


Requirement L
Environmental Assessment

CHAPTER 105 ENVIRONMENTAL ASSESSMENT FORM

| | | Item Included Location |
|--|---|---------------------------|
| Note: The Department may waive a specific information requirement in writing, at the request of the Applicant, during the pre-application review process if the Department determines the information is not necessary to complete the review. | | |
| Module S1: Project Summary | | |
| <i>This module is intended to organize information in order to present an overall summary of the project scope, certain key information requirements and when applicable, a comprehensive view of the overall project and related projects.</i> | | |
| A. Provide an overall project description and If the answer to the question below is YES , address CEA requirements; otherwise proceed to S1.B Comprehensive Environmental Assessment (CEA) when applicable. Answer the following question: | <input checked="" type="checkbox"/> | Req L, S1.A |
| Does the "overall" project require more than one Ch. 105 permit in more than one county or will the project be completed in more than one phase? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Req L, S1.A |
| B. Provide information related to the project purpose, need, water dependency and summarize the amount and type of resources present and the temporary and permanent impacts proposed to those resources. | <input checked="" type="checkbox"/> | Req L, S1.B |
| Module S2: Resource Identification and Characterization | | |
| <i>This module is intended to organize information related to the identification of the resources present on the project site and to characterize those resources that may be affected by the proposed project.</i> | | |
| A. Provide the standard resource identification information, location map, wetland determination or delineation reports; watercourse reports; identification and qualifications of preparers; location map, and answer the related questions. | <input checked="" type="checkbox"/> | Req L, S2.A |
| Is the site located within or adjacent to any of the following; or within 100 feet of items vii or viii? | | Req L, S2.A.5 |
| i. National, state or local park, forest or recreation area | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | Req L, S2.A.5 |
| ii. National natural landmark | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | Req L, S2.A.5 |
| iii. National wildlife refuge, or Federal, state, local or private wildlife or plant sanctuaries | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | Req L, S2.A.5 |
| iv. State Game Lands | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | Req L, S2.A.5 |
| v. Areas identified as prime farmland | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Req L, S2.A.5 |
| vi. Source for a public water supply | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | Req L, S2.A.5 |
| vii. A National Wild or Scenic River or the Commonwealth's Scenic Rivers System | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | Req L, S2.A.5 |
| viii. Designated Federal wilderness area | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | Req L, S2.A.5 |
| B. Identify all aquatic resources present on the project site and provide an identifier, the resource type; size of the resource(s); fishery designations, Ch. 93 uses and special protection status; and Exceptional Value (EV) wetland analysis. | <input checked="" type="checkbox"/> | Req L, S2.B |
| C. Provide the following information related to habitat for Federal threatened and endangered (T&E) plant and animal species or State T&E species or species of special concern - copies of search forms or search receipts; identification of avoidance and minimization efforts taken to resolve identified conflicts. | <input checked="" type="checkbox"/> | Req L, S2.C |
| Did the PNDI search or agency coordination identify any potential conflicts? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Req L, S2.C.1 |
| If the above is answered YES ; answer the following two questions related to PNDI Coordination: | | - |
| a. Is the applicant utilizing a sequential review of the PNDI coordination? | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | - |
| b. Is the applicant utilizing a concurrent review of the PNDI coordination? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Req L, S2.C.1(i) |
| D. Characterize the aquatic resources: riverine, wetland and lacustrine present on the project site that are proposed to be directly or indirectly affected by the project. Including but not limited to the following, resource classification information, Level 2 rapid condition assessment results, discussion of resource functions, | <input checked="" type="checkbox"/> | Req L, S2.D |



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| characterization of riparian properties and any other relevant information or studies conducted. | | | |
| Module S3: Identification and Description of Potential Project Impacts | | | |
| <i>This module is intended to organize and present information concerning the potential impacts or effects of the proposed project in this application. Impacts related to the "over all" project that are proposed under related but separate application(s) should be addressed as part of the CEA Policy response under S1.A.</i> | | | |
| A. Provide a summary table of the proposed temporary and permanent direct and indirect impacts for <u>each</u> effected resource category (e.g. riverine, wetlands and lacustrine resources). | <input checked="" type="checkbox"/> | | Req L, S3.A |
| B. If any questions from S2.A Standard Information Response questions were answered YES, discuss in detail any potential impacts to those resource(s). | <input checked="" type="checkbox"/> | | Req L, S3.A |
| <i>IMPORTANT NOTE: If either item vii or viii from S2.A is answered YES, the project is not eligible as a "Small Project Application" type. Complete all applicable sections of the EA form for the standard application type unless an item was otherwise waived by the Department in writing (see previous Note on waiving of information requirements).</i> | | | |

| | | Item Included Location |
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| C. | Provide a table(s) of all proposed water obstruction(s), encroachment activities and dams (e.g. subfacility codes) and provide an identifier, the subfacility code and description, resource identifier from S2.B , latitude and longitude, the proposed temporary and permanent direct and indirect impacts and subfacility details. | <input checked="" type="checkbox"/> Req L, S3.C |
| D. | Provide a discussion of how the proposed subfacility(ies) individually and in combination directly and/or indirectly impact the identified resource(s) and the effects on the applicable resource functions: hydrologic, biogeochemical, habitat, recreation, any other environmental impacts and the effects on the property or riparian rights of owners upstream, downstream or adjacent to the project. | <input checked="" type="checkbox"/> Req L, S3.D |
| E. | Antidegradation Analysis - The applicant should demonstrate consistency with State antidegradation requirements as described in the Water Quality Antidegradation Implementation Guidance Policy Document Number 391-0300-002. Project application information provided below in S3.F, G and H may be cross-referenced. | <input checked="" type="checkbox"/> Req L, S3.E |
| F. | Alternatives Analysis - The scope and extent of this analysis should be commensurate with the size and scope of the proposed project impacts <i>in this</i> application, information provided in S4.A below, related to avoidance and minimization efforts, may be cross-referenced. | <input checked="" type="checkbox"/> Req L, S3.F |
| G. | Potential Secondary Impact Evaluation - Identify and describe environmental impacts on adjacent land and water resources associated with but not that direct result of the project. | <input checked="" type="checkbox"/> Req L, S3.G |
| H. | Identify and evaluate the potential cumulative environmental impacts of this project and other potential or existing projects like it, and the impacts that may result through numerous piecemeal changes to the wetland resource. | <input checked="" type="checkbox"/> Req L, S3.H |
| Module S4: Mitigation Plan | | |
| <i>This module is intended to organize and present information concerning actions undertaken in accordance with the definition of Mitigation in Title 25 Pa. Code Chapter 105 - §105.1, 105.16, 105.18a(a)(3), 105.18a(b)(7), 105.20a, and 105.21 as related to the potential impacts or effects of the proposed project in this application.</i> | | |
| A. | Identify and discuss any measures taken that resulted in avoiding or minimizing unavoidable resource impacts, provide detailed responses for individual proposed impact area(s) and the project as a whole. | <input checked="" type="checkbox"/> Req L, S4.A |
| B. | Identify and discuss any repair, rehabilitation or restorative actions taken to rectify an impacted resource, provide detailed responses for individual proposed impact area(s) and the project as a whole. Identify and discuss any proposed preservation and maintenance operations that will be taken to reduce or eliminate an impact during the life of the project. | <input checked="" type="checkbox"/> Req L, S4.B |
| C. | Identify and discuss any actions undertaken to provide compensatory mitigation including the purchase of credits from an approved provider, a detailed discussion of proposed compensation actions and how they will offset the lost resource functions. Provide detailed plans including performance standards and success criteria. | <input checked="" type="checkbox"/> Req L, S4.A & Req T |
| | Answer the following question. If the answer to the question is YES , provide the information regarding the mitigation credit provider; otherwise provide a detailed mitigation plan. If the application proposes to utilize both mitigation bank credits and conduct permittee responsible mitigation; both the credit provider and mitigation plan information shall be submitted. | <input checked="" type="checkbox"/> Req L, S4.A & Req T |
| | Does the applicant propose to utilize an approved mitigation bank to provide all or a portion of the compensation? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Req L, S4.A & Req T |
| D. | When applicable, provide a plan to monitor the identified actions proposed in S4.B and/or S4.C compensatory mitigation area. Applicants should utilize the Department's Design Criteria and the USACE's RGL 08-03 -(http://www.usace.army.mil/Portals/2/docs/civilworks/RGLS/rgl08_03.pdf) to develop monitoring plans for compensatory mitigation proposals. The plan should include performance standards/success criteria, duration and timeframes of monitoring, monitoring report template, and template remedial action or adaptive management plan. | <input checked="" type="checkbox"/> Req L, S4.A & Req T |
| Note: All or portions of this Module may apply to "Small Project" type applications under case specific circumstances and should be discussed during any pre-application meetings or prior to application submittal. | | |
| CERTIFICATION | | |
| I certify that the above statements, attachments including those labeled and identified as Enclosures, and all conclusions are true, correct, and based upon current environmental principles and science, to the best of my knowledge and belief. | | |
|  | | 11/9/17 |
| Signature | | Date |

Module S1
Project Summary

MODULE S1 PROJECT SUMMARY

S1.A **Project Description**

S1.A.1 **Project Occurrence**

The overall Shell Pipeline Company LP (SPLC) Falcon Ethane Pipeline System (Project) occurs in Washington, Allegheny, and Beaver counties, Pennsylvania, Hancock County, West Virginia, and Jefferson, Carroll, and Harrison counties, Ohio.

S1.A.1(i) Comprehensive Environmental Assessment

Per PA DEP Technical Guidance Document Number 310-2137-006 (TGD), a Comprehensive Environmental Assessment of proposed project impacts for Chapter 105 water obstructions and encroachments is required for this project because it occurs in more than one county in the Commonwealth.

The first TGD requirement states that avoidance and minimization of the overall project's impact on waters of the Commonwealth must be discussed. This is discussed in Module S4.A. The second TGD requirement stipulates that the applicant should describe all of the specific measures undertaken or that will be undertaken to mitigate for overall project impacts. This is discussed in Module S4.C. The third requirement states that the applicant should demonstrate consistency with the State antidegradation requirements and include that information in an alternatives analysis. The alternative analysis is located in Module S3.F. Requirement 4 states that each county-specific application must contain an alternatives analysis, impacts analysis, and mitigation measures for that specific county. Each county-specific application information is located in Modules S3.F, S3.A, and SF.C, respectively. The fifth TGD requirement states that all temporary and permanent, as well as direct and secondary (indirect) impacts, must be discussed. Additionally, other permanent impacts or potential future permanent impacts must be discussed. This information is presented in Module S3. The fifth TDG requirement also specifies that these proposed impacts should be consistent with the State antidegradation requirements. This, as stated above, is discussed in Module S3.F. Lastly, the fifth TGD requirement states that the applicant must discuss proposed mitigation and compensation of the proposed permanent impacts. This is outlined in Module S4.C. The sixth and last TGD requirement is concerned with projects that are permitted in distinct phases. This project will be permitted in one phase and therefore this requirement is not applicable.

S1.A.1(ii) Nature and Extent of Overall Project and Anticipated Construction Timeline

SPLC proposes to build, own, and operate the Project. The system will consist of an approximately 98-mile common carrier ethane supply pipeline that will be located in southwestern Pennsylvania, Ohio, and West Virginia. Falcon will connect three major ethane sources in Houston, Pennsylvania, Scio, Ohio, and Cadiz, Ohio to Shell Chemical's planned Pennsylvania Petrochemical Plant (Plant) located in Monaca, Pennsylvania.

The location of the pipeline system will be in a key area that will link the rich gas areas of the Marcellus and Utica shale reservoirs to future petrochemical plant in Monaca, Pennsylvania. This plant will be located within 70 percent of the North American polyethylene market, which sits within a 700 mile radius of Pittsburgh, Pennsylvania. The system will allow for a safe and reliable means of transporting the ethane feed stock to the petrochemical plant. The Project will bring new jobs to the area, with up to 1,000 construction workers involved in building the pipeline. The Project will also need eight to ten permanent employees when complete to operate and maintain the line.

The Project will consist of an approximately 11-mile 10-inch diameter steel pipeline that will run from the existing MarkWest Cadiz, Ohio facility to a junction point located two miles southeast of Scio, Ohio.

An approximately 53-mile 12-inch diameter steel pipeline will stretch from the Utica East Ohio plant in Scio, Ohio to a junction site located four miles southwest of the Monaca, Pennsylvania Petrochemical plant. A third 12-inch diameter steel pipeline will originate out of MarkWest's Houston, Pennsylvania fractionation plant and stretch to the junction site that is located four miles southwest of the Monaca plant. Then, a 16-inch diameter steel pipeline will stretch from that junction site to the Plant in Monaca, Pennsylvania.

Overall, approximately 43.4 miles of pipeline will be located in Ohio, 8.7 miles in West Virginia, and 45.5 miles in Pennsylvania.

Proposed Construction Activities

Construction activities will disturb both soil and ground cover. The proposed Project will typically utilize a 100-foot-wide limit-of-disturbance (LOD) for general construction. Additional temporary work space will be utilized strategically throughout the project. The total disturbed area for the entire Project is approximately 1,273 acres along the proposed pipeline; in Washington County it will be approximately 192 acres. These disturbances will be both temporary and permanent. Disturbed areas will be seeded and mulched upon placement of the proposed pipeline and associated fill. After construction, the permanent rights-of-way (ROW) may be maintained by mowing and/or trimming activities. Additional information on the construction process is provided in the Erosion and Sediment Control Plan (ESCGP-2) drawings provided in Requirement M. The following construction activities will occur as a result of the proposed project.

Trenching (Open Cut)

Upland – Installation of the proposed pipelines will occur by excavating a singular trench within a 100-foot-wide ROW, which consists of a 50-foot-wide permanent ROW and a 50-foot-wide temporary ROW. For the majority of the project, the pipeline will be placed in the middle of the 50-foot permanent right of way. The steel pipeline will be installed within an approximately 10-to-15-foot-wide trench and buried with a four-foot-deep minimum typical cover. The pipeline will deviate to a five foot minimum cover when crossing roadways.

Wetland/Watercourse – The pipeline will be buried five feet deep when crossing watercourses and four feet when crossing wetlands. Where rock is encountered, SPLC will reduce depth but no less than three feet minimum cover. Watercourse crossings will be conducted "in the dry" meaning that water during trenching and installation of the pipeline will be diverted by means of a dam and pump or a flume pipe. Only under specific conditions will a stream be crossed using the cofferdam technique, where one half of the stream is crossed at a time. For both wetland and watercourses, timber matting and temporary bridging will be used for the equipment travel lane before, during and after trenching and installation of the pipeline at each crossing.

Boring/Horizontal Directional Drilling

SPLC will utilize Horizontal Directional Drill (HDD) method for the installation of the proposed pipelines across thirteen locations, thus eliminating above-ground impacts to 16 watercourses and seven wetlands throughout the Project Area. SPLC will directionally bore underneath these resources, generally from upland to upland points-of-entry and -exit, to eliminate direct contact/impact. HDDs will also cross existing township, county and state roadways, rail-to-trails, and rail roads. Approximately 33 roadways are planned to be crossed using conventional (direct) bore methods; this number may fluctuate due to the ongoing permitting process with each state and local roadway agency.

Inadvertent Returns

Inadvertent returns of the drilling fluid (mud) into upland, wetland, and watercourse resources are a common by-product of the boring process. In the event of inadvertent returns occurring during the boring process, SPLC is requesting, as part of this Joint Permit Application, that

both state and federal authorizations allow the contractor to correct or rectify any potential inadvertent returns that may occur along the bore by implementing the Shell Pipeline HDD Procedure. This plan further outlines the preventative measures to be utilized by SPLC and SPLC's drilling contractor as well as corrective actions associated with inadvertent returns. This document can be found in Requirement V. Per the current notification protocol, SPLC will notify the appropriate state and local agencies immediately if an inadvertent return occurs.

Access Roads

The pipeline will be maintained and accessed through the ROW described above. The majority of roadways utilized for construction and restoration will consist of existing private roadways that will be temporarily upgraded or maintained for the purpose of constructing and restoring the pipeline. Where temporary upgrades are needed, the roadway will be returned to the current road width, per the site restoration plan. Rock construction entrances will be installed at public road crossings and at the entrance of access roads. If a business or residence is located along the access road, the roadway will be maintained up to the last residence/business and the construction entrance added at that point. Equipment and supplies can access the pipeline ROW at these locations.

Permanent access roads will be needed to access the mainline valve sites that are stationed along the pipeline route and are used for the safety and integrity of the pipeline. A new permanent access road will also be needed to access the Junction meter site in Beaver County, Pennsylvania and at the Cadiz meter site in Harrison County, Ohio. The remaining meter sites at Houston, Cadiz, Scio, and the Plant can be accessed from existing roadways. The aquatic resources that will be impacted by the access roads can be found in Table 1 in Requirement A.

Erosion and Sediment Control/Stormwater Management

The Project ESCGP-2 application is being submitted simultaneously with this Joint Permit Application. Detailed stormwater Best Management Practices (BMPs) such as interceptor dikes/water bars, filter sock/fences, rock filter outlets, etc. have been developed for pipeline construction and are outlined in the ESCGP-2. Select pages from the ESCGP-2 detail drawings and Site Specific Plans are included in Requirement H of this permit application.

Provisions for Shut Off in the Event of Break or Rupture

The proposed Project is a pure ethane common carrier pipeline, and therefore is not under the Federal Energy Regulatory Commission (FERC) regulation. To meet design standard 49 CFR Part 195 and ASME B31.4, the pipeline has mainline valve sites spaced at approximately 7.5 miles along the line for isolation of pipeline segments. The valves are also located on either side of waterbodies that are 100 feet or greater in width, such as the two Raccoon Creek crossings in Beaver County, Pennsylvania, or the Ohio River Crossing. The valves serve as isolation points so that flow from upstream, downstream, or both can be shut off remotely from the SPLC monitoring center in case of a rupture caused by outside forces. In addition, the pipeline is protected at each supply location with 24/7 monitoring and the ability to locally and remotely shut down the pipeline facility due to an exceedance in allowable pressure.

Proposed Schedule

Tree clearing and construction are proposed to commence in fall 2018. Full construction will commence during the spring 2019 through the fall 2019. Restoration will occur between fall 2019 and spring 2020 and commissioning will commence in spring 2020.

S1.A.1(iii) Other Chapter 105 Applications Associated with this Project

Along with this Chapter 105 Water Obstruction and Encroachment (105 WO&E) Permit Application Submittal, SPLC and AECOM are also simultaneously submitting (105 WO&E) permit applications for Allegheny and Beaver counties.

S1.A.1(iv) Overall Known Impacts and Anticipated Future Impacts

The Project is directly related to the Plant construction. The Plant was permitted under PADEP 105 WO&E Number E04-250-A1 and US Army Corps of Engineers permit LRP-1997-1769. Under these permits, 16,838 linear feet of watercourses, 3.63 acres of wetland were proposed for permanent impact and 1.29 acres of Ohio River was proposed for maintenance dredging.

At present time, the only known projects are one 12-inch nitrogen line and one 24-inch natural gas line that are both proposed to connect to the Plant near the proposed Project connection location. These two projects are not connected to this Project. It is assumed these pipelines may cross some of the same resources that the Project will via HDD.

Table S1.A.1(iii) provides a summary of the Plant, Project, and proposed pipeline impacts. The overall Project impacts include impacts for Ohio, West Virginia, and Washington, Allegheny, and Beaver counties, Pennsylvania.

**Table S1.A.1(iii)
Known and Anticipated Impacts**

| | Permanent (fill) | | Temporary | |
|--------------------------------|------------------|--------------|-------------|--------------|
| | Stream (lf) | Wetland (ac) | Stream (lf) | Wetland (ac) |
| Plant | 16,838 | 3.63 | 0 | 0 |
| Project | 54 | 0.0629 | 13,773.87 | 6.37 |
| Nitrogen¹ | 0 | 0 | 3 | 0 |
| Natural Gas¹ | 0 | 0 | 0 | 0 |

¹Impacts are estimated

S1.B Additional Information

S1.B.1 Project Purpose and Need

The purpose of this Project is to deliver ethane from fractionation facilities in Scio and Cadiz, Ohio and Houston, Pennsylvania to Shell Chemical’s Plant in Monaca, Pennsylvania. This will allow the new petrochemical facility to operate, creating 600 permanent jobs in an area that has historically had a high unemployment rate. The new facility will position this geographical area in the middle of the polyethylene market, greatly benefiting the region’s economics and this Project will allow for a safe and reliable means of transporting the ethane feed stock to the petrochemical plant.

S1.B.2 Water Dependency Statement

The purpose of the Project is to transport ethane from fractionation facilities in Scio and Cadiz, Ohio and Houston, Pennsylvania to the Plant in Monaca, Pennsylvania. Given the terrain, existing private and commercial developments, and number of streams present in Pennsylvania, it is very difficult, if not impossible, to travel that distance without crossing a single stream. Often, wetlands are associated with stream valleys and floodplains and are often crossed when streams are present. Therefore, this Project is considered to be water dependent.

S1.B.3 Resource Summary Table

Table S1.B.3 below provides a summary of the amount and types of watercourses and wetlands crossed within the Project site. Please refer to Table 1 in Requirement A or the tables in Module S3 for more detailed resource impact information.

**Table S1.B.3
Resource Summary
Washington County, Pennsylvania**

| Resource Type | Classification | # | Area within Permanent ROW (ft ²) | Area within Temporary ROW (ft ²) |
|---------------|-----------------|----|--|--|
| Wetland | PEM | 18 | 32742.12 | 34113.47 |
| | PSS | 2 | 0.00 | 2742.59 |
| | PFO | 0 | 0.00 | 0.00 |
| | PUB | 3 | 1248.69 | 248.09 |
| | PEM/PFO complex | 1 | | |
| | PEM | - | 2217.18 | 669.82 |
| | PFO | - | 2160.77 | 67.35 |
| | TOTAL | | | 38,368.76 |
| Watercourse | Perennial | 14 | 4503.79 | 4189.23 |
| | Intermittent | 12 | 2922.98 | 2560.71 |
| | Ephemeral | 6 | 1801.80 | 450.94 |
| | TOTAL | | 9,228.57 | 7,200.88 |
| Floodway | - | 39 | 182,853.57 | 142,645.48 |

S-PA-160406-MRK-002 (PER) Westland Run is crossed twice
 S-PA-160302-MRK-003 (INT) is crossed twice

S1.B.4 Impact Summary Table

Table S1.B.4 below provides a summary of the permanent and temporary direct and indirect impacts within the Project site. For the purposes of the Project, permanent direct impacts are associated with the impacts that will occur where the actual pipeline will cross. Permanent indirect impacts will occur within in the permanent ROW. Temporary indirect impacts will occur within the temporary construction ROW or where wetlands have been converted from woody to herbaceous because there is no net loss of resources. There are no temporary direct impacts because there are no impacts within the construction ROW that are considered fills or changing from palustrine to lacustrine systems.

**Table S1.B.4
Impact Summary
Washington County, Pennsylvania**

| | Direct (ft ²) | Indirect (ft ²) |
|------------------|---------------------------|-----------------------------|
| Permanent | | |
| Stream | 8,162.98 | 1,065.59 |
| Floodway | 182,147.61 | 705.96 |
| Wetland | 36,652.29 | 1,716.46 |
| Temporary | | |
| Stream | 0.00 | 7,200.88 |
| Floodway | 0.00 | 142,645.48 |
| Wetland | 0.00 | 37,841.32 |

References

Pennsylvania Department of Environmental Protection. Bureau of Waterways Engineering and Wetlands. *Comprehensive Environmental Assessment of Proposed Project Impacts for Chapter 105 Water Obstruction and Encroachment Permit Applications*. Technical Guidance Number 310-2137-006. January 21, 2017.