the Pipeline Infrastructure Task Force "to engage stakeholders in a transparent, collaborative process to achieve responsible development of pipeline infrastructure in the Commonwealth." The Governor appointed 48 volunteers to serve on the Task Force who represented academia, government, industry and citizen's groups. The work of the Task Force members were aided by more than 100 additional volunteers appointed by the Governor serving on 12 individual topic-specific work groups.

The conclusion of the Task Force's work was the publication of the Report, which defined best practices in specific topic areas related to pipeline infrastructure development and operation. Although the Report identifies a total of 184 recommendations for pipeline infrastructure

development in Pennsylvania, there were 12 recommendations gaining the most support from the Task Force members. These 12 recommendations are identified as the “Top Recommendations.” Within the category of “Planning, Siting and Routing pipelines to avoid/reduce environmental and community impacts,” one of the two Top Recommendations listed is to “**Identify Barriers to Sharing Rights-of-Way.**” As set forth in more detail in County Government Work Group Recommendation #9, the full recommendation is described as follows:

State should establish a requirement to co-locate, to the extent possible, new pipeline infrastructure within existing or planned utility right-of-ways (by regulation or statute), including other pipelines, electric transmission lines, etc. to reduce the impact on existing development, available land for development and natural resources, and to be consistent with the county comprehensive plan. Any requirement should include a maximum number of pipelines, regardless of product, in any single right-of-way.

The Project, without the need for a change of state law or regulation, started with a routing that co-located the new pipeline within the right-of-way of SPLP’s existing pipeline corridor. SPLP was able to select this initial routing for the Project because it possessed the legal right to add additional pipelines within or adjacent to much of the existing right-of-way of SPLP’s existing pipeline corridor. This initial routing decision for the Project produced the benefits described in the Report, namely a reduction in the impact on natural resources which could have occurred if an entirely new, or “greenfield,” alignment was initially considered for the approximately 300 mile distance across the state to achieve the purpose of the Project.

In addition to the County Government Work Group of the Task Force making a recommendation that new pipelines be co-located within existing utility corridors, the same recommendation was also made by other Task Force work groups. See, Conservation and Natural Resources Work Group Recommendations #18 (“Co-locate new pipelines along existing rights-of-way to minimize the creation of new, separate clearings”); Environmental Protection Work Group Recommendation #17 (“Where practicable, safe, and all parties are agreeable, oil and gas development and associated infrastructure should utilize existing disturbances such as road networks, rights-of-way corridors and other utility installations.” “Pipelines that share existing corridors reduce the amount of disturbance and fragmentation that would otherwise occur with a separate pipeline corridor.”) Therefore, a wide variety of Task Force Work Groups realized the wisdom of co-locating new pipelines “within” and/or “along” existing utility corridors, because of the reduced environmental impacts that would be created as compared to a pipeline located on a totally new “greenfield” right-of-way.

In addition to Governor Wolf’s Task Force stating a Top Recommendation that new pipelines should be co-located with existing utility corridors, the Pennsylvania Field Office of the U.S. Fish and Wildlife Service (USFWS) also recommends the co-location of new pipelines with already disturbed areas such as existing pipelines corridors. In its initial consultation letter to SPLP dated March 19, 2014, the USFWS recommended that SPLP follow its guidelines entitled “USFWS Pennsylvania Field Office – Adaptive Management for the Conservation of Migratory Birds” (USFWS undated). As part of these guidelines, the USFWS states five recommendations applicable to the siting of new pipelines to avoid and minimize impacts to migratory birds pursuant to its authority under the Migratory Bird Treaty Act. One of these five recommendations states as follows: “To reduce habitat fragmentation, co-locate roads, fences, lay down areas, staging areas, and other infrastructure in or immediately adjacent to already disturbed areas such as existing pipelines.” In conformance with these guidelines of the USFWS, the initial routing of the Project was placed within or immediately adjacent to the right-of-way of an existing pipeline owned and

operated by SPLP to avoid and minimize environmental impacts which would have otherwise occurred if a new “greenfield” location was initially selected for the routing of the Project.

In conclusion, SPLP selected the right-of-way of the existing pipeline corridor it owned and operated as the initial routing for the Project. This selected routing is consistent with one of the Top Recommendations of the Governor’s Pipeline Infrastructure Task Force, as well as the USFWS guidelines. With the selection of this initial routing, the Project initially avoided adverse environmental impacts and caused less site-specific and cumulative environmental impact as compared to a pipeline alignment on a totally new “greenfield” right-of-way.

Subsequent to the selection of the right-of-way of SPLP’s existing pipeline corridor as the initial routing for the Project, SPLP made several major reroutes to the Project to avoid residential and commercial developments and other features, and thereafter made various minor reroutes to avoid and/or reduce potential adverse impacts. The routing chosen for the Project represents an alignment that avoids and minimizes adverse impacts to the maximum extent possible.

## **2.4 Land Requirements**

The Project would result in temporary access during construction of the proposed facilities. In general, during construction of the new pipeline, the typical width of the construction ROW would be about 100 feet to accommodate a 20-inch diameter installation. However, 75 feet was chosen by SPLP in the initial Project planning to minimize landscape impacts. The 75-feet would consist of a 50-foot-wide post-construction permanent ROW and 25-foot-wide temporary workspace. These two workspace types make up the majority of the proposed land disturbance. The 25-feet would be restored and allowed to revert back to its pre-construction condition unless it is co-located with an existing permanently maintained ROW. In areas previously vegetated, the 50-foot-wide ROW would also be restored to a vegetated state where impacted during construction. Several areas within the permanent ROW will not be impacted by construction due to avoidance of sensitive environmental or densely populated areas. Additional temporary work space (ATWS) would be needed at some areas to facilitate construction and would depend on site-specific requirements. In the post-construction phase, ATWS’s will be restored to and allowed to revert back to pre-construction conditions. All workspaces would be clearly defined within Project mapping and within agency and municipality applications and collectively represent the Project’s Limit of Disturbance (LOD). The Project’s workspaces and LOD types are described in Table 4.

Construction of the Project’s aboveground facilities and the use of non-public access roads would have land requirements. Typically, new pump stations require approximately 3-4 acres of land and modifications to existing pump stations may require 2-3 acres of additional land. Support sites, such as pipe/contractor yards, will be sited on previously disturbed areas and typically range from 5-25 acres in size. Temporary use would primarily be limited to existing non-public roads, driveways, and farm lanes that would require nothing or minor improvements. Permanent access roads to stations or valve settings may also be required. All proposed temporary and permanent access roads are clearly defined within Project mapping and within agency and municipality applications. In the post-construction phase, temporary workspaces will be stabilized and allowed to revert, or be restored to, pre-construction conditions.

**Table 4. Pennsylvania Pipeline Project – Workspace/Limits of Disturbance Descriptions**

<b>Workspace/LOD Type</b>	<b>DESCRIPTION</b>
Construction Workspace	The allowable area for land disturbance and construction activities to occur in accordance with agency approvals, also referred to as the limits of disturbance (LOD)
Permanent ROW	Area where SPLP has entered an agreement with the landowner in regards to installation, operation, and maintenance of the pipelines. 50-foot-wide in most locations.
Permanent Easement	Area where SPLP has entered an agreement with the landowner in regards to installation, operation, and maintenance of the pipelines, however construction, operations and maintenance activities is limited within the easement to defined LODs. 50-foot-wide in most locations.
Temporary Workspace	Temporary workspace needed to facilitate the installation of the pipelines and is aligned along the Permanent ROW. Typically totals an additional 25 feet of construction ROW width.
Additional Temporary Workspace or ATWS	Additional temporary workspace needed to facilitate the installation of the pipelines. Typically sited at resource or infrastructure crossings and/or at HDD/conventional bore sites to accommodate additional equipment, spoil, and staging.
20-ft Spoil Space	An expansion of the 75-foot-wide construction corridor by 20 feet in some locations. This occurs, and is limited to, the overlap with other SPLP ROWs. The area is designated for spoil stockpiling only and no grading or land disturbance is planned.
Travel and Clearing LOD	Mechanical clearing of the land between HDD entry and exit points to meet line of sight requirements and in some cases access to other portions of the Project purposes. Sited outside of wetlands, and most streams, floodplains, and floodways. Where streams are crossed, temporary equipment bridges would be installed.
Travel LOD	Area needed to travel between HDDs or down the ROW to get to HDD and other Project workspaces. This may cross through wetland and/or streams and temporary matting and equipment bridges would be installed.
Temporary Access Road	Temporary use of a non-public, non-ROW access way to the pipeline workspaces. Often sited along existing farm, forest, and private lanes and driveways.
Permanent Access Road	New siting or improvement of an existing road to facilitate access to permanent facilities, such as block valve settings and pump stations. Often sited along existing farm, forest, and private lanes and driveways.
Station LOD	Limits of disturbance designated for the construction of a new or expansion of an existing station.
Valve LOD	Limits of disturbance designated for the construction of a new or expansion of an existing block valve. May include permanent and temporary disturbances and often overlap with pipeline installation workspaces.

## 2.5 Permit Requirements

Table 5 provides a listing of the major environmental permits, authorizations, and clearances obtained or in the process of being obtained:

**Table 5. Pennsylvania Pipeline Project – Permits, Authorizations, and Clearances**

PERMIT/ CLEARANCE	AGENCY	DIVISION/SECTION	DISTRICT/REGION	TYPE	PURPOSE/DESCRIPTION
Joint Application for Section 404 Permit (per County)-includes Section 10	USACE	Regulatory	Pittsburgh/Baltimore/Philadelphia Districts	Permit	General Permit and Individual permit to temporarily impact Clean Water Act Section 404 waters of the US and to go under Rivers and Harbors Act Section 10 waters.
Joint Application for Section 105 Permit (per County)	PADEP	Bureau of Engineering Waterways and Wetlands	All Regions	Permit	To impact waters of the Commonwealth, including Chapter 106 review and processing of Submerged Land License Agreements (SLLAs)
ESCGP-2	PADEP	Office of Water Management	Southwest Region	Permit	General land disturbance, erosion and sediment control
ESCGP-2	PADEP	Office of Water Management	Southcentral Region	Permit	General land disturbance, erosion and sediment control
ESCGP-2	PADEP	Office of Water Management	Southeast Region	Permit	General land disturbance, erosion and sediment control
Federal Endangered Species Act	USFWS	Field Office	State College Office	Clearance	Clearance that the project will not adversely affect ESA listed species, required of your state and federal authorizations
State Endangered Species	PGC	Bureau of Wildlife Habitat Management	Harrisburg Office	Clearance	Clearance that the project will not impact state sensitive wildlife.
State Endangered Species	PAFBC	Division of Environmental Services	Bellefonte Office	Clearance	Clearance that the project will not impact state sensitive fish, reptiles, and amphibians.
State Endangered Species	PA DCNR	Bureau of Forestry, Ecological Services Section	Harrisburg Office	Clearance	Clearance that the project will not impact state sensitive plants
Section 106 National Historic Preservation Act	PHMC	Headquarters	Harrisburg Office	Clearance	Clearance that the project will not impact cultural resources listed by the NHPA, required of your state and federal authorizations
PAG-10	PADEP	Bureau of Point and Non-Point Source Management	Harrisburg Office	Permit	General Permit to discharge hydrostatic test water
SFER-Gallitzin SF Crossing	PA DCNR	Bureau of Forestry	Harrisburg Office	License	Public Land Crossing - The Bureau of Forestry typically conducts an environmental review for any project on State Forest lands that may or will disrupt or otherwise modify the existing land use.
SFER-Tuscarora SF Crossing	PA DCNR	Bureau of Forestry	Harrisburg Office	License	Public Land Crossing - The Bureau of Forestry typically conducts an environmental review for any project on State Forest lands that may or will disrupt or otherwise modify the existing land use.

PERMIT/ CLEARANCE	AGENCY	DIVISION/SECTION	DISTRICT/REGION	TYPE	PURPOSE/DESCRIPTION
State Game Lands and WMAs Crossings	PGC	Bureau of Wildlife Habitat Management	Harrisburg Office	License	Public Land Crossing
Loyalhanna Lake Crossing	USACE	Real Estate/Regulatory	Pittsburgh	Easement	Public Land Crossing
Raystown Lake Crossing	USACE	Real Estate/Regulatory	Baltimore	Easement	Public Land Crossing
Appalachian Trail Crossing	NPS	NA	NA	Approval	Public land crossing
Pump Station Air Permits	PADEP	Bureau of Air Quality	Regional Offices	Approval	Determination that emissions from pump stations (new and modifications) are of minor significance
Bushy Run Battlefield	PHMC	Headquarters	Harrisburg Office	Approval	Crossing of a national listed historic property
Individual docket	SRBC	NA	Harrisburg, PA	Approval	Review PPP plan for SRBC applicability for withdrawing and discharging hydrostatic test waters into the Susquehanna River Basin.
Individual docket	DRBC	NA	West Trenton, NJ	Approval	Review PPP plan for DRBC applicability for discharging hydrostatic test waters into the Delaware River Basin.
Acronyms: DRBC Delaware River Basin Commission NPS National Parks Service PADEP Pennsylvania Department of Environmental Protection PAFBC Pennsylvania Fish and Boat Commission PA DCNR Pennsylvania Department of Conservation and Natural Resources PGC Pennsylvania Game Commission PHMC Pennsylvania Historical and Museum Commission SRBC Susquehanna River Basin Commission USACE United States Army Corps of Engineers					

## 2.6 Construction Procedures

The Project will be designed, constructed, tested, owned, operated, inspected, and maintained by SPLP to conform to applicable federal, state, and applicable local requirements. As a natural gas liquids pipeline, SPLP's design, construction, maintenance and operation functions are regulated by the U.S. Department of Transportation (DOT) in Title 49 CFR Part 195 – Transportation of Hazardous Liquids by Pipeline. As such, oversight of the regulations is controlled by the federal Pipeline and Hazardous Materials Safety Administration (PHMSA) pursuant to the Hazardous Liquid Pipeline Safety Act, 49 U.S.C. 2001 et seq. The Project work is also under the jurisdiction of PA Public Utility Commission (PA PUC). The PUC directs and enforces safety standards for pipeline facilities and regulates safety practices of certificated utilities engaged in the transportation of natural gas and other gas by pipeline in Pennsylvania. Their inspectors undergo the same training and qualifications as the PHMSA inspectors and have a team assigned to inspect the construction of the project.

In addition to the PHMSA and PA PUC oversight, regulations set forth in the PADEP's approved Chapter 105, Chapter 106, and Chapter 102 permits for the construction, operation, and maintenance of the Project will be followed. These permits detail the authorized impacts to waters of the Commonwealth, as well as upland areas, through establishment of approved workspaces (i.e., the limits of disturbance) and construction methods. The Project has been designed to meet the purpose and need while minimizing the impact on landscape to the maximum extent



practicable and allowing safe installation of the facilities. Implementation of the following plans will ensure Chapter 105, 106, and 102 permit compliance:

- Erosion and Sediment Control plans;
- Post-construction Stormwater Management plans;
- Preparedness, Prevention and Contingency Plan (e.g., spill response plan);
- Water Supply Assessment, Preparedness, Prevention and Contingency Plan;
- Inadvertent Return Assessment, Preparedness, Prevention and Contingency Plan;
- Void Mitigation Plan for Karst Terrain and Underground Mining
- Cultural Resource Unanticipated Discovery Plan; and,
- Sensitive Species Conservation plans;

The construction methods designed under the criteria and guidance of existing PADEP regulations, the permit authorizations, and through agency consultation and coordination are summarized in the following subsections.

## **2.7 Construction Schedule**

Construction is planned to commence immediately upon receipt of all necessary regulatory approvals. Construction of the Project would commence only after SPLP has obtained all appropriate PADEP and U.S. Army Corps of Engineers authorizations. All Project facilities are anticipated to be placed in-service no later than October 2017. In general, the 20-inch pipeline would be installed first, followed by the 16-inch line. Both pipelines will be installed within the same limit of disturbance so there would be no additional, temporary disturbance resulting from a second separate installation. For safety purposes, the installation would be staggered by what is estimated to be no more than 60 days. At some HDDs with longer drills, however, the time period between installation of the two pipelines may exceed 60 days. Any temporary stabilization required between installations would be implemented in accordance with the E&S Plan.

## **3.0 GENERAL CONSTRUCTION**

The general procedures for pipeline construction that would be followed are described in this section. SPLP would use conventional techniques for buried pipeline and above ground facility construction and would follow the descriptions, requirements, and procedures set forth in the E&S Plan (including post-construction stormwater management plans) to ensure safe, stable, and reliable transmission facilities consistent with SPLP and PHSMA specifications. At a minimum, SPLP would perform the following procedures:

### **3.1 Marking the Corridor and Sensitive Areas**

Affected landowners will be notified before the preconstruction survey and staking commence. After these notifications, a land survey crew will survey and stake the outside limits of disturbance, the centerline of the pipeline, wetlands, streams, drainages, highway and railroad crossings, and access roads. Existing utility lines (e.g., cables, conduits, and pipelines) will be located and marked with flags, stakes, or other devices to prevent accidental damage during pipeline construction. Avoidance areas such as wetland boundaries, cultural resource sites, and sensitive species habitat will be marked with appropriate fencing, flagging, and/or signage based on agency approvals and permit conditions. Approved, non-public off-ROW access to the Project areas will be clearly signed as such to prevent inadvertent use of unapproved access points and roads. All sensitive area markings and signage will be inspected ahead of construction crews regularly to ensure the markings and restrictions are intact before each phase of construction.

### **3.2 Clearing, E&S Control, Grading, and Fencing**

The construction corridor will be cleared and graded to remove brush, trees, roots, and other obstructions such as large rocks and stumps. Tree felling activities will be conducted in accordance with the permit conditions and any agency-directed conservation plans, if required. Non-woody vegetation may be mowed to ground level. Temporary fences and gates will be installed as needed to restrict non-authorized access or at the request of landowners. No cleared material will be placed within wetland/stream areas.

SPLP anticipates disposal of trees cleared from the ROW using several different methods. Trees, if suitable, may be taken off site by the clearing contractor and used for timber. Trees may be chipped on site and the chips removed. Chipped material not removed may be spread across the ROW within upland areas in a manner that does not inhibit revegetation. Wood chips will not be distributed onto agricultural areas, in wetlands, or within 50 feet of wetlands/streams. Also, wood chips will not be stockpiled in a manner that they may be transported into a wetland/stream.

Construction workspaces will be temporarily graded where necessary within the LOD to allow for the safe movement of construction equipment, personnel, and installation of the pipelines. Grading will include removing topographic irregularities to provide safe working surfaces. In general, grading will provide working surfaces to allow machinery to operate on one side of the trench (working side) with excavated materials stockpiled on the other (nonworking side). Temporary grading at other locations, such as ATWS and temporary access roads will also occur as necessary to allow for safe working surfaces for which to conduct the activities necessary to install the proposed facilities. To minimize impact to the soil profile, up to 12 inches of topsoil will be segregated from subsoil during grading and would remain segregated during construction. Only within saturated/inundated wetlands will separation of the topsoil be allowed not to occur.

During construction, all land disturbance is limited to the defined LOD. Within the LOD, contractors are to minimize land disturbance to the maximum extent. Repeated travel is restricted to travel lanes and travel throughs are limited to those necessary to complete the work. Implementation of industry standard construction sequencing ensures the number of passes with equipment and duration of the Project is minimized. In wetlands and other sensitive areas, the installation of timber mats (or equal such as composite matting), and limiting equipment and vehicle travel, ensures compaction is minimized. In addition, top soil segregation and restoration BMPs offer significant protection to the layer most vulnerable to compaction. In agricultural areas, severely compacted areas are to be plowed with a harrow, paraplow, paratill or other equipment before subsoil replacement. Vehicular traffic is to be restricted from areas that are ready to be seeded.

### **3.3 Trenching**

In most areas characterized by normal soils, the trench for the pipeline will be excavated by crawler-mounted, rotary wheel-type trenching machines or track-mounted excavators. The trench generally would be approximately 4-5 feet wide and of sufficient depth to allow for the minimum cover requirements to the top of the pipe. Cover depths will be a minimum of 4 feet from the restored grade to the top of the pipe in all areas, except at stream crossings where it will be a minimum of 5 feet from the stream bottom. In some areas, triple ditching (subsoil layer segregation) may be required to protect sensitive resources.

Crossing of third-party pipelines will generally require the pipeline to be buried at greater depths depending upon the depth of the third-party pipeline. A minimum of 12 inches of clearance will

be maintained when crossing SPLP pipelines, third-party pipelines, utilities, or other structures. Prior to the commencement of construction activities, the "Pennsylvania One Call" system, as well as the national "811" call system, will be contacted to have underground utilities and third-party pipelines identified and marked. Trenching in the vicinity of these third-party utilities will begin only after completing the appropriate notification procedures. Measures will be taken to minimize the free flow of water into the trench and through the trench into waterbodies in accordance the E&S Plan (e.g. temporary slope and trench breakers).

### **3.4 Pipe Stringing**

After clearing, grading, and trenching the Project areas are ready to receive and install the pipe and the next sequence is referred to as "stringing". The stringing operation involves moving the pipe sections or "joints" into position along the prepared ROW. Joints are moved by truck from the pipeline storage areas to the ROW, where they are strung along the side and in parallel with the trench. In some locations, such as at stream crossings, the pipe section is prepared in adjacent areas and then the assembled section is "tied-in" at the resource crossing. The amount of pipe necessary for tie-in locations will be stockpiled in the vicinity of each crossing at established ATWS areas. At HDD locations the pipe is strung and assembled within a pullback section and "pulled-back" through the bore hole. The pullback area is often located within the permanent ROW/temporary workspace, but ATWS may be added to the design to accommodate this activity where necessary.

### **3.5 Pipe Preparation and Lowering-In**

Each welder will be qualified in accordance with federal regulations using approved welding procedures. The pipe joints will be welded together using qualified welding procedures. Qualified inspectors will perform inspection of the pipe welding. Bending, welding, and coating in the field will comply with DOT regulations, 49 C.F.R. Part 195. The pipe will be protected with an external coating designed to protect the pipe from corrosion. Except for a small area at the weld points, this coating is generally applied at the pipe mill before shipment to the site. The weld locations are coated in the field with similar or compatible materials. The pipe coating will be inspected for defects and repaired, if necessary, prior to lowering-in. To ensure the integrity of the weld, all welds are x-ray inspected by qualified technicians.

Once the pipeline has been welded together, coated and inspected, the pipe is lowered into the trench. If the bottom of the trench is rocky, methods to protect the pipe will be used, including the possible use of sandbags or screened/filtered dirt at designated intervals along the trench. Trench dewatering may be required in certain locations to prevent the pipe from floating and also to perform certain limited activities in the trench. Trench dewatering will be performed in accordance with the E&S Plan.

### **3.6 Backfilling and Grade Restoration**

After lowering in, the trench will be backfilled. Backfill consists of the material originally excavated from the trench, including rock to the existing rock profile. Any excess excavated materials or materials unsuitable for backfill will be handled, as approved by landowner or land management agency, or disposed of in accordance with applicable regulations. In areas where topsoil has been segregated, the subsoil will be placed in the trench first and then the topsoil will be placed over the subsoil. If triple ditching is implemented, the segregated soils will be placed back in the reverse order removed to their proper horizon. Backfilling will occur to approximate grade.

However, a soil crown may be placed above the trench at the discretion of the SPLP inspector and landowner to accommodate soil settlement.

### **3.7 Hydrostatic Testing**

Hydrostatic testing involves filling a pipeline segment with water and performing a pressure test. SPLP utilizes hydrostatic tests for a variety of applications, such as strength testing prior to commissioning a newly constructed pipeline, testing pipeline replacement sections before being tied into the main pipeline, as a periodic pipeline reassessment method after a pipeline has been in operation, or to establish a new maximum operating pressure. The hydrostatic tests are used to ensure that the pipeline is suitable for service prior to commissioning.

A combination of approved surface water sources (SWSs) and public water sources (PWSs) will be used to provide the water required for horizontal directional drilling (HDD), hydrostatic testing of pipeline segments installed by HDD, and hydrostatic testing of the main pipeline. The pipeline will be tested hydrostatically in accordance with DOT regulations, 49 C.F.R. Part 195. The pipeline will be filled with water and maintained at a test pressure and duration in compliance with SPLP's engineering standards and applicable federal regulations. After completion of a satisfactory test, the water will be discharged to the ground in accordance with the E&S Plan and obtained discharge permits or trucked to an offsite facility. HDD segments will be hydrostatically tested individually after the installation process. Subsequently, once the entire pipeline has been installed within a construction spread, the full pipeline will be hydrostatically tested. More details regarding hydrostatic testing are identified and outlined within the Impact Avoidance, Minimization, and Mitigation Procedures provided in Attachment 11, Section E, Part 4 of the Project's Chapter 105 Joint Application for Permit.

### **3.8 Clean-up and Restoration**

After the completion of backfilling, disturbed areas will be graded, and any remaining trash and debris would be properly disposed of in compliance with federal, state, and local regulations. The construction corridor will be protected through the implementation of restoration best management practices, such as site-specific contouring, permanent slope breakers, mulching, and reseeded, in accordance with the E&S Plan. In some areas, restoration of the temporarily disturbed areas requires special plantings and protections. These special planting areas are identified and outlined within the Impact Avoidance, Minimization, and Mitigation Procedures provided in Attachment 11, Section E, Part 4 of the Project's Chapter 105 Joint Application for Permit.

### **3.9 Cathodic Protection**

SPLP will utilize its existing cathodic protection system installed for the ME1 project to provide cathodic protection for a large majority of the Project. There will be three areas where the ME2 piping deviates from the ME1 route long enough to require protecting the proposed Project's piping separately from the ME1 piping. These three PPP anode locations will be at above ground facilities (Valley Forge Road, Trindle Road Valve, and Twin Oaks Station) and will not involve any work in waters of the Commonwealth or additional LOD. Once the new pipelines are bonded into the current CP system and the three new CP systems are energized, SPLP will inspect the entire line for effective cathodic protection coverage. In the unlikely event there is gap in coverage, SPLP will determine what steps are required for full coverage. However, any modifications will not require work in waters of the Commonwealth.

Over the operational life of the pipeline, routine inspection activities may identify the need for future maintenance and repair of the cathodic protection system at specific anode locations. These specific anode locations are currently located in upland areas and will not require work in waters of the Commonwealth. In addition, specific anode locations are not anticipated to involve greater than 5 acres of disturbance, and any required vegetation clearing activities will be in upland areas. In the unlikely event future maintenance or repair activities are located in waters of the Commonwealth or otherwise require permitting, SPLP will obtain and comply with applicable federal and state permits.

### **3.10 Block Valves**

There are 53 mainline block valve sets planned for this Project, of which 22 are sited at existing valve sites, and 5 are sited at existing pump stations. New block valve sites require the installation of a permanent access road. Block valves are installed for the purpose of shutting off sections of the pipeline to allow maintenance or to stop flow in the case of emergencies. Block valves are installed in accordance with PHMSA requirements, and reference recommendations from ASME B31.4. PHMSA requires block valves to be installed on the suction end and discharge end of a pump station, at locations along the pipeline system that will minimize damage or pollution from accidental hazardous liquid discharge, and on each side of a major water crossing. SPLP has determined that in the interest of facilitating operational control, it will place block valves at every railroad crossing, at every water crossing wider than 100 feet, and at a minimum of one per 10 miles with closer densities in areas with denser populations. Block valves will be constructed in accordance with state and local approved site-development and post-construction storm-water management plans.

### **3.11 Pump Stations**

The new construction and modification of Pump Stations listed in Section 2.2 will be constructed in accordance with PADEP approved site-development and post-construction storm-water management plans.

## **4.0 SPECIALIZED CONSTRUCTION**

The following special pipeline construction methods are proposed for steep topography, residential, agricultural, and environmentally sensitive areas.

### **4.1 Steep Topography**

Steeply sloped topography is present along portions of the Project. Permanent trench breakers consisting of sandbags or foam (gravel or cement filled sacks may also be used) will be installed in the ditch over and around the pipe in areas of slope with high erosion potential. Trench breakers will be used to isolate wet areas and to minimize channeling of groundwater along the ditch line. In areas along the ROW where steep, rugged topography is encountered and the pipeline will be constructed on the side slope, two-tone cut and fill construction methods will be utilized for equipment and/or personnel safety considerations. ATWS is often planned at these locations to accommodate excavated material from the temporary cut and fill areas while allowing for the temporary storage of trench spoil, excess rock material, cut timber, and in some cases salvageable topsoil.

During grading, when side slopes that require special construction are encountered, the up-slope side of the pipeline ROW will be cut. The material removed from the cut will be used to fill the down-slope edge of the ROW to provide a safe and level surface from which to operate the heavy

equipment. During grade restoration, the spoil will be placed back in the cut and compacted. Any springs or seeps found in the cut will be carried down-slope through polyvinyl chloride (commonly referred to as PVC) pipe and/or gravel French drains installed as part of the cut restoration.

In the areas of construction where the slope exceeds 28 degrees, a special means of manipulating the construction equipment may be utilized. The preferred method will be “winching” the equipment. This process consists of placing and anchoring a tractor at the top of the slope and using a winch to manipulate the equipment up and down the slope.

## **4.2 Void Mitigation**

SPLP has developed a Void Mitigation Plan for Karst Terrain and Underground Mining, which provides an assessment of potential impacts and avoidance and mitigation measures during open-cut and drilling procedures, is provided as part of the E&S Plan. The Water Supply Assessment, Prevention, Preparedness, and Contingency Plan (Water Supply Plan) and Inadvertent Return Assessment, Prevention, Preparedness, and Contingency Plan (IR Plan) also provide an assessment of the geology in terms of potential risks to groundwater supplies from below surface inadvertent returns. An evaluation of baseline geology as well as site-specific geotechnical soil borings was used at each HDD location to aid in the planning and design of each HDD. All HDD planning was reviewed by a Pennsylvania licensed professional geologists and hydrogeologists. An inadvertent return risk assessment of the final design of each HDD is provided within the IR Plan.

## **4.3 Residential Areas**

Temporary construction impacts on residential areas could include inconvenience caused by noise and dust generated by construction equipment, personnel, and trenching of roads or driveways; ground disturbance of lawns; removal of trees, landscaped shrubs, or other vegetative screening between residences; potential damage to existing septic systems or wells; and removal of aboveground structures such as fences, sheds, or trailers from the ROW. In many areas across the Project these impacts have been greatly reduced through the implementation of HDD technology.

Construction through or near residential areas will be done in a manner to ensure that all construction activities minimize adverse impacts on residences and that cleanup is prompt and thorough. Affected landowners will be notified at least three to five days before construction commences, unless more advance notice is required pursuant to a landowner agreement. Access to homes will be maintained, except for the brief periods essential for laying the new pipeline. SPLP will implement the following general measures to minimize construction-related impacts on all residences and other structures located within 50 feet of the construction ROW, including:

- Maintain, where feasible, a minimum distance of 25 feet between any residence and the edge of the construction workspace.
- Install a safety fence at the edge of the construction ROW for a distance of 100 feet on either side of the residence;
- Install a fence at the boundary of the construction workspace to ensure that construction equipment and materials, including the spoil pile, remain within the construction workspace;
- Restore all lawn areas and landscaping within the construction ROW consistent with the E&S Plan;

- Leave intact landscaping and mature trees that are located outside of the permanent easement but within the construction workspace unless the trees and landscaping interfere with the installation techniques or present unsafe working conditions;
- Abate dust where and when necessary;
- Backfill the trench within 10 days after the pipe is laid or temporarily place steel plates over the trench; and
- Complete final cleanup, grading, and installation of permanent erosion control devices within 10 days after backfilling the trench, weather permitting.

To ensure that the trench is backfilled within 10 days after pipeline installation through residential areas, SPLP will use a typical pipeline construction sequence in which the pipeline installation crew is followed by a separate backfill crew. SPLP will require its contractor, by contractual agreement, to backfill trenches in residential areas as soon as practical after the installation of the pipeline. Topsoil in landscaped lawns will be segregated and replaced. Immediately after backfilling, residential areas will be restored and all construction debris will be removed. Compaction testing will be completed and soil compaction mitigation will be performed in severely compacted areas. Undisturbed areas within the LOD will be raked, with topsoil added as necessary, and restored. Ornamental shrubs/trees will be replaced in accordance with landowner agreements.

Private property such as mailboxes, fences, and gates that are removed will be restored, to the extent that such private property does not interfere with the safe operation of the pipeline. Sidewalks, driveways, and roads disturbed by pipeline construction will be restored to original or better condition upon completion of construction activities. After restoration is complete, a SPLP representative will contact landowners to ensure that conditions of all agreements have been met and that the landowner has been compensated for damage incurred during construction.

If the construction ROW crosses a road or driveway, SPLP will maintain existing access or provide alternative access so residents and emergency service providers have continuous ingress/egress to the homes. If the road is open cut, one lane will remain open during construction or traffic will be detoured around the workspace through the use of adjacent roadways. Traffic safety personnel will be present during construction periods, and signage and safety measures will be developed in compliance with applicable state and local roadway crossing permits. To the maximum extent practicable, SPLP will schedule work within roadways to avoid commuter traffic and impacts on school bus schedules. In general, SPLP will implement the following practices during construction within residential areas.

- **Stove-Pipe Construction Method** - The stove-pipe construction method is typically used when the pipeline is to be installed in very close proximity to an existing structure and an open trench would not be feasible. The technique involves installing one joint of pipe at a time in which the welding, weld inspection, and coating activities are all performed in the open trench, thereby reducing the width of the construction ROW. At the end of each day, the trench is backfilled and/or covered with steel plates or timber mats. The length of excavation performed each day would typically not exceed the amount of pipe installed.
- **Drag-Section Method** - The drag-section construction method is another method that reduces the width of the construction ROW. This technique involves the trenching, installation, and backfill of a prefabricated length of pipe containing several pipeline sections all in one day. As in the stovepipe method, the trench is backfilled and/or

covered with steel plates or timber mats at the end of each day after the pipe is lowered in.

#### **4.4 Agricultural Lands**

To preserve soil productivity in agricultural lands, as with other locations, topsoil will be segregated and stored separately from subsoil during construction in agricultural lands. SPLP will utilize full ROW topsoil segregation. Rock will be removed from the top 12 inches (topsoil layer) or to the existing subsoil horizon during initial clean-up to a level such that the construction ROW is similar to surrounding areas. During the backfilling and restoration phases, topsoil will be replaced, and any stones removed will be handled in accordance the E&S Plan and individual landowner agreements. Any drain tiles damaged during construction will be repaired or replaced.

#### **4.5 Road and Railroad Crossings**

SPLP has located all public road and railway crossing and made provisions for traffic management at all workspaces. SPLP has obtained or will obtain all necessary railroad and road crossing permits. In addition, driveway permits for the creation of temporary and permanent access off of public roads have been or will be obtained. Railroad crossings will be completed using HDD or conventional boring methods. Road will be crossed by standard open-cut, HDD, or conventional bore.

#### **4.6 Utility Crossings**

Crossing of third-party pipelines will generally require the pipeline to be buried at greater depths depending upon the depth of the third-party pipeline. A minimum of 12 inches of clearance will be maintained when crossing third-party pipelines, utilities, or other structures. Pipeline burial depths in areas requiring special construction techniques through rock will be in accordance with DOT requirements, 49 C.F.R. Part 195. Prior to the commencement of construction activities, the "Pennsylvania One Call" system, as well as the national "811" call system, will be contacted to have underground utilities and third-party pipelines identified and marked. Trenching in the vicinity of these third-party utilities will begin only after completing the appropriate notification procedures.

#### **4.7 Horizontal Directional Drill Crossings**

HDD technology involves the drilling of a bore hole through an underground pathway that facilitates the subsurface installation of a section of pipeline. HDD crossing technology is utilized for a variety of purposes, including but not limited to avoidance of surface impacts to sensitive resources, avoidance of impacts to major roadways and infrastructure, and reduction of impacts to residential areas. HDD entry and exit workspace is located outside of the resource and associated buffer being avoided. Standard typical details for HDD entry and exit points are provided within the E&S Plan and HDD plan and profile drawings are provided within Attachment 7B of the Project's Chapter 105 Joint Permit Application.

HDDs involve the use of drilling fluid to lubricate the drill heads for pilot hole drilling, reaming, and pipe pullback activities. Prevention of the release of drilling fluids from the confines of the bore hole are discussed within the Project's IR Plan. The Project's IR Plan discusses the preconstruction activities, such as geotechnical borings, lessons learned, and risk assessments that have been used in preparation of the final design of the HDD. The IR Plan also addresses the preparedness and contingencies measures for inadvertent releases.



A specialized drill rig is used to advance an angled drill head along a trajectory using a telemetry guidance system that provides accurate “steering” of the drill head in accordance with the drill plan. The telemetry guidance system requires a 4-6 gauge wire to be strung along the HDD alignment to allow for accurate drill head tracking. SPLP has identified those crossings that require Aids to Navigation Plans (ATON plans) through consultations with PAFBC. SPLP has prepared and has received approval from the PAFBC of the ATON plans for the stringing of the telemetry wire for those water crossings with potential for recreational or commercial navigation. ATON plans and the approval are provided in Attachment 7, Tab 7B.

#### **4.8 Conventional Bore Crossings**

Conventional bores are used primarily at road ways and other features such as wetlands and streams to avoid surface impacts. Excavation of bore pits at a planned distance apart allows for the drilling of the hole underneath the feature and subsequent insertion of the section of pipe. Conventional bore entry and exit workspace is located outside of the resource and associated buffer being avoided. Similar to the HDD method, a conventional bore would generally follow the steps outlined above, with the exception of steps related to drilling fluid. Standard typical details for conventional bores and site-specific bore drawings where determined necessary are provided within the Project’s E&S Plan (Attachment 12 of the Project’s Chapter 105 Joint Application for Permit).

#### **4.9 Waterbody and Wetland Crossing Construction**

SPLP will utilize one or more of the following methods to facilitate the crossing of streams and wetlands with vehicles, equipment, and haul trucks:

- **Timber Mat Bridge** – A temporary bridge assembled of timber mats. Typically installed at ephemeral and minor stream crossings. See E&S Plan standard typical drawing for details.
- **Culvert Bridge** – A temporary bridge installed with the use of culverts. Rock fill is used to form the road surface, which may be covered with timber mats. Utilized at medium and large stream crossings. See E&S Plan standard typical drawing for details.
- **Rail Car Bridge** – A temporary bridge assemble from a rail car. Utilized at medium and large stream crossings. See E&S Plan standard typical detail drawing for details.
- **Timber Mat Wetland Crossings** – Timber mats will also be utilized when access is required within wetlands. See E&S Plan standard typical detail drawing for details.

SPLP will utilize one or more of the following methods for installing the pipeline across streams and wetlands with an open-trench:

- **Dry Open-Cut** - Minor waterbodies with no flow at the time of construction may be crossed using the open-cut crossing method. See E&S Plan standard typical detail drawing for details.
- **Dry Flume** - A flumed or dry crossing of a stream directs the flow of a stream through an alternate mechanism to allow for the trenching and pipe installation to occur in dry conditions. Where practical, this allows for drier trenching, pipe installation, and

restoration while maintaining continuous downstream flow. See E&S Plan standard typical detail drawing for details.

- **Dry Pump Bypass** - The dam and pump method may be used for crossings of waterbodies where pumps can adequately transfer stream flow volumes around the workspace and there are no concerns about sensitive species passage. See E&S Plan standard typical detail drawing for details.
- **Dry Cofferdam** - The cofferdam method, typically used on large streams/streams, involves the installation of a cofferdam to isolate and divert flow around the workspace in two phases. The first phase consists of the cofferdam installation on one of the banks and approximately halfway into the river to allow safe and dry installation of the pipeline across the river. The second phase involves the same process but from the opposite bank. This method allows continuous flow around the workspace and eliminates concerns about sensitive species passage. See E&S Plan standard typical detail drawing for details.

SPLP will utilize one or more of the following methods for installing the pipeline across wetlands with an open trench:

- **Drag Section Technique** – This technique involves carrying a prefabricated section of pipe into the wetland for placement into the excavated trench, if soil conditions permit. This technique requires the installation of equipment support along the working side of the trench to provide a stable work surface and minimize soil disturbance and rutting.
- **Push/Pull Technique** – This technique is generally used only in wetlands with standing water or soils that are saturated to the surface. The trench may be excavated using either a backhoe (working on equipment support in the wetland) or a dragline or clamshell dredge (working either in the wetland on equipment support or from the edge of the wetland, depending on wetland size and extent of soil saturation). A prefabricated pipe is pushed from the edge of the wetland and/or pulled (e.g., with a winch) from the opposite bank of the wetland into the excavated trench. Floats may be attached to the pipe to give it positive buoyancy, allowing it to be “floated” into place over the excavated trench. Once the pipe is positioned, these floats will be removed and the pipe will settle to the bottom of the trench and the trench will then be backfilled. The push/pull technique enables the pipeline to be installed with minimal equipment operating in the wetland.

The Project does not propose permanent fill to waterbodies or wetlands. Most potential impacts to these areas will be avoided utilizing HDD or conventional bore crossing methods. Any remaining potential impacts are considered to be minor and temporary. Waterbody and wetland crossings will be restored in accordance with the E&S Plans that dictate the restoration of the existing condition topography, stream bed substrate, and wetland soils, hydrology, and vegetation.

#### **4.10 Rock and Bedrock**

SPLP anticipates that shallow bedrock will generally be removed using mechanical equipment such as hydraulic excavators, rock-ditching machines, rock saws, hydraulic rams, jack hammers, dozer drawn rippers, or other techniques in lieu of blasting. Uses of these mechanical techniques

are directly dependent on the extent of the rock and its qualities. Although not anticipated, if blasting is required, all appropriate permits will be secured.

## **5.0 PREVENTION PLANS AND WASTE MANAGEMENT**

### **5.1 Spill Prevention and Preparedness**

SPLP has developed four plans that accompany the E&S Plan that are designed to assess the potential impacts and provide for the protection of upland areas, and surface and groundwater from contamination due to Project activities. The overarching Prevention, Preparedness, and Contingency Plan (PPC Plan) is designed to address spill prevention in general, and potential impacts to surface waters and public and private water supplies in particular have been analyzed and addressed within two supplemental plans to the PPC Plan; the Water Supply Assessment, Prevention, Preparedness, and Contingency Plan (Water Supply Plan) and the Inadvertent Return Assessment, Prevention, Preparedness, and Contingency Plan (IR Plan). The Water Supply Plan provides for the assessment of the existing environment in terms of public and private water supplies in or along the Project areas and impacted waters, as well as the prevention and preparedness measures to be implemented to protect those supplies. The IR Plan outlines the preconstruction activities implemented to ensure sound geological features are included in the HDD profile, the measures to prevent impact, and the preparedness plan if an impact were to occur. In addition, a Void Mitigation Plan for Karst Terrain and Underground Mining is provided as part of the E&S Plan and provides an assessment of potential impacts and avoidance and mitigation measures during open-cut and drilling procedures. The purpose of these plans are to protect groundwater resources Project-wide. Attachment 12 of the Project's Chapter 105 Joint Permit Application includes these four plans.

### **5.2 Waste Management**

Waste management during the Project will comply with all applicable federal, state, and local regulations and SPLP's Avoidance, Minimization, and Mitigation Procedures located in Attachment 11, Enclosure E, Part 4 of the Project's Chapter 105 Joint Permit Application. SPLP will review the requirements for proper waste management and clean-up with all Project personnel and SPLP will be responsible for ensuring that procedures are set in place within contract documents in regards how to handle, store, transport, and dispose of waste.

### **5.3 Impacted Soil**

To comply with the regulatory requirements set forth in 25 Pa. Code Section 78, SPLP has developed a PPC Plan for effective action to minimize and abate hazards to human health and the environment from fire, explosion, emission or discharge of pollutants to air, soil, surface water, or groundwater. Although hazardous materials (other than diesel fuel) are not planned for use on the Project, SPLP's PPC Plan describes the actions that SPLP or contractor personnel will take regarding hazardous materials if encountered, including unanticipated impacted soils.

## **6.0 WATER RESOURCE IMPACTS**

Constructing and operating a natural gas liquids pipeline is not, per se, a water-dependent project. However, because of Pennsylvania's abundant water and wetland resources, any project which travels approximately 300 miles east-west across the Commonwealth requires the crossing of, and therefore access to, waters and wetlands. The Project requires access and proximity to and siting in, on, over or under waters and wetlands in order to achieve its primary purpose to transport natural gas liquids from Houston, Washington County to SPLP's existing facility in

Marcus Hook, Delaware County. Therefore, the linear nature and approximately 300 mile length of the Project across 17 counties east-west in Pennsylvania makes the Project water-dependent.

As demonstrated within the Joint Permit Application, SPLP has avoided and minimized potential impacts to waters and wetlands from the Project. In so doing, the analysis set forth therein concludes that there is no practicable alternative to each of the crossings to waters and wetlands that would have less effect on each water or wetland, and not have other significant adverse effects on the environment, taking into consideration construction costs, existing technology and logistics.

The Project does not propose permanent fill in any waterbodies or wetlands. All impacts to these resources are considered to be minor and temporary, or completely avoided utilizing HDD or conventional bore crossing methods. Waterbody and wetland crossings will be restored in accordance with the E&S Plan (Attachment 12) that dictates the restoration of the existing topography, stream bed substrate, and wetland soils, hydrology, and vegetation. The Impact Avoidance, Minimization, and Mitigation Procedures provided in Attachment 11, Enclosure E, Part 4 describes the proposed construction crossing methods and mitigation measures, and Attachment 11, Enclosure E Part 2 provides a Project-wide description of the direct and indirect/secondary impacts to the wetland/stream resources crossed by the Project. Tables 2 through 4 included in this Attachment 11 provide specific details regarding the water type, crossing distances, PADEP defined temporary and permanent impacts, and crossing methods for all the water resources impacted. Table 6 provides a summary of the PADEP defined permanent and temporary impacts to wetlands, streams, and floodways.

## **7.0 POST-CONSTRUCTION MONITORING**

The majority of the Project areas are temporarily impacted and are restored to original grade, stabilized, and vegetated in accordance with the E&S Plan. Uplands are required to meet the criteria set forth within the E&S Plan for over 70% perennial vegetated cover. Wetland and stream bank areas are under the same general requirement of 70% vegetated cover, however there are additional stipulations/conditions for wetland and stream bank restoration as outlined the Impact Avoidance, Minimization, and Mitigation Procedures provided in Attachment 11, Section E, Part 4 of the Project's Chapter 105 Joint Permit Application. The Impact Avoidance, Minimization, and Mitigation Procedures also provides wetland and stream monitoring conditions for the Project. Received agency permits may also contain wetland and stream monitoring conditions for which SPLP would adhere to through its environmental compliance program (see Section 10.0). Wetlands and streams, including any special planting areas or sensitive species habitats will be monitored in accordance with agency permits and clearances and approved species conservation plans (see Sections 9.0 and 10.0).

**Table 6. Pennsylvania Pipeline Project – Wetland, Stream, and Floodway Impacts**

County	Permanent Wetland Impact (acres) <sup>1</sup>	Temporary Wetland Impact (acres) <sup>2</sup>	Permanent Stream Impact (acres) <sup>1</sup>	Temporary Stream Impact (acres) <sup>2</sup>	Permanent Floodway Impact (acres) <sup>1</sup>	Temporary Floodway Impact (acres) <sup>2</sup>
Washington	0.431	0.143	0.700	0.037	7.062	2.915
Alleghany	0.361	0	0.246	0.001	3.537	1.443
Westmoreland	2.755	0.793	0.984	0.217	16.221	8.296
Indiana	1.151	0.269	0.771	0.042	11.563	5.426
Cambria	3.607	1.193	1.174	0.063	16.085	6.955
Blair	2.415	0.810	0.446	0.032	6.495	3.871
Huntington	2.854	0.681	1.664	0.082	16.900	7.378
Juniata	0.152	0.100	0.516	0.020	4.320	1.643
Perry	1.188	0.006	0.510	0.050	3.958	2.305
Cumberland	5.068	0.548	1.286	0.020	15.846	5.774
York	0.255	0.148	0.266	0.048	3.157	1.934
Dauphin	1.525	0.366	0.858	0.122	6.452	5.013
Lebanon	1.138	0.020	0.882	0.007	4.561	1.981
Lancaster	1.341	0.209	0.285	0.096	1.985	0.562
Berks	2.151	0.030	0.687	0.007	7.502	3.353
Chester	3.713	0.001	0.243	0.028	3.435	1.833
Delaware	0.455	0.830	0.597	0.011	4.073	1.979
<b>PROJECT TOTAL</b>	<b>30.560</b>	<b>6.147</b>	<b>12.115</b>	<b>0.883</b>	<b>133.152</b>	<b>62.661</b>

Note: When SPLP submitted its original Chapter 105 applications, it conservatively estimated for purposes of calculating the application fee to the Commonwealth that the area of all disturbed wetlands would be permanently impacted, and paid the application fee accordingly. It must be noted that only 0.405 acres of wetlands will be permanently converted, and payment of the prior fee should not be construed to indicate that SPLP considers the remaining temporary incursions into wetlands to be permanent. In fact, all such areas will be restored to original function and values, and replanted to pre-construction conditions, excepting for the 0.405 acres of palustrine forested wetlands, which will be converted to palustrine emergent wetlands following construction of the Project.

<sup>1</sup>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.” There is no permanent loss of these acreages of these types of resources.

<sup>2</sup>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.

## **8.0 COMPENSATORY MITIGATION**

For unavoidable permanent impacts to wetland resources a compensatory mitigation plan has been developed and is provided in Attachment 11, Enclosure F of the Project's Chapter 105 Joint Permit Application.

## **9.0 THREATENED AND ENDANGERED SPECIES – SUMMARY AND COMMITMENTS**

The following is a summary of the investigations and agency coordination performed regarding endangered and threatened species, which started with a Pennsylvania Natural Diversity Inventory (PNDI) consultation. As described below, SPLP has completed consultation with the four natural resource regulatory agencies to ensure the Project either does not impact or, at a minimum avoids, adverse impacts to state or federally listed sensitive species. Attachment 6 of the Project's Joint Permit Application organizes the PNDI correspondences and provides the final determination letters and approved conservation plans. A summary listing of the conditions drawn from the final determination letters and submitted and approved conservation plans is presented as Appendix B. Additional consultation with these natural resource regulatory agencies will be performed if and as needed.

### **9.1 PA DCNR**

The Pennsylvania Department of Conservation and Natural Resources (DCNR) response dated January 30, 2014, identified Areas of Concern (AOCs) for various plants along the 1500 foot buffer requested review area along the Project's facilities and provided ArcGIS shapefiles of these AOCs. An additional inquiry was sent to DCNR regarding some potential reroutes on the Project and additional AOCs were provided in another response letter received on March 13, 2014. A meeting was held with DCNR on April 16, 2015 to discuss the previous year's survey results, project changes, and planned upcoming surveys.

Based on the habitat requirements and phenology of the various species identified, teams of qualified botanists have surveyed the AOCs with project intersects and have documented/recorded the presence or absence of target species for each area. Surveys were started in April 2014 and were complete in August 2015 evaluating all the species identified in the AOCs provided. Following the completion of field surveys, the results were presented to the DCNR in a November 4, 2015 request for effects determination that included a supporting survey report and conservation plan. Project changes were evaluated for intersection with AOCs and if not surveyed previously, the AOC was surveyed accordingly.

SPLP received a no impact determination response letter from the DCNR on January 15, 2016, for species and resources of concern under DCNR's responsibility, which includes plants, terrestrial invertebrates, natural communities, and geologic features. The DCNR determination letter included measures such as placing fencing around sensitive populations, sod-excavation and replacement, monitoring by a botanist, and monitoring reports for *Actaea podocarpa* and *Antennaria virginica*. These measures are included within the DCNR accepted Conservation Plan for Identified Species [Plants] of Special Concern that is included in Attachment 6 of the Project's Chapter 105 Joint Permit Application.

## **9.2 PGC**

The Pennsylvania Game Commission (PGC) March 14, 2014 response identified the Indiana bat, Allegheny woodrat, Eastern small-footed bat, Northern harrier, Northern long-eared bat, silver-haired bat, and bald eagle as species of concern in the Project area. PGC also indicated that the Project may cross potential bat hibernacula. The PGC deferred comments/coordination to the USFWS on the Indiana bat and bald eagle, and later deferred comments on the Northern long-eared bat to the USFWS when the species was listed as Federally Threatened in May 2015. The response letter also included mapping of proposed survey areas for the Allegheny woodrat and Eastern small-footed bat and an area with restrictions due to the potential presence of the Northern harrier and its habitat. No survey activities were required for the bald eagle.

In response to the PGC's survey requirements, a team of experienced biologists surveyed the requested areas for the Allegheny woodrat and Eastern small-footed bat. Survey areas for these two species often overlapped due to similar habitat preferences. Surveys were started in June 2014 and were completed in April 2015. Survey results were submitted to PGC in July 2015.

Surveys for the bat species started in May 2014 and were completed in June 2015. Mine portal and cave field location surveys began in August 2014 and were completed in September 2014. Bat netting surveys of appropriate features began and were completed in October 2014. These survey results were provided in a report submitted to the PGC and dated September 2015.

PGC requested conservation plans be submitted for Allegheny woodrat and Eastern small-footed bat to outline conservation and mitigation measures for these species. These plans were submitted to PGC on January 15, 2016. In a letter dated June 8, 2016, the PGC approved these mitigation plans. These measures are included within the PGC letter and accepted Allegheny woodrat and Eastern small-footed bat conservation plans that are included in Attachment 6 of the Project's Chapter 105 Joint Application for Permit.

## **9.3 PAFBC**

The Pennsylvania Fish and Boat Commission (PAFBC) response dated January 27, 2014, identified the timber rattlesnake, freshwater mussels, fish, Eastern redbelly turtle, and bog turtle as species of concern in the Project areas. The PAFBC deferred comments on the bog turtle to the USFWS in the response letter. The response letter included coordinates of survey areas for the timber rattlesnake and also provided specific water bodies of concern for the mussels and fish species. PAFBC also provided direction for areas to survey for the Eastern redbelly turtle in Chester and Delaware counties, which included large, deep streams, rivers, ponds, lakes and wetlands. An additional letter was received on May 21, 2014, that included some additional survey areas for the timber rattlesnake. Additional coordination included a meeting held with PAFBC on March 4, 2015, to discuss initial survey results and planned upcoming surveys. An additional email requesting additional surveys regarding timber rattlesnake surveys was received on March 11, 2015.

In response to all of the PAFBC's survey requirements, a team of experienced biologists surveyed the requested areas for the timber rattlesnake beginning in May 2014. Surveys were completed in early July 2015. The results were presented to the PAFBC in a survey report and species protections out-lined within a Timber Rattlesnake Conservation Plan submitted in August 2015.

A team of experienced biologists surveyed appropriate areas in Chester and Delaware County for Eastern redbelly turtle habitat. Following the completion of field surveys, the results were presented to the PAFBC in a Report submitted in October 2015.

SPLP received two no impact determination response letters from the PAFBC, one on September 22, 2015, regarding the timber rattlesnake and one on October 26, 2015, for freshwater mussels, fish, and Eastern redbelly turtle. The PAFBC determination letters included measures such as fencing, time of year restrictions, preconstruction surveys, and biological monitoring. These measures are included within the PAFBC letter and accepted Timber Rattlesnake Conservation Plan that are included in Attachment 6 of the Project's Chapter 105 Joint Application for Permit.

#### **9.4 USFWS**

The USFWS response dated March 19, 2014, identified the Indiana bat, Northern long-eared bat, bog turtle, and migratory birds as species of concern and a number of follow-up conversations were held by phone for further clarification. The Northeastern bulrush was identified as an additional species of concern on April 1, 2014, and a field meeting occurred on April 29, 2014, to review some wetland areas to determine suitability for bog turtle habitat and the need for Phase II surveys.

In response to the USFWS's identification of the species of concern and the known survey requirements, surveys for the Indiana bat, Northern long-eared bat, bog turtle, and Northeastern bulrush were initiated within suitable or potentially suitable habitats within and adjacent to the Project areas. Indiana and Northern long-eared bat surveys began in May 2014 and continued during the netting season through June 2015. These survey results were provided in a Report submitted to the USFWS in October 2015. Mine portal and cave field location surveys began in August 2014 and were completed in September 2014. Bat netting surveys of appropriate features began and were completed in October 2014. These survey results were provided in the Report submitted in October 2015. A *Myotis* Conservation Plan that outlined SPLP's commitments to avoidance of impacts on these species was also submitted in October 2015 for Indiana and Northern long-eared bats.

Bog turtle surveys began in December 2013 and were completed in August 2015. These survey results were provided in a Report submitted in October 2015. A Bog Turtle Conservation Plan that outlined SPLP's commitments to avoidance of impacts on this species was also submitted in October 2015. Northeastern bulrush surveys began in August 2014 and were completed in August 2015. These survey results were provided in a report submitted to the USFWS in October 2015. A Northeastern Bulrush Conservation Plan that outlined SPLP's commitments to avoidance of impacts on this species was also submitted in October 2015.

A meeting was held with USFWS on January 26, 2016 to discuss the Project and the three conservation plans; *Myotis* Conservation Plan, Northeastern Bulrush Conservation Plan, and Bog Turtle Conservation Plan. A response letter was received from USFWS dated February 16, 2016. Based on the discussion during the meeting and the response letter, a revised Bog Turtle Conservation Plan was submitted to the USFWS on February 29, 2016, and a revised *Myotis* Conservation Plan and additional information regarding the Northeastern bulrush was provided in a correspondence from Tetra Tech to the USFWS dated April 26, 2016. An additional and final revision of the Bog Turtle Conservation Plan was sent to the USFWS dated April 2016. This revision was based on a PADEP/USFWS /PAFBC/United States Army Corps of Engineers field meeting held on April 6, 2016, to finalize the bog turtle determinations and the conservation plan. The April 2016 plan concluded that the Project would only directly cross three wetland areas considered to be occupied habitat and that two of these areas would be crossed with using an HDD and the other a directional bore. These and adjacent occupied habitats would be protected through implementation of the crossing technology, a timing restriction, and implementation of a bog turtle specialist monitoring program. In a letter dated June 24, 2016, the USFWS concluded



that with implementation of the conservation measures listed within the letter and in the SPLP's April 2016 Bog Turtle Conservation Plan, the Project is not likely to adversely affect the bog turtle.

Recently, SPLP has reopened some discussions regarding a timing restriction placed on two bog turtle occupied wetlands crossed by a single HDD in Lancaster County. That consultation is complete and the USFWS has revised its June 24, 2016 letter within a final project determination letter dated October 31, 2016. The October 31, 2016 correspondence removed the timing restriction on the single bog turtle HDD and continued to conclude that the Project is not likely to adversely affect the bog turtle. The USFWS's June 24 and October 31, 2016 letters and April Bog Turtle Conservation Plan are provided within Attachment 6 of the Project's Chapter 105 Joint Application for Permit.

The USFWS's final October 31, 2016 determination concluded that with implementation of the measures of the June 24, 2016 letter and the April 2016 Myotis Conservation Plan, the effects of the Project on the Indiana bat are insignificant and discountable. In regards to the northern long-eared bat, the letter also concluded that incidental take that might result from tree removal is not prohibited, and no further consultation regarding the northern long-eared bat is necessary.

The USFWS's final October 31, 2016 determination concluded that with a successful HDD under a northeastern bulrush population, the Project is not likely to adversely affect the identified northeastern bulrush populations. The USFWS requested an update of their contact information to the provided Inadvertent Return Contingency plan which has been done as part of an overall revision to the plan.

## **10.0 SUPERVISION AND INSPECTION**

All aspects of construction, operation, and maintenance of the PPP is supervised by SPLP personnel. Utility or "Craft" inspectors working on behalf of SPLP are staffed throughout all phases of construction to ensure the facilities are constructed and installed in accordance with SPLP, state, local, and federal specifications and standards.

Supplemental to the Utility Inspection Program, SPLP will implement a comprehensive Environmental Compliance Program (ECP). The ECP encompasses highly integrated and essential program elements designed to ensure compliance with the requirements of the E&S Plan, permit conditions, and approved mitigation measures and commitments. Each of these elements is incorporated into the single integrated ECP organization structure and execution plan. The primary elements of the ECP are:

- Environmental training;
- Environmental inspection;
- Biological and cultural resource monitoring; and,
- Agency and Project team notification and documentation requirements.

All preconstruction, construction, and post-construction survey and monitoring for sensitive species as outlined within the final PNDI agency letters and approved conservation plans will be followed. The ECP personnel and SPLP will be responsible to ensure only approved specialists conduct the monitoring or mitigation tasks in accordance with obtained clearances. The specific tasks and technical approach of the ECP, including mandatory training for all Project personnel, is described further within the Impact Avoidance, Minimization, and Mitigation Procedures provided in Attachment 11, Section E, Part 4 of the Project's Chapter 105 Joint Application for Permit.

## 11.0 OPERATION AND MAINTENANCE

SPLP's operating and maintenance (O&M) practices are aimed at preventing emergencies on the pipeline while allowing delivery of the NGLs to its customers. To ensure safe delivery, SPLP designates an O&M Program team to manage the inspection and testing of the facilities and associated controls for proper working order. The O&M Program is extensive and has been developed through decades of experience with pipeline facility operation. The O&M Program consistently assesses and updates its maintenance guidelines to ensure compliance with all appropriate standards

In general, pipeline facility O&M activities are restricted to non-intrusive, non-land disturbing activities. Facility inspections are carried out on foot, by utility vehicles, and/or by aerial inspection. Testing is often conducted and restricted to within the confines of the aboveground facilities. Other O&M activities include maintenance of the ROW to maximize an open condition to allow for aerial and foot-inspection and safe access in case of emergencies. This includes maintenance of permanent access roads, markings, controlled entryways, gates, and fencing. Periodic hydrostatic testing may also occur as part of an O&M procedure.

ROW maintenance clearing promotes the safe and efficient operation of the pipeline by enabling SPLP to meet its complementary objectives of protecting the integrity of the pipeline, effectively responding to emergency situations, and increasing community awareness of the presence the pipeline. Clearing of tree growth located near the pipeline is necessary because roots from trees can wrap around the pipeline and damage its protective coating, causing pipeline corrosion. Tree root systems are drawn to the warmth and moisture of pipelines and often abnormal and excessive root growth patterns are experienced near pipelines. Where pipelines are deep enough, such sections that have been crossed by an HDD, clearing of trees is not as necessary. A clear pipeline right-of-way also provides a visual marker that alerts the public to the pipeline's presence and helps prevent unauthorized excavation and development within the right-of-way. Third-party "hits" are the number one cause of pipeline damage in the United States.

Maintenance of vegetation along the ROW is monitored and carried out as needed to ensure the integrity of the pipeline is not compromised by tree growth, or vegetation does not impede access in-case of emergencies and does not obstruct a clear view of the ROW during regular aerial patrols. Vegetation will be mowed within upland areas at regular intervals. In some areas where special agreements with the landowner, or where permit conditions/mitigation commitments have been made, vegetation maintenance may be restricted or limited. Those areas and conditions are described further within the Impact Avoidance, Minimization, and Mitigation Procedures provided in Attachment 11, Section E, Part 4 of the Project's Chapter 105 Joint Application for Permit.

The O&M Program may identify the need to repair a section of pipeline that would result in land disturbance. Any repair, along with any hydrostatic testing that would occur during O&M would only be conducted after all appropriate local, state, and federal permits and authorizations are obtained.

## **APPENDIX A**

### **COMPARISON OF SAFETY AND EFFICIENCY OF NGL TRANSPORT BY PIPELINE, ROAD, AND RAIL**

## APPENDIX A

### COMPARISON OF SAFETY AND EFFICIENCY OF NGL TRANSPORT BY PIPELINE, ROAD, AND RAIL

SPLP's statement that pipelines are considered to be a safer, more efficient mode of transport for many types of substances, including natural gas and NGLs, is based on United States Department of Transportation (USDOT) and industry data. Alternative modes of transport, such as road and rail transport, are documented to be less safe and less efficient than pipeline transport taking the amount of product moved into consideration. Transportation by rail is 4.5 times more likely to result in an incident compared to pipelines (Green and Jackson 2015). In addition to the evidence-based information on the safety and efficiency of pipeline transport of NGLs presented herein, SPLP has in place an Operations and Maintenance program which is in compliance with USDOT-Pipeline and Hazardous Materials Safety Administration (PHMSA) requirements pursuant to 49 Code of Federal Regulations (CFR) 195 – Transportation of Hazardous Liquids by Pipeline.

Crude oil, petroleum products, and natural gas are transported primarily by pipeline. About 70 percent of crude oil and petroleum products are transported by pipeline (Table 1). In comparison, a much smaller percentage is transported by road and rail, 4 percent and 3 percent, respectively (USDOT 2016).

**Table 1: Crude Oil and Petroleum Products Transported in the U.S. by Mode (Billions of Ton-miles)**

Mode of Transport	Percent Transported in 2009
Hazardous Liquid Pipeline	70
Water Carriers	23
Road	4
Railway	3

Adapted from Furchtgott-Roth 2013. Sources: Association of Oil Pipe Lines, Shifts in Petroleum Transportation, 1990-2009: (Washington, DC: Annual Issues), tables 1, 2, and 3, available at <http://www.aopl.org/publications/?fa=reports> as of Apr. 5, 2012.

Given that the largest proportion of oil and gas products are transported by pipeline, it is striking that the majority of safety incidents and environmental damage occur during the transport of oil and gas via road and rail. According to Bureau of Transportation Statistics, PHMSA, and Office of Hazardous Materials Safety statistics from 2005-2009, the petroleum incident rates for the transport of NGLs and petroleum products by road and rail resulted in more incidents per billion ton-miles than transport via pipeline. The risk of an oil spill occurring was approximately 20 incidents per billion ton-miles for transport by road, 2 incidents per billion ton-miles by rail, and less than 1 incident per billion ton-mile for transport of hazardous liquid or natural gas via pipeline (Furchtgott-Roth 2013).

**Table 2: Comparison of Pipeline, Road, and Railway Petroleum Incident Rates (2005-2009)**

Mode of Transport	Avg. Billion Ton-Miles Shipment Per Year	Avg. Incidents Per Year	Incidents Per Billion Ton-Miles
Road	34.8	695.2	19.95
Railway	23.9	49.6	2.08
Natural Gas Pipeline	338.5	299.2	0.89
Hazardous Liquid Pipeline	584.1	339.6	0.58

Adapted from Furchtgott-Roth 2013. Sources: Ton-Mileage values are based on Tables 1-50 (for Natural Gas Pipeline) and 1-61 (all others) of the Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics "National Transportation Statistics"; Incident and release volume data for Road and Railway were extracted from the Office of Hazardous Materials Safety "Incident Reports Database Search". HL Pipeline release volumes were extracted from the Pipeline and Hazardous Material Safety Administration "Hazardous Liquid Accident Data - 2002 to 2009". Data are for onshore transmission only.

The rates of injuries and fatalities show a similar pattern to the incident rates (Table 3). The injury per ton-mile is greatest for road followed by rail, natural gas pipeline, and hazardous liquid pipeline modes of transport. Rail caused almost 30 times more injuries requiring hospitalization than hazardous liquid pipeline on a per-ton mile basis. Natural gas pipelines also outperformed rail, with rail causing over 1.4 times as many injuries requiring hospitalization. Road had the highest number of serious injuries at about 37 times the hazardous liquid pipeline rate. Fatality rates are similar to injury rates. Hazmat transportation fatalities are lowest for gas transmission and highest for road and railway (Table 4).

**Table 3: Comparison of Hazmat Statistics for Incident Rates: Pipelines vs. Road and Railway (2005-09)**

Mode of Transport	Petroleum Incidents Injuries Requiring Hospitalization Per Billion Ton-Miles
Road	0.2526
Railway	0.1925
Natural Gas Pipeline	0.1330
Hazardous Liquid Pipeline	0.0068

Adapted from Furchtgott-Roth 2013 Sources: Pipeline injuries are reproduced from [http://primis.phmsa.dot.gov/comm/reports/safety/SerPSI.html?nocache=5757#\\_all](http://primis.phmsa.dot.gov/comm/reports/safety/SerPSI.html?nocache=5757#_all). Incident and release volume data for Road and Railway were extracted from the Office of Hazardous Materials Safety "Incident Reports Database Search" at <https://hazmatonline.phmsa.dot.gov/IncidentReportsSearch/>, accessed April 2013.

**Table 4: Comparison of Hazmat Fatality Statistics for Road, Rail and Pipeline (2005-09 Average)**

<b>Mode of Transport</b>	<b>Hazmat Fatalities Per Billion Ton-Miles Shipment Per Year</b>
Road	0.293
Railway*	0.100
Hazardous Onshore Only	0.004
Gas Transmission Onshore Only	0.003
Adapted from Furchtgott-Roth 2013 Source: Reproduced from U.S. Department of Transportation (2010) *Railway fatalities is skewed by a chlorine incident in 2005.	

It is evident that pipelines are the most efficient mode of transport when comparing the carrying capacity of the three transportation modes (Table 5). For transportation mode comparison purposes only, a maximum possible throughput of 700,000 barrels/day is herein utilized for SPLP's proposed 305-mile Project. This estimated throughput is equivalent to 29,400,000 gallons/day. On average, a typical 18-wheel tanker truck has the capacity to transport approximately 9,000 gallons of NGLs and a typical rail car has the capacity to transport approximately 29,000 gallons of NGLs. Table 5 illustrates the distance needed to travel (per vehicle) and the number of trucks and rail cars that would be necessary to equal the capacity of the pipeline by day, year, and approximate Project lifetime (estimated at 50 years). Using the pipeline instead of road or rail transport eliminates the need for over 59 million trucks and 18.5 million rail cars, each traveling 5.8 million and 6.3 million miles, respectively, over the approximate Project lifetime. This would also preclude the release of pollutants from the subject trucks and trains. Importantly, based on the documented rates presented above, the likelihood of incidents and fatalities would be considerably higher if NGLs are transported via rail or road or rail.

**Table 5: Comparison of Transport Distance and Number of Trucks/Rail Cars Required to Equal Pipeline Capacity**

Mode of Transport	Per Day		Per Year		Project Lifetime	
	Distance (Miles)	Number of Trucks/Rail Cars	Distance (Miles)	Number of Trucks/Rail Cars	Distance (Miles)	Number of Trucks/Rail Cars
Road (per truck)	322	3,267	117,530	1,192,333	5,876,500	59,616,667
Railway (per rail car)	348	1,014	127,020	370,034	6,351,000	18,501,724

Oil spills occur with all modes of transportation. Pipelines release more oil per incident, but if the product-recovery rate for pipelines is considered the rate decreases by approximately one-third (Furchtgott-Roth 2013). On average from 1992 to 2011, 40 percent of liquids were recovered from pipeline incidents (USDOT 2012). Most pipeline spills, 70 percent, are spills of 1 m<sup>3</sup> or less (Green and Jackson 2015). Importantly, only 17 percent of these occurrences take place on the line pipe and the majority of spills occur in facilities which likely have secondary containment mechanisms and spill procedures.

Pipelines are more energy-efficient and emit less carbon than rail (Esser 2014). It is estimated that the 200,000 miles of existing U.S. oil pipelines eliminate the need for 19,000 rail cars or 68,000 tanker truck loads which both emit carbon (Clemente 2015). Pipelines are also more cost-efficient, approximately one-third the cost of rail after the initial investment (Esser 2014). Considering the majority of crude oil and petroleum products are transported via pipeline, the incident and cost statistics support the conclusion that pipeline transportation is a safer and more efficient mode of transport than rail and road.

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**APPENDIX B**

**PENNSYLVANIA NATURAL DIVERSITY INVENTORY CONDITION LISTING**

Pennsylvania Pipeline Project  
Pennsylvania Natural Diversity Inventory Condition Listing (11/13/16)

The following is listing of the conditions that SPLP has agreed to implement during pre-construction, construction and restoration, and post-construction activities drawn from final determination letters received from the four PNDI agencies; the PAFBC, PGC, USFWS, and DCNR and the final conservations plans approved by those agencies. The final determination letters and conservation plans located in Attachment 6 of the Project's Chapter 105 Joint Application for Permit is to be referenced at all times for these conditions and specific locations to ensure implementation of all agreed to actions.

Species or Area	Agency	Water	County/AOC/ Survey Area	Population	Pre-Construction, Construction and Restoration, Post-Construction Activity	Clearance Letter	Conservation Plan	Primary Condition
Timber Rattlesnake	PAFBC	NA	Indiana, Cambria, Blair, Huntingdon, Juniata, Perry, Cumberland	NA	Construction	09/22/15	Timber Rattlesnake Conservation Plan (August 2015)	Construction mitigation measures include timing restrictions, construction Bumps, and monitoring and relocation procedures [Timber Rattlesnake Conservation Plan § 3.2]; Note: No construction timing restrictions are necessary due to the avoidance of den habitats and commitment to providing timber rattlesnake monitors during construction activities [Timber Rattlesnake Conservation Plan § 3.2.1]
Timber Rattlesnake	PAFBC	NA	Indiana, Cambria, Blair, Huntingdon, Juniata, Perry, Cumberland	NA	Construction	09/22/15	Timber Rattlesnake Conservation Plan (August 2015)	Construction in close proximity to the five confirmed den locations that were avoided will occur at any time, but these areas will be monitored closely during the emergence period (April 15 to May 15) and the return period (September 1 to October 15) [Timber Rattlesnake Conservation Plan §3.2.1]
Timber Rattlesnake	PAFBC	NA	Indiana, Cambria, Blair, Huntingdon, Juniata, Perry, Cumberland	NA	Construction	09/22/15	Timber Rattlesnake Conservation Plan (August 2015)	Within 19 areas identified in Figures 2-30 (Timber Rattlesnake Conservation Plan), erosion control fabric made of materials known to reduce the risk of snake entrapment will be selected [Timber Rattlesnake Conservation Plan § 3.2.2]
Timber Rattlesnake	PAFBC	NA	Indiana, Cambria, Blair, Huntingdon, Juniata, Perry, Cumberland	NA	Construction	09/22/15	Timber Rattlesnake Conservation Plan (August 2015)	During restoration and seeding, monofilament/plastic netting will be avoided within 19 areas identified in Figures 2-30 (Timber Rattlesnake Conservation Plan) [Timber Rattlesnake Conservation Plan § 3.2.2]
Timber Rattlesnake	PAFBC	NA	Indiana, Cambria, Blair, Huntingdon, Juniata, Perry, Cumberland	NA	Construction	09/22/15	Timber Rattlesnake Conservation Plan (August 2015)	100% biodegradable materials will be used for erosion control/moisture containment blankets within 19 areas identified in Figures 2-30 (Timber Rattlesnake Conservation Plan) [Timber Rattlesnake Conservation Plan § 3.2.2]
Timber Rattlesnake	PAFBC	NA	Indiana, Cambria, Blair, Huntingdon, Juniata, Perry, Cumberland	NA	Construction	09/22/15	Timber Rattlesnake Conservation Plan (August 2015)	Designated PFBC approved timber rattlesnake biologist will ensure the proper construction Bumps are used to reduce the risk of entrapment of reptiles and amphibians within 19 areas identified in Figures 2-30 (Timber Rattlesnake Conservation Plan) [Timber Rattlesnake Conservation Plan § 3.2.2]
Timber Rattlesnake	PAFBC	NA	Indiana, Cambria, Blair, Huntingdon, Juniata, Perry, Cumberland	NA	Construction Monitoring	09/22/15	Timber Rattlesnake Conservation Plan (August 2015)	All monitoring and handling conducted by PFBC approved timber rattlesnake biologists possessing the proper Scientific Collector Permits and proper skills to handle this species [Timber Rattlesnake Conservation Plan § 3.2.3]
Timber Rattlesnake	PAFBC	NA	Indiana, Cambria, Blair, Huntingdon, Juniata, Perry, Cumberland	NA	Construction Monitoring	09/22/15	Timber Rattlesnake Conservation Plan (August 2015)	PFBC approved timber rattlesnake biologists will be the primary point of contact whenever construction crews encounter a rattlesnake [Timber Rattlesnake Conservation Plan § 3.2.3]
Timber Rattlesnake	PAFBC	NA	Indiana, Cambria, Blair, Huntingdon, Juniata, Perry, Cumberland	NA	Construction Monitoring	09/22/15	Timber Rattlesnake Conservation Plan (August 2015)	PFBC approved timber rattlesnake biologists will be responsible for pre-construction surveys, during construction monitoring, capture and handling, and all reporting of findings and activities [Timber Rattlesnake Conservation Plan § 3.2.3]
Timber Rattlesnake	PAFBC	NA	Indiana, Cambria, Blair, Huntingdon, Juniata, Perry, Cumberland	NA	Construction Monitoring	09/22/15	Timber Rattlesnake Conservation Plan (August 2015)	Construction monitoring by PFBC approved timber rattlesnake biologist will only be required between April 15 and October 15 during the timber rattlesnake's active season. Figures 37 to 46 (Timber Rattlesnake Conservation Plan) provide areas proposed for construction monitoring and were derived in consultation with Stan Boder (PFBC approved timber rattlesnake biologist) and were determined based on habitat and results of the 2014 and 2015 surveys [Timber Rattlesnake Conservation Plan § 3.2.3]
Timber Rattlesnake	PAFBC	NA	Indiana, Cambria, Blair, Huntingdon, Juniata, Perry, Cumberland	NA	Construction Monitoring	09/22/15	Timber Rattlesnake Conservation Plan (August 2015)	Monitoring will be restricted to 11 monitoring areas depicted on Figures 37 to 46 (Timber Rattlesnake Conservation Plan) with concentrated efforts on potential and confirmed denning and gestation habitats. Monitoring includes all construction areas including access roads and staging areas within the 11 monitoring areas [Timber Rattlesnake Conservation Plan § 3.2.3]

Pennsylvania Pipeline Project  
Pennsylvania Natural Diversity Inventory Condition Listing (11/13/16)

Species or Area	Agency	Water	County/AOC/ Survey Area	Population	Pre-Construction, Construction and Restoration, Post-Construction Activity	Clearance Letter	Conservation Plan	Primary Condition
Timber Rattlesnake	PAFBC	NA	Indiana, Cambria, Blair, Huntington, Juniata, Perry, Cumberland	NA	Construction Monitoring	09/22/15	Timber Rattlesnake Conservation Plan (August 2015)	Pre-construction surveys will be conducted within 48 hours prior to the scheduled construction activity. Purpose is to find rattlesnakes within the construction corridor and ensure that they are safely removed [Timber Rattlesnake Conservation Plan § 3.2.3]
Timber Rattlesnake	PAFBC	NA	Indiana, Cambria, Blair, Huntington, Juniata, Perry, Cumberland	NA	Construction Monitoring	09/22/15	Timber Rattlesnake Conservation Plan (August 2015)	If construction activities in the timber rattlesnake monitoring areas temporarily cease/break in the construction sequencing, then re-inspection of the work areas will be warranted prior to next scheduled activity [Timber Rattlesnake Conservation Plan § 3.2.3]
Timber Rattlesnake	PAFBC	NA	Indiana, Cambria, Blair, Huntington, Juniata, Perry, Cumberland	NA	Construction Monitoring	09/22/15	Timber Rattlesnake Conservation Plan (August 2015)	If trench or bore pit is left open within the monitoring areas, daily inspection of trench/pit for trapped rattlesnakes and other wildlife will be required until these areas are backfilled [Timber Rattlesnake Conservation Plan § 3.2.3]
Timber Rattlesnake	PAFBC	NA	Indiana, Cambria, Blair, Huntington, Juniata, Perry, Cumberland	NA	Construction Monitoring	09/22/15	Timber Rattlesnake Conservation Plan (August 2015)	Snakes observed in construction area will be captured and relocated to previously selected release site. Captured snakes will be moved to distance minimizing linear distance from point of capture while simultaneously reducing probability of immediate return. SPLP will install temporary silt fencing for approximately 200 feet along the edge of the workspace facing the release point to prevent relocated individuals from returning to construction area [Timber Rattlesnake Conservation Plan § 3.2.3]
Timber Rattlesnake	PAFBC	NA	Indiana, Cambria, Blair, Huntington, Juniata, Perry, Cumberland	NA	Restoration	09/22/15	Timber Rattlesnake Conservation Plan (August 2015)	Project LODs intersect six confirmed gestation habitats. Gestation habitats will be intensely monitored during construction and restoration. Gestation habitats have and will be again photographed prior to construction and restored to the existing condition to the maximum extent practicable. PFBC approved timber rattlesnake biologists will use the PFBC's Guidelines for <i>Timber Rattlesnake Habitat Creation (revised 3-5-2010) Food Plots - Gas Well Openings - Access Roads - Pipelines</i> to ensure gestation habitats are properly restored to pre-construction condition in terms of rock placement and aerial extent of the area [Timber Rattlesnake Conservation Plan § 3.3.1]
Timber Rattlesnake	PAFBC	NA	Indiana, Cambria, Blair, Huntington, Juniata, Perry, Cumberland	NA	Restoration	09/22/15	Timber Rattlesnake Conservation Plan (August 2015)	All created and restored habitats will be thoroughly documented in the field and presented within the final report [Timber Rattlesnake Conservation Plan § 3.3.1]
Timber Rattlesnake	PAFBC	NA	Indiana, Cambria, Blair, Huntington, Juniata, Perry, Cumberland	NA	Operations	09/22/15	Timber Rattlesnake Conservation Plan (August 2015)	Routine operation and maintenance activities (e.g., mowing, erosion control, bank stabilization) will not require special mitigation efforts other than training of the maintenance crew. Any timber rattlesnake encountered during routine activities will be left undisturbed and area will be vacated. If areas are in need of excavation or repair, SPLP follows appropriate environmental protocols (e.g., PNDI searches to ensure activities will not impact sensitive species) [Timber Rattlesnake Conservation Plan § 3.3.2]
Timber Rattlesnake	PAFBC	NA	Indiana, Cambria, Blair, Huntington, Juniata, Perry, Cumberland	NA	Reporting	09/22/15	Timber Rattlesnake Conservation Plan (August 2015)	Report summarizing implementation of Timber Rattlesnake Conservation Plan will be submitted to PFBC upon completion of pipeline construction and ROW restoration. Report includes: name(s) and qualifications of investigator(s); survey/monitoring date(s); areas surveyed/monitored; number of timber rattlesnakes observed; sex/length of timber rattlesnakes captured; location of observations/captures; mitigation measures implemented; details regarding restored and created habitats; and, observations of other herpetofauna [Timber Rattlesnake Conservation Plan § 3.2.3]
Freshwater Mussels (Rainbow Mussel, Yellow Lampmussel, Elktoe, Triangle Floater)	PAFBC	Aughwick Creek, Tuscarora Creek, Conodoguinet Creek	Huntingdon/ Juniata/ Cumberland	NA	Construction	10/26/15	NA	Drill/bore Aughwick Creek, Tuscarora Creek, and Conodoguinet Creek and implement PAFBC contingency recommendations for drilling/boring operations. [PAFBC letter dated 10/26/2015]
Fish (Ghost Shiner, Brook Stickleback)	PAFBC	Monongahela River, Little Conemaugh River	Washington/ Allegheny/ Cambria	NA	Construction	10/26/15	NA	Drill/bore the Monongahela River and Little Conemaugh River and implement PAFBC contingency recommendations for drilling/boring operations [PAFBC letter dated 10/26/2015]

Pennsylvania Pipeline Project  
Pennsylvania Natural Diversity Inventory Condition Listing (11/13/16)

Species or Area	Agency	Water	County/AOC/ Survey Area	Population	Pre-Construction, Construction and Restoration, Post-Construction Activity	Clearance Letter	Conservation Plan	Primary Condition
Eastern Redbelly Turtle	PAFBC	Pond A4 and Wetland I2	A4 (Chester), W-I2 (Delaware)	NA	Construction	10/26/15	NA	1. Pond A4 is adjacent to the workspaces. Wetland I2 is adjacent and will be crossed underneath via HDD. Wetland I2 will have no direct impact. A silt fence barrier will be placed at the edge of the LOD, between water and work areas, to prevent turtles from accessing active work zones at these two locations. The fence will be installed during inactive period (October 15-April 15)  2. Any turtle found on the site will be relocated to nearest aquatic habitat and the PAFBC will be contacted within 48 hours. [PAFBC letter dated 10/26/2015]
Eastern Redbelly Turtle	PAFBC	Stream H52 and Wetland Q75	Chester	NA	Construction	10/26/15	NA	No in-stream construction at Stream H52 near Wetland Q75 during the over-wintering period of the redbelly turtle (October 15 to April 15). Any instream construction activities should take place between April 15 and October 15 at Stream H52 near Wetland Q75 in to allow turtles to avoid the project area while they are active. Any turtles found within the staging area of the Project should be safely moved outside the work zone in appropriate habitat [PAFBC letter dated 10/26/2015]
Allegheny Woodrat	PGC	NA	Bowers Mountain 2 (Perry)	NA	Pre-Construction	06/08/16	Allegheny Woodrat Conservation Plan (May 2016)	At request of DCNR, SPLP will hire qualified woodrat biologist to live trap for 4 nights with 40 traps (160 trap nights) on the southern side of the existing pipeline at the Bowers Mountain 2 habitat area located within Tuscarora State Forest. Traps placed up to 50 feet from existing pipeline within suitable habitat and conducted in accordance with PGC's Allegheny Woodrat Survey protocol. Up to 10 captured woodrats fitted with radio telemetry transmitters allowing tracking of movements and survival. Each woodrat tracked nightly using radio telemetry for minimum of 3 weeks to begin the night immediately following the attachment of the transmitter. Tracking period will be planned to include minimum 10 days prior and 11 days after initial land disturbance. A report summarizing nightly movements of each woodrat provided to PGC and DCNR upon completion of study [Allegheny Woodrat Conservation Plan § 4.1]
Allegheny Woodrat	PGC	NA	Jacks Mountain 2 (HU), Jacks Mountain 3 (HU), Blacklog Mountain (HU), Bowers Mountain 2 (Perry)	NA	Construction	06/08/16	Allegheny Woodrat Conservation Plan (May 2016)	Work areas will be cleared of vegetation and rocks within the four occupied habitats to the minimum extend practicable allowing safe installation of pipelines [Allegheny Woodrat Conservation Plan § 4.2].
Allegheny Woodrat	PGC	NA	Jacks Mountain 2 (HU), Jacks Mountain 3 (HU), Blacklog Mountain (HU), Bowers Mountain 2 (Perry)	NA	Restoration	06/08/16	Allegheny Woodrat Conservation Plan (May 2016)	After installation and during grading back, windrowed rocks restored to pre-existing conditions to the maximum extent within habitat areas while allowing for safe operation of pipeline. Clear travel lane for vehicle access will remain parallel and adjacent to installed pipelines to allow repair and inspection [Allegheny Woodrat Conservation Plan § 4.2]
Allegheny Woodrat	PGC	NA	Jacks Mountain 2 (HU), Jacks Mountain 3 (HU), Blacklog Mountain (HU), Bowers Mountain 2 (Perry)	NA	Restoration	06/08/16	Allegheny Woodrat Conservation Plan (May 2016)	SPLP will create new potential woodrat habitat in form of rock structures following the criteria stated in PGC's Allegheny Woodrat The Environmental Review Process for Pennsylvania document. Six rock structures are proposed within the four areas [Allegheny Woodrat Conservation Plan § 4.3] SPLP will construct travel corridors in the form of rock structures to allow woodrats to safely cross the existing and proposed ROW in Jacks Mountain 3 [Letter to PGC dated 5/26/2016; [Allegheny Woodrat Conservation Plan § 5.0]
Allegheny Woodrat	PGC	NA	Jacks Mountain 2 (HU), Jacks Mountain 3 (HU), Blacklog Mountain (HU), Bowers Mountain 2 (Perry)	NA	Restoration	06/08/16	Allegheny Woodrat Conservation Plan (May 2016)	1 rock structure built at Jacks Mountain 2, 2 at Jacks Mountain 3 on SGL-71, 1 at Blacklog Mountain, and 2 at Bowers Mountain 2 on the Tuscarora State Forest [Allegheny Woodrat Conservation Plan § 4.3]

Pennsylvania Pipeline Project  
 Pennsylvania Natural Diversity Inventory Condition Listing (11/13/16)

Species or Area	Agency	Water	County/AOC/ Survey Area	Population	Pre-Construction, Construction and Restoration, Post-Construction Activity	Clearance Letter	Conservation Plan	Primary Condition
Allegheny Woodrat	PGC	NA	Jacks Mountain 2 (HU), Jacks Mountain 3 (HU), Blacklog Mountain (HU), Bowers Mountain 2 (Perry)	NA	Restoration	06/08/16	Allegheny Woodrat Conservation Plan (May 2016)	Rock structures will be at least 5 ft in height, contain boulders at least 3 ft in diameter arranged to maximize amount of openings present. Structures will be approximately 25 feet long and 10 feet wide for those proposed at Jacks Mountain 2, Blacklog Mountain, and Bowers Mountain 2. The two structures acting as travel corridors at Jacks Mountain 3 will be approximately 15 feet wide and have lengths of approximately 86 feet and 75 feet due to the angles of the existing ROW and new ROW [Allegheny Woodrat Conservation Plan § 4.3]
Allegheny Woodrat	PGC	NA	Jacks Mountain 2 (HU), Jacks Mountain 3 (HU), Blacklog Mountain (HU), Bowers Mountain 2 (Perry)	NA	Restoration	06/08/16	Allegheny Woodrat Conservation Plan (May 2016)	If possible, underground openings will be used to create deepest caverns possible. Flat rocks with as many flat ledges as possible will be created for latrines and food caches, smaller boulders placed around the edges of core habitat [Allegheny Woodrat Conservation Plan § 4.3]
Allegheny Woodrat	PGC	NA	Jacks Mountain 2 (HU), Jacks Mountain 3 (HU), Blacklog Mountain (HU), Bowers Mountain 2 (Perry)	NA	Restoration	06/08/16	Allegheny Woodrat Conservation Plan (May 2016)	Rock excavated during construction should be saved and used for rock structure creation [SPLP - Pennsylvania Pipeline SGL 71 Woodrat Mitigation Plan found within the AWR Conservation Plan (May 2016)]
Allegheny Woodrat	PGC	NA	Jacks Mountain 2 (HU), Jacks Mountain 3 (HU), Blacklog Mountain (HU), Bowers Mountain 2 (Perry)	NA	Restoration	06/08/16	Allegheny Woodrat Conservation Plan (May 2016)	Large angular rocks (>3 feet in diameter) placed in core of structure to promote ledges, overhangs, caves, and interior passages [SPLP - Pennsylvania Pipeline SGL 71 Woodrat Mitigation Plan found within the AWR Conservation Plan (May 2016)]
Allegheny Woodrat	PGC	NA	Jacks Mountain 2 (HU), Jacks Mountain 3 (HU), Blacklog Mountain (HU), Bowers Mountain 2 (Perry)	NA	Restoration	06/08/16	Allegheny Woodrat Conservation Plan (May 2016)	Medium-small angular rocks (>1 foot in diameter) placed over the core rocks to depth of 2 feet [SPLP - Pennsylvania Pipeline SGL 71 Woodrat Mitigation Plan found within the AWR Conservation Plan (May 2016)]
Allegheny Woodrat	PGC	NA	Jacks Mountain 2 (HU), Jacks Mountain 3 (HU), Blacklog Mountain (HU), Bowers Mountain 2 (Perry)	NA	Restoration	06/08/16	Allegheny Woodrat Conservation Plan (May 2016)	Avoid transferring soil from excavation site to rock structures- screen/wash smaller rocks to remove excess soil prior to final placement on structures [SPLP - Pennsylvania Pipeline SGL 71 Woodrat Mitigation Plan found within the AWR Conservation Plan (May 2016)]

Pennsylvania Pipeline Project  
Pennsylvania Natural Diversity Inventory Condition Listing (11/13/16)

Species or Area	Agency	Water	County/AOC/ Survey Area	Population	Pre-Construction, Construction and Restoration, Post-Construction Activity	Clearance Letter	Conservation Plan	Primary Condition
Allegheny Woodrat	PGC	NA	Jacks Mountain 2 (HU), Jacks Mountain 3 (HU), Blacklog Mountain (HU), Bowers Mountain 2 (Perry)	NA	Restoration	06/08/16	Allegheny Woodrat Conservation Plan (May 2016)	Except at Bowers Mountain 2 habitat area, all structures will be constructed within temporary workspace adjacent to the permanent easement/license agreement. At Bowers Mountain 2, the structures will traverse the existing 8-inch pipeline ROW and this proposed easement, however gaps will need to be placed at the intersection of the structure with existing pipelines and along a travel lane [Allegheny Woodrat Conservation Plan § 4.3]
Allegheny Woodrat	PGC	NA	Jacks Mountain 2 (HU), Jacks Mountain 3 (HU), Blacklog Mountain (HU), Bowers Mountain 2 (Perry)	NA	Restoration	06/08/16	Allegheny Woodrat Conservation Plan (May 2016)	Construction of rock structures will be overseen by trained biologist who has performed woodrat surveys and is familiar with habitat characteristics and needs [Allegheny Woodrat Conservation Plan § 4.3]
Allegheny Woodrat	PGC	NA	Jacks Mountain 3/ SGL 71 (HU)	NA	Restoration	06/08/16	Allegheny Woodrat Conservation Plan (May 2016)	In addition to the 2 rock structures at Jacks Mountain 3, PGC has requested additional measures at this location as outlined in the PGC authored mitigation plan (May 9, 2016) titled "Sunoco - Pennsylvania Pipeline SGL 71 Woodrat Mitigation Plan". SPLP will plant 300 Pennsylvania seedlings comprised of seven Species (American chestnut, common [black] elderberry, blackberry, smooth gooseberry, American black currant, devil's walking stick, and American hazelnut). 100 must be American chestnut and at least 100 must be common (black) elderberry. PGC identified 62.4 acre area where plantings should occur and smaller 16.4 acre subset of the area must have 50 percent of the 300 total plantings [Allegheny Woodrat Conservation Plan § 4.3] SPLP ensure 70% survival rate for 3 months after planting [Allegheny Woodrat Conservation Plan § 4.2] The details and special conditions for these plantings must reference the AWR Conservation Plan and specifically the Sunoco - Pennsylvania Pipeline SGL 71 Woodrat Mitigation Plan included as an Appendix D to that plan.
Allegheny Woodrat	PGC	NA	Bowers Mountain 2/ Tuscarora SF (Perry)	NA	Restoration	06/08/16	Allegheny Woodrat Conservation Plan (May 2016)	At Bowers Mountain 2 habitat area located on the Tuscarora SF, SPLP will enhance existing occupied habitat areas by cutting undesirable tree species (e.g., birch and maple) and planting mast producing species such as hawthorn, black oak, scrub oak, and American mountain ash. Cuttings and plantings will be limited to portions of the identified occupied habitat polygons that occur outside of the LOD and represents a total of 28.4 acres. [Allegheny Woodrat Conservation Plan § 4.3] The details and special conditions for these plantings must reference the AWR Conservation Plan and specifically the DCNR Bureau of Forestry - Wood Rat Habitat Plan Parameters included as an Appendix E to that plan.
Allegheny Woodrat	PGC	NA	Bowers Mountain 2/ Tuscarora SF (Perry)	NA	Restoration	06/08/16	Allegheny Woodrat Conservation Plan (May 2016)	Approximately 139 seedlings will be planted in accordance with PGC protocols listed above for SGL 71. In temporary workspaces intersecting the occupied woodrat habitat, SPLP will include plantings of mast producing species such as sassafras, grape, black gum, sumac, and pitch pine during restoration, totaling approximately 1 acre and no more than 80 seedlings planted in these areas [Allegheny Woodrat Conservation Plan § 4.3]
Allegheny Woodrat	PGC	NA	Bowers Mountain 2/ Tuscarora SF (Perry)	NA	Restoration	06/08/16	Allegheny Woodrat Conservation Plan (May 2016)	SPLP will create 1/4 acre food plot on southern side of existing ROW adjacent to existing woodrat habitat by removing undesirable species and planting diverse community of mast producing species which will include grey dogwood, arrow-wood viburnum, nannyberry, maple-leaf viburnum, black-haw, hawthorn, beaked hazelnut, scrub oak, black oak, flowering dogwood, silky dogwood, chokeberry, American mountain ash, hybrid chestnuts. If plantings do not maintain 75% survival through second growing season following construction, additional planting will be performed. [Allegheny Woodrat Conservation Plan § 4.3]
Allegheny Woodrat	PGC	NA	Bowers Mountain 2/ Tuscarora SF (Perry)	NA	Restoration	06/08/16	Allegheny Woodrat Conservation Plan (May 2016)	Food plot will be gated (new steel gate) and fenced off to prevent deer grazing. Area to be fenced/number of gates determined by district forester. New steel gates will serve as access for the food plot and for future access of ROW [Allegheny Woodrat Conservation Plan § 4.3]

Pennsylvania Pipeline Project  
Pennsylvania Natural Diversity Inventory Condition Listing (11/13/16)

Species or Area	Agency	Water	County/AOC/ Survey Area	Population	Pre-Construction, Construction and Restoration, Post-Construction Activity	Clearance Letter	Conservation Plan	Primary Condition
Eastern Small-footed bat	PGC	NA	Cambria, Blair, Huntingdon, and Perry	NA	Pre-Construction	06/08/16	Eastern Small-footed Bat Conservation Plan (January 2016)	SPLP will prevent small-footed bats from accessing summer roosting habitat identified within the Project LOD to avoid any chance of incidental take during construction. Prior to emergence from hibernation (March 31), SPLP will seal off these areas with geotextile material such as silt fencing, mesh screening, or other appropriate materials (max size of 2 mesh/inch will be installed). Cover materials will completely seal off all entrances, cracks, and crevices to potential roosting sites thereby preventing entry of small-footed bats, ensuring no harm or incidental take of this species during construction activities in identified habitat areas [Eastern Small-footed Bat Conservation Plan § 4.1]
Eastern Small-footed bat	PGC	NA	Cambria, Blair, Huntingdon, and Perry	NA	Restoration	06/08/16	Eastern Small-footed Bat Conservation Plan (January 2016)	Following completion of construction, SPLP will construct roosting structures as close to the areas of impacted habitat as possible. Using a mitigation rate of 3:1, which yields 5 acres, and a rate of four structures per acre, SPLP will construct twenty new roosting structures [Eastern Small-footed Bat Conservation Plan § 4.2]
Eastern Small-footed bat	PGC	NA	Cambria, Blair, Huntingdon, and Perry	NA	Restoration	06/08/16	Eastern Small-footed Bat Conservation Plan (January 2016)	Goal for roosting structures is to be created in areas of temporary disturbance such as along the temporary ROW, temporary workspaces, or in areas adjacent to these spaces. Final location of the structures also dictated by land availability [Eastern Small-footed Bat Conservation Plan § 4.2]
Eastern Small-footed bat	PGC	NA	Cambria, Blair, Huntingdon, and Perry	NA	Restoration	06/08/16	Eastern Small-footed Bat Conservation Plan (January 2016)	In accordance with Pennsylvania Game Commission Eastern Small Footed Bat Environmental Review Roost Structure Guidance Document (August 2014 Revision), newly created roosting structures will have inner core that is 10-ft wide and 5-ft tall. Core will be covered by multiple layers of large flat rocks of varying sizes, maximizing cracks and crevices that contain 1-2 inch openings with some openings as narrow as 1/4-inch to provide protection from predators (e.g. snakes). Outer rocks and caps will be shingled to ensure precipitation does not enter structure. Rocks used will be cleaned of dirt and organic materials, limestone won't be used unless working in karst areas [Eastern Small-footed Bat Conservation Plan § 4.2]
Eastern Small-footed bat	PGC	NA	Cambria, Blair, Huntingdon, and Perry	NA	Restoration	06/08/16	Eastern Small-footed Bat Conservation Plan (January 2016)	Structures arranged so that they are oriented southeast to west to receive greatest amount of sunlight exposure during the day, placed in close proximity to forested or early successional habitat to provide bats with cover from predators and travel corridors. If possible, structures placed in close proximity to perennial sources of water (e.g., wetlands, streams, riparian areas). Multiple rock piles constructed in same area will be spaced and grouped appropriately following evaluation of the impacted landscape [Eastern Small-footed Bat Conservation Plan § 4.2]
Eastern Small-footed bat	PGC	NA	Cambria, Blair, Huntingdon, and Perry	NA	Monitoring	06/08/16	Eastern Small-footed Bat Conservation Plan (January 2016)	After completion of structures, emergence surveys performed by an experienced bat biologist during summer months to monitor usage. Performed over three year period or until bats seen emerging from structures. Three surveys performed at each structure to obtain 3 separate nights of data from different parts of survey season. First survey during second or third week of June, second during second week of July, final during last week of July [Eastern Small-footed Bat Conservation Plan § 4.2]
Northeastern Bulrush	USFWS	Vicinity of W59	Cambria	NA	Construction	10/31/16	North-eastern Bulrush Conservation Plan (September 2015)	Impacts to population, vernal pool/wetland location of the population, and other wetlands located in the vicinity by HDD under 1684-ft section of proposed centerline. HDD begins on southeast side of access road approximately 150-ft southeast of the northeastern bulrush population, continues approximately 1684-ft, and ends approximately 1534-ft northwest of the bulrush population location. HDD will be approximately 50 ft below soil surface while passing under population. No travel through or tree clearing between entry and exit points on HDD [Northeastern Bulrush Conservation Plan § 3.2.2]
Northeastern Bulrush	USFWS	Vicinity of W59	Cambria	NA	Monitoring	10/31/16	North-eastern Bulrush Conservation Plan (September 2015)	Environmental Inspector will ensure construction fencing will be installed and no accesses signs placed on NW side of access road to avoid potential inadvertent use of area for travel through or other unplanned activities. Access will be limited between the HDDs to foot-travel inspection of inadvertent returns and any professional land survey required. Area will be regularly inspected for compliance [Northeastern Bulrush Conservation Plan § 3.2.2]
Northeastern Bulrush	USFWS	Vicinity of W59	Cambria	NA	Construction	10/31/16	North-eastern Bulrush Conservation Plan (September 2015)	Inadvertent Return Plan provides summary of preventative measures to minimize risk of inadvertent return and responsive measures to be implemented in unlikely event of inadvertent return [Northeastern Bulrush Conservation Plan § 3.2.2]
Northeastern Bulrush	USFWS	Vicinity of W59	Cambria	NA	Monitoring	10/31/16	North-eastern Bulrush Conservation Plan (September 2015)	After completion of construction, one post-construction site visit conducted by qualified northeastern bulrush surveyor to monitor identified northeastern bulrush populations. Visit will document completed Project activities in vicinity of identified populations during recommended survey periods (July - September) to count northeastern bulrush populations (total culms and reproductive culms) and describe wetland habitats they are located in. [Northeastern Bulrush Conservation Plan § 3.2.3]
Northeastern Bulrush	USFWS	Vicinity of W59	Cambria	NA	Reporting	10/31/16	North-eastern Bulrush Conservation Plan (September 2015)	Brief letter report summarizing results of post-construction monitoring will be submitted to USFWS [Northeastern Bulrush Conservation Plan § 3.2.3]

Pennsylvania Pipeline Project  
Pennsylvania Natural Diversity Inventory Condition Listing (11/13/16)

Species or Area	Agency	Water	County/AOC/ Survey Area	Population	Pre-Construction, Construction and Restoration, Post-Construction Activity	Clearance Letter	Conservation Plan	Primary Condition
Bog turtle	USFWS	NA	NA	NA	Pre-Construction	10/31/16	Bog Turtle Conservation Plan (April 2016)	Environmental training will be required for all personnel working in the ROW. Training will include a section on wildlife protection focusing on sensitive species such as the bog turtle [Bog Turtle Conservation Plan § 2.2.1]
Bog turtle	USFWS	C6	Berks	NA	Construction	10/31/16	Bog Turtle Conservation Plan (April 2016)	SPLP will dry-bore Wetland C6 [Letter to USFWS dated 10/31/2016]
Bog turtle	USFWS	AM2	Berks	NA	Construction	10/31/16	Bog Turtle Conservation Plan (April 2016)	AM2 will be crossed with an open trench with special protection exclusion measures and monitoring by a Qualified Bog Turtle Surveyor [Letter to USFWS dated 10/31/2016]
Bog turtle	USFWS	C44, AM1, AM2, C7, and C8	Berks	NA	Construction	10/31/16	Bog Turtle Conservation Plan (April 2016)	Five adjacent wetlands (C44, AM1, AM2, C7, and C8) will be protected through implementation of BMPs outlined in Bog Turtle Conservation Plan [Letter to USFWS dated 10/31/2016]; Work areas found within 300 feet of C7, C8, AM1, AM2, and C44 will have bog turtle exclusion fencing placed between wetland and construction area and Qualified Bog Turtle Surveyor present for monitoring during construction when it occurs during the active bog turtle season [Bog Turtle Conservation Plan § 2.2.1]
Bog turtle	USFWS	A54/A55	Lancaster	NA	Construction	10/31/16	Bog Turtle Conservation Plan (April 2016)	SPLP will HDD Wetland A54 and A55 [Letter to USFWS dated 10/31/2016]
Bog turtle	USFWS	A54/A55	Lancaster	NA	Pre-Construction	10/31/16	Bog Turtle Conservation Plan (April 2016)	Workspace and access between A54 and A55 will be off-limits to construction activity/disturbance and would only be utilized in case of an emergency [Bog Turtle Conservation Plan § 2.2.1]
Bog turtle	USFWS	A54/A55	Lancaster	NA	Pre-Construction	10/31/16	Bog Turtle Conservation Plan (April 2016)	Service requested series of piezometers installed within Wetlands A54 and A55 to monitor groundwater conditions before, during, and after HDD takes place. SPLP committed to placing piezometers within wetlands as requested. Detailed plan will be submitted to Service for review prior to installation including proposed well locations, installed methodology, frequency of water level readings, and reporting methodology. Number of wells and frequency of water level readings sufficient to characterize groundwater levels within wetlands. SPLP will work with Qualified Bog Turtle Surveyor to ensure installation and monitoring does not affect species or alter habitat within wetlands. Preconstruction groundwater monitoring will begin with installation of piezometers within 2 weeks of receipt of USFWS approval of the plan and continue through construction for 1 year following successful installation of pipelines under these wetlands [Bog Turtle Conservation Plan § 2.2.1]
Bog turtle	USFWS	A54, A55, C6, C7, C8, AM2, C44, C42	Lancaster and Berks	NA	Construction	10/31/16	Bog Turtle Conservation Plan (April 2016)	A Qualified Bog Turtle Surveyor will be on site during all construction activities occurring across or in vicinity of bog turtle wetlands listed in Table 2 of Bog Turtle Conservation Plan [Bog Turtle Conservation Plan § 2.2.2]
Bog turtle	USFWS	A54, A55, C6, C7, C8, AM2, C44, C43	Lancaster and Berks	NA	Construction	10/31/16	Bog Turtle Conservation Plan (April 2016)	Bog turtle wetlands include A54 (HDD), A55 (HDD), C6 (dry-bore), C7 (adjacent wetland), C8 (adjacent wetland), AM2 (open cut), C44 (adjacent wetland), and C43 (HDD). Qualified Bog Turtle Surveyor's responsibility is to monitor pre-construction, construction, and restoration activities to ensure plan is implemented to its fullest extent and work areas are not being exceeded and Project plans are being carried out. Also will ensure construction personnel are trained and proper BMPs are implemented, maintained, and removed as necessary upon completion of work in those areas. Multiple Qualified Bog Turtle Surveyors may be utilized to ensure all activities can be completed efficiently [Bog Turtle Conservation Plan § 2.2.2]
Bog turtle	USFWS	A54, A55, C6, C7, C8, AM2, C44, C44	Lancaster and Berks	NA	Construction	10/31/16	Bog Turtle Conservation Plan (April 2016)	Qualified Bog Turtle Surveyor inspect the surveyed (e.g., staked) LOD and marked access roadways prior to disturbance, ensuring these areas match Project plans. Qualified bog turtle surveyors may need to clear vegetation by hand to height of 4 inches in some areas prior to start of construction for effective monitoring [Bog Turtle Conservation Plan § 2.2.2]
Bog turtle	USFWS	A54, A55, C6, C7, C8, AM2, C44, C45	Lancaster and Berks	NA	Construction	10/31/16	Bog Turtle Conservation Plan (April 2016)	Surveys for bog turtles will occur prior to commencing any work related activities including installation of silt fencing. Daily surveys will be conducted in each active work space prior to construction each day [Bog Turtle Conservation Plan § 2.2.2]
Bog turtle	USFWS	A54, A55, C6, C7, C8, AM2, C44, C46	Lancaster and Berks	NA	Construction	10/31/16	Bog Turtle Conservation Plan (April 2016)	Boundaries of habitat in close proximity to work areas temporarily marked to ensure no activities unintentionally conducted within bog turtle wetlands. Vertical curbing made of silt fence (min 10 in height) will be installed along entire wetland/upland boundary in work areas adjacent to bog turtle wetlands to prevent stormwater flowing from areas into the main wetland and prevent bog turtles from accessing proposed work spaces. Interior and exterior of barriers will be kept free of vegetation and monitored daily. Fencing will also "wall-off" any upland areas in the vicinity of bog turtle wetlands to further prevent turtles from entering project work spaces. Fencing locations, installation, maintenance, and cleanup will be closely monitored by Qualified Bog Turtle Surveyor [Bog Turtle Conservation Plan § 2.2.2]



Pennsylvania Pipeline Project  
Pennsylvania Natural Diversity Inventory Condition Listing (11/13/16)

Species or Area	Agency	Water	County/AOC/ Survey Area	Population	Pre-Construction, Construction and Restoration, Post-Construction Activity	Clearance Letter	Conservation Plan	Primary Condition
Bog turtle	USFWS	A54, A55, C6, C7, C8, AM2, C44, C47	Lancaster and Berks	NA	Post-Construction	10/31/16	Bog Turtle Conservation Plan (April 2016)	Post-construction measures include restoring and stabilizing uplands in proximity to bog turtle wetlands. Disturbed soils in adjacent uplands will be stabilized and restored per Erosion and Sedimentation Control and Pollution and Prevention Plans. Post-construction monitoring of these areas will be conducted to ensure that proper revegetation of native plant species occurs [Bog Turtle Conservation Plan § 2.2.2]
Bog turtle	USFWS	A54, A55, C6, C7, C8, AM2, C44, C48	Lancaster and Berks	NA	Post-Construction	10/31/16	Bog Turtle Conservation Plan (April 2016)	After completion of construction, one post-construction survey will be conducted by Service-recognized bog turtle surveyor to monitor the identified populations [Bog Turtle Conservation Plan § 2.2.2]
Bog turtle	USFWS	A54 and A55	Lancaster	NA	Post-Construction	10/31/16	Bog Turtle Conservation Plan (April 2016)	"No mowing" signs will be placed along the boundary of the in-ROW bog turtle wetlands A54 and A55 and prevent mowing within the wetland during post-construction routine pipeline ROW operation and maintenance activities. Additional signs placed at the edge of Zone 2 (300 feet from the edge of the wetland) to demarcate the limit of herbicide application within the ROW. Hand clearing within the Zone 2 areas will only occur between October 1 and March 31 to avoid impacts to individual bog turtles [Bog Turtle Conservation Plan § 2.2.2]
Bog turtle	USFWS	A55 and A54	Lancaster	NA	Pre-construction	10/31/16	Bog Turtle Conservation Plan (April 2016)	All construction personnel, including professional survey personnel, will be trained on implementation of the HDD contingency plan, the identification of the species and its biology, and the location of areas of particular concern. All construction personnel, Environmental Inspectors, and on-site bog turtle specialists will be provided with the necessary Project plans, mapping permits, authorized impacts, clearance letters, conservation plans, and the HDD contingency plan prior to start of construction activities [Bog Turtle Conservation Plan Appendix F]
Bog turtle	USFWS	A55 and A54	Lancaster	NA	Construction	10/31/16	Bog Turtle Conservation Plan (April 2016)	At the bog turtle HDD, inspection of work areas and compliance with project plans carried out daily by bog turtle specialists. In addition, when drilling commences the BT Specialist will inspect all disturbed upland areas and silt fencing multiple times for bog turtles and inadvertent returns, including surfacing of ground water by bog turtle specialist. Multiple daily inspections for inadvertent returns within wetland areas determined unnecessary and a one-time daily inspection would reduce direct disturbance of normal behaviors if turtles present. Inspections will continue until drill is completed and inadvertent return risk in wetlands removed. Only if drilling contractor suspects an inadvertent return as determined from drilling progress and monitoring of drilling fluids would more than one daily inspection of wetlands for returns be performed [Bog Turtle Conservation Plan Appendix F]
Bog turtle	USFWS	All	All	NA	Construction, Restoration	10/31/16	Bog Turtle Conservation Plan (April 2016)	Construction personnel trained to report all turtle observations to EI immediately upon siting. All bog turtles not in harm's way will be documented within Project logs and reported to USFWS/USACE/PADEP within the final report. Documentation to include dates, times, photographs, and behavior [Bog Turtle Conservation Plan Appendix F]
Bog turtle	USFWS	All	All	NA	Construction, Restoration	10/31/16	Bog Turtle Conservation Plan (April 2016)	Bog turtles in harm's way shall be handled by bog turtle specialist assigned to area and only if handling determined necessary to remove risk of injury/death. Other project personnel allowed to move turtles small distances, but only in cases of immediate danger. Otherwise, use steps to passively remove threat and allow turtles to continue normal behavior. Turtles only moved to area within same wetland, only to distance necessary to remove threat. Additional silt fence installation may be required in area to prevent turtles from returning to areas presenting threat. Removal/relocation of construction activity in particular area will be considered if practicable to completing the drill. Bog turtles found within harm's way reported to USFWS immediately as an incident and how it was handled [Bog Turtle Conservation Plan Appendix F]
Bog turtle	USFWS	A55 and A54	Lancaster and Berks	NA	Construction	10/31/16	Bog Turtle Conservation Plan (April 2016)	SPLP will implement the Project's inadvertent return plan, that contains special bog turtle area procedures for the drill at A55/ A54 [Bog Turtle Conservation Plan]
Bog turtle	USFWS	AM2, AM3, C7, C8, and C44	Berks	NA	Pre-Construction	10/31/16	Bog Turtle Conservation Plan (April 2016)	<ol style="list-style-type: none"> <li>1. Prior to performing construction in wetlands, streams, or uplands within 300 feet of potential bog turtle habitat, all areas of expected disturbance must be surveyed by qualified surveyor for presence of bog turtles immediately prior to construction commencement</li> <li>2. Prior to survey, herbaceous vegetation should be cut to height of 4-6 inches using hand-held trimmer/weed-cutter, then carefully raked away from area to be searched, with qualified bog turtle surveyor present for clearing</li> <li>3. Immediately following survey, silt fencing should be place between wetland and proposed construction zone while surveyor present ot ensure fencing is properly installed in correct location (to be removed immediately following construction</li> <li>3. If bog turtles located in searches, Service and PFBC should be contacted immediately, construction should not proceed until further consultation occurs, and survey results should be submitted to Service and PFBC</li> </ol> <p>[Letter from USFWS dated 10/31/2016]</p>

Pennsylvania Pipeline Project  
Pennsylvania Natural Diversity Inventory Condition Listing (11/13/16)

Species or Area	Agency	Water	County/AOC/ Survey Area	Population	Pre-Construction, Construction and Restoration, Post-Construction Activity	Clearance Letter	Conservation Plan	Primary Condition
Bog turtle	USFWS	A54 and A55	Lancaster	NA	Pre-Construction	10/31/16	Bog Turtle Conservation Plan (April 2016)	Immediately following survey, silt-fencing should be placed between wetland and proposed construction zone while bog turtle surveyor is present to ensure fencing is properly installed in correct location. Silt-fencing should be removed immediately following construction [Letters from USFWS dated 10/31/2016; 9/15/2016]
Bog turtle	USFWS	A54 and A55	Lancaster	NA	Pre-Construction	10/31/16	Bog Turtle Conservation Plan (April 2016)	Implement bog turtle radio-telemetry study protocol [Letter from USFWS dated 10/31/2016]
Bog turtle	USFWS	A54 and A55	Lancaster	NA	Pre-Construction	10/31/16	Bog Turtle Conservation Plan (April 2016)	Implement Service-approved vibration monitoring plan along the alignment and within wetlands if HDD activities extend into bog turtle dormant season [Letter from USFWS dated 10/31/2016]
Bog turtle	USFWS	A54 and A55	Lancaster	NA	Pre-Construction	10/31/16	Bog Turtle Conservation Plan (April 2016)	SPLP will conduct up to 8 days of bog turtle Phase 2 surveys (between September 18 and October 15, 2016) in order to capture approximately 10 appropriately sized bog turtles each in wetlands A54 and A55 to be fitted with transmitters. A total of 20 bog turtles fitted with transmitters is the goal of or this telemetry study [SPLP Pipeline, L.P. Pennsylvania Pipeline Project (PPP) Radio-Telemetry Study Protocol for Bog Turtle Monitoring Associated with Horizontal Directional Drill (HDD) at Wetlands A54 and A55 in Lancaster County, Pennsylvania]
Bog turtle	USFWS	A54 and A55	Lancaster	NA	Pre-Construction	10/31/16	Bog Turtle Conservation Plan (April 2016)	SPLP will deploy at least 20 bog turtle traps in A54 and A55. Traps will be used for at least 10 consecutive days, or at least until 10 bog turtles have been fitted with transmitters. Traps will be checked daily while deployed in A54 and A55 [SPLP Pipeline, L.P. Pennsylvania Pipeline Project (PPP) Radio-Telemetry Study Protocol for Bog Turtle Monitoring Associated with Horizontal Directional Drill (HDD) at Wetlands A54 and A55 in Lancaster County, Pennsylvania]
Bog turtle	USFWS	A54 and A55	Lancaster	NA	Pre-Construction	10/31/16	Bog Turtle Conservation Plan (April 2016)	All healthy adult bog turtles (target goal of 10 per wetland) of suitable size captured during surveys will be fitted with transmitters equipped with batteries having approximately 9 months of service life. Equal numbers of males and females will be fitted with transmitters to extent practical. Should Phase 2 and Phase 3 surveys during fall 2016 determine populations in A54 and A55 are lower than anticipated, number of bog turtles fitted with transmitters may be less than 10 in each wetland [SPLP Pipeline, L.P. Pennsylvania Pipeline Project (PPP) Radio-Telemetry Study Protocol for Bog Turtle Monitoring Associated with Horizontal Directional Drill (HDD) at Wetlands A54 and A55 in Lancaster County, Pennsylvania]
Bog turtle	USFWS	A54 and A55	Lancaster	NA	Construction, Restoration, Monitoring	10/31/16	Bog Turtle Conservation Plan (April 2016)	Bog turtles fitted with transmitters will be tracked twice a week during pre-construction time period to monitor bog turtle activity, identify fall travel patterns, and determine locations of over-wintering sites. All bog turtle locations will be recorded via sub-meter accuracy GPS technology and mapped accordingly. Bog turtles may be periodically checked/handled during this time period if no movement observed since previous field tracking and to ensure proper attachment of transmitter. Pre-construction time period will be approximately 4 weeks [SPLP Pipeline, L.P. Pennsylvania Pipeline Project (PPP) Radio-Telemetry Study Protocol for Bog Turtle Monitoring Associated with Horizontal Directional Drill (HDD) at Wetlands A54 and A55 in Lancaster County, Pennsylvania]
Bog turtle	USFWS	A54 and A55	Lancaster	NA	Construction, Restoration, Monitoring	10/31/16	Bog Turtle Conservation Plan (April 2016)	During active construction (when HDD is ongoing), bog turtles fitted with transmitters will be tracked at least every other day while drilling is active to monitor bog turtle activity and determine/confirm usage of over-wintering sites. All locations recorded via GPS technology (sub-meter accuracy) and mapped accordingly. No bog turtles will be handled or disturbed by biologist tracking the turtles during this time period [SPLP Pipeline, L.P. Pennsylvania Pipeline Project (PPP) Radio-Telemetry Study Protocol for Bog Turtle Monitoring Associated with Horizontal Directional Drill (HDD) at Wetlands A54 and A55 in Lancaster County, Pennsylvania]
Bog turtle	USFWS	A54 and A55	Lancaster	NA	Construction, Restoration, Monitoring	10/31/16	Bog Turtle Conservation Plan (April 2016)	During early post-construction, bog turtles fitted with transmitters will be tracked twice a week to monitor activity and determine/confirm usage of over-wintering sites. All locations recorded via GPS technology (sub-meter accuracy) and mapped accordingly. No bog turtles will be handled or disturbed by biologist tracking the turtles during this time period. Early post-construction time period will last 4 weeks [SPLP Pipeline, L.P. Pennsylvania Pipeline Project (PPP) Radio-Telemetry Study Protocol for Bog Turtle Monitoring Associated with Horizontal Directional Drill (HDD) at Wetlands A54 and A55 in Lancaster County, Pennsylvania]
Bog turtle	USFWS	A54 and A55	Lancaster	NA	Construction, Restoration, Monitoring	10/31/16	Bog Turtle Conservation Plan (April 2016)	All bog turtles fitted with transmitters will continue to be tracked and mapped at least 1 time per month until April 2017, at which time they will be captured and have transmitters removed [SPLP Pipeline, L.P. Pennsylvania Pipeline Project (PPP) Radio-Telemetry Study Protocol for Bog Turtle Monitoring Associated with Horizontal Directional Drill (HDD) at Wetlands A54 and A55 in Lancaster County, Pennsylvania]

Pennsylvania Pipeline Project  
Pennsylvania Natural Diversity Inventory Condition Listing (11/13/16)

Species or Area	Agency	Water	County/AOC/ Survey Area	Population	Pre-Construction, Construction and Restoration, Post-Construction Activity	Clearance Letter	Conservation Plan	Primary Condition
Bog turtle	USFWS	A54 and A55	Lancaster	NA	Construction, Restoration, Monitoring	10/31/16	Bog Turtle Conservation Plan (April 2016)	Bog turtles fitted with transmitters will be minimally handled during the study, and in any event, will be returned to their location of capture as soon as possible [SPLP Pipeline, L.P. Pennsylvania Pipeline Project (PPP) Radio-Telemetry Study Protocol for Bog Turtle Monitoring Associated with Horizontal Directional Drill (HDD) at Wetlands A54 and A55 in Lancaster County, Pennsylvania]
Bog turtle	USFWS	A54 and A55	Lancaster	NA	Construction, Restoration, Monitoring	10/31/16	Bog Turtle Conservation Plan (April 2016)	The USFWS/PFBC will be provided a map showing the location of the hibernating turtles, once all are hibernating [SPLP Pipeline, L.P. Pennsylvania Pipeline Project (PPP) Radio-Telemetry Study Protocol for Bog Turtle Monitoring Associated with Horizontal Directional Drill (HDD) at Wetlands A54 and A55 in Lancaster County, Pennsylvania]
Bog turtle	USFWS	A54 and A55	Lancaster	NA	Construction, Restoration, Monitoring	10/31/16	Bog Turtle Conservation Plan (April 2016)	Any large movements of over 15 feet from original hibernation location after November 1 and before April 1 or any surface operations during this time period will be immediately reported to USFWS/PFBC if movement or surfacing cannot be dismissed due to unseasonably warm weather [SPLP Pipeline, L.P. Pennsylvania Pipeline Project (PPP) Radio-Telemetry Study Protocol for Bog Turtle Monitoring Associated with Horizontal Directional Drill (HDD) at Wetlands A54 and A55 in Lancaster County, Pennsylvania]
Bog turtle	USFWS	A54 and A55	Lancaster	NA	Construction, Restoration, Monitoring	10/31/16	Bog Turtle Conservation Plan (April 2016)	Any mortalities will result in drill stoppage and immediate reporting to USFWS [SPLP Pipeline, L.P. Pennsylvania Pipeline Project (PPP) Radio-Telemetry Study Protocol for Bog Turtle Monitoring Associated with Horizontal Directional Drill (HDD) at Wetlands A54 and A55 in Lancaster County, Pennsylvania]
Bog turtle	USFWS	A54 and A55	Lancaster	NA	Operations	10/31/16	Bog Turtle Conservation Plan (April 2016)	SPLP will commit to protection of A54 and A55 through operation of the pipelines through the installation of no mowing signs, hand clearing, limited herbicide applications [Letter to USFWS dated 10/31/2016]
Indiana bat	USFWS	Those Located in Swarming Radius	Allegheny, Westmoreland, Cambria, Huntingdon, and Blair	NA	Pre-Construction	10/31/16	Myotis Conservation Plan (April 2016)	Limited tree clearing proposed where the Project traverses a portion of the Layton Clay Fire Mine and Hartman Mine Indiana bat swarming habitats. SPLP has agreed to implement tree clearing in these swarming areas between November 15 and March 31 [Myotis Conservation Plan §§ 2.2.1; 2.2.2]
Indiana bat, Northern long- eared bat	USFWS	Those Located in Swarming Radius	NA	NA	Pre-Construction	10/31/16	Myotis Conservation Plan (April 2016)	Environmental training is a requirement of all personnel working in the field on the ROW. Training will include section on wildlife protection in general, but also will focus on sensitive species, including discussion on Indiana bat and northern long-eared bat. Training will involve the identification of the LOD in general and any timing restrictions placed on various land disturbances, such as tree clearing [Myotis Conservation Plan § 2.2.1]
Migratory Birds	USFWS	Project Wide	NA	NA	Pre-Construction	10/31/16	Migratory Bird Conservation Plan (July 2016)	SPLP has reduced and minimizes impact project wide. See Migratory Bird Conservation Plan.
Andropogon glomeratus	PADCNR	NA	Cambria/AOC W10	Population 9	Construction	11/15/15	Conservation Plan for Identified Species [Plants] of Special Concern (November 2015)	Minimization through use of soil segregation and replacement [Conservation Plan for Identified SOSC §3.2.1]
Andropogon glomeratus	PADCNR	NA	Cambria/AOC W10 and AOC ALT W1	Population 3	Construction	11/15/15	Conservation Plan for Identified Species [Plants] of Special Concern (November 2015)	Soil Segregation and replacement [Conservation Plan for Identified SOSC §3.2.2]
Andropogon glomeratus	PADCNR	NA	Cambria/AOC W10 and AOC ALT W1	Population 1	Construction	11/15/15	Conservation Plan for Identified Species [Plants] of Special Concern (November 2015)	HDD, timber mats in proposed travel lane [Conservation Plan for Identified SOSC §3.2.2]
Andropogon glomeratus	PADCNR	NA	Cambria/AOC W10 and AOC ALT W1	Population 2	Construction	11/15/15	Conservation Plan for Identified Species [Plants] of Special Concern (November 2015)	HDD, neck down of proposed travel lane LOD [Conservation Plan for Identified SOSC §3.2.2]
Andropogon glomeratus	PADCNR	NA	Cambria/AOC W10 and AOC ALT W1	Population 4	Construction	11/15/15	Conservation Plan for Identified Species [Plants] of Special Concern (November 2015)	No impacts- population outside of the proposed LOD for the Project [Conservation Plan for Identified SOSC §3.2.2]

Pennsylvania Pipeline Project  
Pennsylvania Natural Diversity Inventory Condition Listing (11/13/16)

Species or Area	Agency	Water	County/AOC/ Survey Area	Population	Pre-Construction, Construction and Restoration, Post-Construction Activity	Clearance Letter	Conservation Plan	Primary Condition
Actaea podocarpa	PADCNR	NA	Cambria/ between AOC W10 and AOC ALT W2	Population 1	Construction	11/15/15	Conservation Plan for Identified Species [Plants] of Special Concern (November 2015)	No impacts- stream crossing "tied-in" and completed within a single crossing and within 24-48 hours, trench opened and backfilled within this timeframe, SPLP will "sod" excavate" plant and its roots and restore the area with the same sod upon restoration all within 24-48 hours, population will be avoided by installation of construction fencing [Conservation Plan for Identified SOSC §3.2.2]  Monitoring report will be submitted to DCNR for review detailing success of the sod-excavation [PADCNR Letter 1/15/2016]
Actaea podocarpa	PADCNR	NA	Cambria/ between AOC W10 and AOC ALT W1	Population 1	Pre-Construction, Construction, Restoration	11/15/15	Conservation Plan for Identified Species [Plants] of Special Concern (November 2015)	Tie-in will be monitored by a certified PA DEP botanist. Success of the restoration monitored the two days following restoration activities and again at 4 and 8 weeks following restoration [Conservation Plan for Identified SOSC §3.2.2]  Or if sod-excavation conducted outside of the growing season, a similar monitoring schedule at earliest appropriate time [PADCNR Letter 1/15/2016]
Viola appalachensis	PADCNR	NA	Cambria/ between AOC W10 and AOC ALT W0	Population 2	Pre-Construction, Construction	11/15/15	Conservation Plan for Identified Species [Plants] of Special Concern (November 2015)	Minimize impacts- installation of orange construction fence along the edge of the permanent ROW and implementation of an LOD reduction [Conservation Plan for Identified SOSC §3.2.2]
Viola appalachensis	PADCNR	NA	Cambria/ between AOC W10 and AOC ALT W1	Population 3	Pre-Construction, Construction	11/15/15	Conservation Plan for Identified Species [Plants] of Special Concern (November 2015)	Minimize impacts- inclusion of additional reductions of the temporary LOD near northern end of population 3 [Conservation Plan for Identified SOSC §3.2.2]
Scirpus ancistrochaetus	PADCNR	NA	Cambria/AOC ALT W1	Population 1	Construction	11/15/15	Conservation Plan for Identified Species [Plants] of Special Concern (November 2015)	No impacts- HDD bore will travel beneath this population [Conservation Plan for Identified SOSC §3.2.3]
Andropogon glomeratus	PADCNR	NA	Cambria/AOC ALT W1	Population 5	Construction	11/15/15	Conservation Plan for Identified Species [Plants] of Special Concern (November 2015)	No impacts- HDD bore will travel beneath this population [Conservation Plan for Identified SOSC §3.2.3]
Antennaria virginica	PADCNR	NA	Blair/AOC W14	Populations 3,8,16	Construction	11/15/15	Conservation Plan for Identified Species [Plants] of Special Concern (November 2015)	Unavoidable impacts anticipated- minimization through the use of soil segregation and replacement [Conservation Plan for Identified SOSC §3.2.4]
Antennaria virginica	PADCNR	NA	Blair/AOC W14	Populations 7 and 9	Monitoring	11/15/15	Conservation Plan for Identified Species [Plants] of Special Concern (November 2015)	SPLP has agreed to conduct monitoring of these populations for three (3) years annually to document recolonization and success of the minimization and mitigation strategies [PADCNR Letter 1/15/2016]
Carex shortiana	PADCNR	NA	Juniata/ AOC E1	Populations 4,5	Construction	11/15/15	Conservation Plan for Identified Species [Plants] of Special Concern (November 2015)	No impacts- HDD bore will travel beneath this population [Conservation Plan for Identified SOSC §3.2.5]
Polygala polygama	PADCNR	NA	Perry/ AOC E2	Populations 1,2,3,5	Pre-Construction	11/15/15	Conservation Plan for Identified Species [Plants] of Special Concern (November 2015)	Minimization through pipeline alignment and LOD shift. Routing through the State Forest has already been agreed upon by the PADCNR and Tuscarora State Forest District Forester and was routed to the south to avoid majority of impacts to these SOSC [Conservation Plan for Identified SOSC § 3.2.6]