

PENNEAST LUZERNE COUNTY JOINT PERMIT APPLICATION

APS ID# 893302, AUTH ID# 1111907

DEP Application No. E40-780

RESPONSE TO PADEP 7/3/19 TECHNICAL DEFICIENCY LETTER

Comment Number	PADEP Comment	PennEast Response
LU-1	Please provide the stream bank stabilization method on the Erosion and Sediment (E&S) Control Plan’s information ribbon. The stream bank stabilization method should be included for each stream that will be crossed by the pipeline and/or access roadway. Please revise accordingly. [25 Pa. Code §105.13(g)]	Figure 21 in the JPA Section H-1: E&S Details demonstrates PennEast's proposed stream bank stabilization approach. Briefly, this includes restoring the natural grade, using native material for streambed restoration, and NAG SC150/C125 erosion control blanket from top of bank outward (100 feet in special protection watersheds and 50 feet in non-special protection watersheds). Since this stream bank stabilization method is being proposed at all open cut stream locations, stream bank stabilization method was not provided as a band on the alignment sheets. However, bore pit and HDD locations (trenchless stream crossings) are shown on the JPA Section H-2: E&S alignment sheets and in these locations no restoration will be required.
LU-2	Please revise the Stream Bank Stabilization Detail on the Erosion and Sediment (E&S) Control Plans to clearly show that natural streambed material will be placed within the streambed only. The detail shows natural streambed material extending up the banks of the stream. [25 Pa. Code § 105.311]	Figure 21 in the JPA Section H-1: E&S Details has been revised accordingly.
LU-3	If there is a potential that riprap bank stabilization may be required, please provide a Riprap Bank Stabilization Detail on the Erosion and Sediment (E&S) Control Plans. [25 Pa. Code §105.13(g)]	Riprap bank stabilization is not proposed in order to foster the vegetative growth within and along the stream. In addition, the use of riprap may increase the thermal impacts to a watercourse compared to vegetative regrowth which may shade the water. Therefore, a riprap bank stabilization detail has not been provided. Refer to Figure 21 in the JPA Section H-1: E&S Details for the proposed stream bed and bank stabilization methods.

Comment Number	PADEP Comment	PennEast Response
LU-4	It appears that there are streams and wetlands that do not have erosion and sediment control best management practices (BMPs) proposed to protect the stream or wetland from sediment deposition during construction of the pipeline. Please check each crossing and provide adequate erosion and sediment control BMPs. Please revise the plans accordingly. [25 Pa. Code §105.13(g)]	In JPA Section M: Erosion and Sediment Control Plan, streams and wetlands have been revised to provide adequate E&S BMPs. Sediment barriers have been placed adjacent to all streams and wetlands.
LU-5	It appears there are several wetlands and watercourses with inconsistencies in respect to the municipality where the resource is located on both the Aquatic Resources Impact Table (ARIT) and the Site-Specific Mapping. Please provide consistent municipality locations for watercourses and wetlands. Please revise all corresponding documentation accordingly. [25 Pa. Code §105.21(a)(1)]	PennEast has revised the plans in JPA Section H to include adequate E&S BMPs at stream and wetland crossings. Sediment barriers have been placed adjacent to all streams and wetlands
LU-6	The ARIT calls out segments of wetlands on separate rows (e.g., 043015_JC_1001_PEM - 1 and 043015_JC_1001_PEM - 2), but Site-Specific Mapping and E&S Plans do not make clear or specify which projection of a wetland corresponds to the ARIT row. Please clarify. [25 Pa. Code §105.21(a)(1)]	The JPA Section H-2: Site-Specific Mapping and JPA Section H-1: E&S Plans have been revised to include a callout for features that are crossed by the Project in more than one location.
LU-7	Per the instructions of 3150-PM-BWEW0557, please provide both the length and width measurements of resource crossings on the ARIT. [DEP Document No. 3150-PM-BWEW0557 and 25 Pa. Code §105.21(a)(1)]	Wetland, watercourse, and floodway lengths and widths are provided on the revised Aquatic Resource Impact Table (ARIT) in JPA Section A-1.
LU-8	In the ARIT, please identify Class A Wild Trout Streams in the Wild Trout column. [25 Pa. Code §105.21(a)(1)]	Class A Trout streams were included in the Wild Trout column but incorrectly labelled as Approved Trout Streams in the ARIT (JPA Section A-1) . This has been corrected in the ARIT; the number "I" in the Wild Trout Stream column represents Class A Trout Streams, as indicated in the footnote.

<p>LU-9</p>	<p>Streams 112014_JC_1001_P_MI, 121814_JC_1013_E_MI, and 102115_WA_001_I_MI are considered to be a Trout Natural Reproduction waters, and therefore all wetlands hydrologically connected are EV. Please verify if wetlands 112014_JC_001_PEM, 060618_WA_002_PEM, and 102115_WA_003_PFO meet this criterion. [25 Pa. Code §105.17(1)(iii)]</p>	<p>25 PA Code 105.17(iii) states that "wetlands located in or along the floodplain of the reach of a wild trout stream or waters listed as exceptional value under Chapter 93 and the floodplain of streams tributary thereto..." are classified as exceptional value.</p> <p>Wetland 12014_JC_001_PEM is the PEM component of a PFO/PSS/PEM wetland complex located east of a residence on State Route 2038. A perennial stream that runs north of and behind the houses is dammed, forming a pond behind one of the houses. Although it is outside of the Project's survey area and no channels are visible on aerial photography, PennEast acknowledges that there may be overflow channels or wetlands that connect the pond to wetlands to the west of the pond. These wetlands appear to connect to an unnamed tributary to Little Shades Creek, a wild trout water. PennEast has therefore edited the exceptional value status of 112014_JC_001_PEM and the exceptional value justifications of wetlands 112014_JC_001_PFO and 112014_JC_001_PSS to include (iii) - within the floodplain of a wild trout water or tributary thereto. These changes were made within the Aquatic Resources Impact Table JPA Section A-1, EA tables in JPA Section L, and WDR table in JPA Section L-2B Appendix B.</p> <p>Wetland 060618_WA_002_PEM abuts watercourse 121814_JC_1013_E_MI, an ephemeral channel that is less than 1 foot wide. This channel connects to a residential pond that has no continuous surface water connection to wild trout waters or tributaries thereto. PennEast has edited the ARIT, EA tables, and WDR table to remove the wild trout stream designation from 121814_JC_1013_E_MI. Wetland 060618_WA_002_PEM is not located within the floodplain of any wild trout streams or their tributaries.</p> <p>Wetland 102115_WA_003_PFO is an approximately 0.11 acre</p>
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		<p>wetland that was delineated fully within the 400-foot study corridor for the Project. It does not extend outside of the study corridor in any direction, and no watercourses were delineated near the wetland. The closest stream is an intermittent stream that is approximately 65 feet to the north west. The FEMA-mapped floodplain of Stony Creek, a wild trout water, is approximately 115 feet to the north. Therefore, this wetland is not classified as an EV wetland, as it is not located in the floodplain of a wild trout water.</p> <p>Wetlands 060618_WA_002_PEM and 102115_WA_003_PFO also do not meet any other criteria defined in 25 PA Code 105.17.</p>
LU-10	<p>Please provide consistent stationing throughout the pipeline. As an example, the stationing on the Site-Specific Mapping has the stationing starting over at the locations of the resource, while the Erosion and Sediment Control Plans have the stationing continuing along the pipeline. Please revise accordingly. [25 Pa. Code §105.13(g)]</p>	<p>The JPA Section H-2: Site-Specific Mapping has been revised to include stationing that matches the JPA Section H-1: E&S Plans.</p>

Comment Number	PADEP Comment	PennEast Response
LU-11	<p>It appears that there are wetland, watercourse and floodway permanent impact area values on the Aquatic Resource Impact Table, Subfacility Tables, and Site-Specific Mapping of zero (0.00). The Erosion and Sediment Control Plans show that there will be matting or other impacts located within the following wetlands, watercourses, and floodways of the following resources:</p> <ul style="list-style-type: none"> a. 092314_GO_001_I_MI b. 043025_JC_1001_PEM-1 c. 092314_GO_001_PSS d. 112114_JC_003B_PFO-1 e. 112114_JC_003B_PFO-2 f. 112114_JC_003B_PFO-3 g. 122114_JC_002_PEM h. 112014_JC_001_PEM i. 050416_DB_1001_I_MI j. 020916_BT_1001_I_MI k. 020916_BT_1004_I_MI l. 121614_JC_1001_E_MI m. 121514_JC_1001_E_MI n. 121814_JC_1003_E_MI o. 121814_JC_1008_P_MI-1 p. 1218_JC_1006_I_MI q. 121814_JC_1004_I_MI r. 041017_NJ_1002_E_MI s. 043015_JC_1001_I_MI t. 112014_JC_1002_P_MI u. 112014_JC_1001_P_MI v. 121814_JC_002_PEM w. 081215_MK_020_PEM <p>Please revise the area to a minimum of 0.001 for consistency. [25 Pa. Code §§ 105.13(g) and 105.21(a)(1)]</p>	<p>As noted in the footnotes of the December 2018 ARIT, Subfacility Table, and Site-Specific Mapping notes, a value of 0.00 denoted impact acreages less than 0.005 acres, and a dash (“-”) denoted no impacts to the wetland, watercourse, or floodway, as applicable. PennEast has edited the JPA Section A-1: ARIT, JPA Section L: affected EA tables, and the JPA Section H-2: Site-Specific Drawings to reflect impacts to the nearest one thousandth of an acre. In instances where impact acreages are less than 0.0005 acres, impacts are rounded to 0.001 acre.</p>

Comment Number	PADEP Comment	PennEast Response
LU-12	There are several stream crossings that have a waterbody crossing method as DX-NF. However, the E&S Typical Details Sheets do not include a waterbody crossing method DX-NF. Please include this waterbody crossing method to the E&S Typical Details Sheets. [25 Pa. Code §105.13(g)]	Figure 20A "Typical Stream Dry Crossing if no Flow" has been added to the JPA Section H-1: E&S details.
LU-13	There are several stream crossings that have a waterbody crossing method as BX. However, the E&S Typical Details Sheets do not include a waterbody crossing method BX. Please include this waterbody crossing method to the E&S Typical Details Sheet. [25 Pa. Code §§105.13(g) and 105.21(a)(1)]	Figure 35 "Typical Bored Stream Crossing" has been added to the JPA Section H-1: E&S details.
LU-14	The proposed temporary equipment bridge (Flexi-float or portable) crossing does not have any measures to prevent sediment from falling off the sides of the equipment crossing into the stream. Please provide a minimum of a 6-inch high side rail wrapped with geo-textile. [25 Pa. Code §105.13(g)]	The flexi-float or portable temporary equipment bridge (Figure 23) has been removed from the JPA Section H-1: E&S Details.

Comment Number	PADEP Comment	PennEast Response
LU-15	<p>Provide plans or a detail for the restoration of stream beds at open cut stream crossings. This should include replacement of native stream bed material, reestablishment of the thalweg, and assurance that no significant changes in bed grade occur. [25 Pa. Code §§ 105.13(e)(1)(i)(G), 105.13(e)(1)(ix), 105.13(e)(1)(x), 105.15(a)(1), 105.14(b)(4), 105.16(d), and 105.242(c)]</p>	<p>Figure 21 in the JPA Section H-1: E&S Details demonstrates PennEast's proposed stream bank stabilization approach. Briefly, this includes restoring the natural grade, using native material for streambed restoration, and NAG SC150/C125 erosion control blanket from top of bank outward (100 feet in special protection watersheds and 50 feet in non-special protection watersheds).</p> <p>The reestablishment of the thalweg would be part of restoring the natural grade and the native streambed.</p> <p>PennEast intends to assure that no significant changes in the bed grade occur by visually comparing pre- and post-construction conditions. The EI will take pre-construction photos at each of the crossing areas to document the existing conditions and will visually compare the stream bed dimensions and flow patterns to confirm that pre-construction contours have been restored to the extent practicable. The EI will prepare and maintain a record of pre- and post- construction conditions of each stream crossing. The JPA Section M: Erosion and Sediment Control Plan Narrative and JPA Section H-1: E&S General Notes have been revised to include this language.</p>
LU-16	<p>Procedures should take into account the weather forecast and current conditions be implemented prior to stream crossing installations. Such procedures should include a sign-off sheet documenting that the Environmental Inspector, Foreman, and any other responsible individual agree that the crossing can be constructed during that specific time frame. [25 Pa. Code §105.13(g)]</p>	<p>Prior to commencement of construction activities for a stream crossing installation, an assessment of current weather conditions, weather forecast, and flows of the stream channel for crossing feasibility will be conducted. This determination will be captured in a document requiring sign-off from the Environmental Inspector, Contractor, and PennEast representative that a crossing can be achieved in the projected timeframe. The JPA Section M: Erosion and Sediment Control Plan Narrative and JPA Section H-1: E&S General Notes have been revised to include this language.</p>

Comment Number	PADEP Comment	PennEast Response
LU-17	<p>Please evaluate the need for in-stream supports on temporary equipment crossings of streams. If, upon evaluation, it is determined that supports are required, please provide details and a summary of impacts associated with the in-stream supports. [25 Pa. Code §105.161(a)]</p>	<p>In all instances where an equipment crossing is noted in the ARIT and on plan drawings, PennEast intends to construct a temporary air bridge using equipment mats, or a functional equivalent, as shown on Figure 22 in the JPA Section H-1: E&S Details. Generally, the equipment bridge will span from bank to bank. However, in some cases, a mid-span support may be necessary to support a longer crossing, heavier equipment, and/or due to surrounding steep terrain. Mid-span support would generally be provided by a temporary culvert pipe, which will be sized to convey stream flow and allow for aquatic organism passage. Temporary equipment bridges and associated culverts, where applicable, will be inspected weekly and after runoff events. Accumulated sediment or debris will be removed within 24 hours of inspection so that stream flow is maintained throughout the duration of its use. The temporary impact acreages are quantified in the ARIT.</p> <p>Figure 22 in the E&S Construction Typical (JPA Section H-1) has been revised to include provisions for instream support.</p>
LU-18	<p>The Erosion and Sediment Control Plan Alignment Sheets do not include the temporary equipment crossing method for the stream crossings. Please provide the type of temporary equipment bridge crossing method for each stream that is proposed to be crossed by a temporary equipment bridge. Please show the proposed erosion and sediment control BMPs on the Erosion and Sediment Control Plan Alignment Sheets. Revise the plans and other applicable components of the application appropriately. [25 Pa. Code § 105.13(g)]</p>	<p>In all instances, PennEast intends to construct a temporary air bridge using wooden equipment mats, or a functional equivalent, as shown on Figure 22 in the JPA Section H-1: E&S Details. Generally, the equipment bridge will span from bank to bank. However, in some cases, a mid-span support may be utilized at dry crossing locations. Watercourses that are crossed by a trenchless method that have access provided by a timber bridge across the feature that require mid span supports have been identified on the JPA Section H-2: E&S site specific and JPA Section H-1: E&S drawing packages.</p> <p>Figure 22 has been revised to include provisions for instream support.</p>

Comment Number	PADEP Comment	PennEast Response
LU-19	<p>It appears that you are proposing to replace several culverts along existing access roads. Please provide hydrologic and hydraulic calculations for the proposed culvert replacements. Also, please be advised that the invert of the culvert must be depressed a minimum of 6-inches below streambed elevation for drainage areas less than one square mile and 12-inches below streambed elevation for drainage areas greater than one square mile. [25 Pa. Code § 105.161]</p>	<p>PennEast is proposing to replace only one culvert in Luzerne County. The proposed culvert replacement is located at the beginning of access road AR-029. The proposed culvert invert will be at least 6 inches below existing streambed. Elevations of both existing and proposed culverts are noted on JPA Section N: Hydrology and Hydraulics Analysis Section B-B of Drawing No. 000-03-03-015.1.</p> <p>All other existing culverts within Luzerne County will not be affected by the Project. PennEast has added Table 1.2-3 to the Project Description Narrative Section 1.2.1.2 (JPA Section J) to describe where culverts exist along access roads and whether any improvements are anticipated.</p>
LU-20	<p>Tables 11.3, 11.4 and 11.5 in the E&S General Notes mention use of crown vetch in seeding mixtures. DEP does not recommend use of crown vetch. Remove these seed mixture options and consider using native upland seed mixtures as an alternative. [25 Pa. Code §§ 105.13(e) and 105.21(a)(1)]</p>	<p>Tables 11.3, 11.4, and 11.5 in the JPA Section H-1: E&S General Notes have been replaced with revised seed mixes, which do not include the use of crown vetch.</p>
LU-21	<p>You appear to be proposing to construct permanent waterbars upslope of wetlands. These permanent waterbars should not divert surface water from the wetland as this may cause a secondary impact to the downgradient wetlands. Please provide information elaborating on the potentially affected wetland(s) hydrology and whether the proposed permanent waterbars will cause secondary impacts to those wetland(s). [25 Pa. Code §§ 105.18a(b)(1-3) and 105.14(b)(4)]</p>	<p>The PennEast pipeline nominal construction corridor width is 100 feet. The placement of any waterbars within a 100-foot span will nominally impact the flow path of stormwater within a wetland's contributing drainage area. All waterbars proposed were designed to meet the maximum 2% slope across the right-of-way as required by the E&S Manual and the FERC Plan and Procedures. The intent of this requirement is to minimize the discharge from a waterbar to mitigate against accelerated erosion.</p>

Comment Number	PADEP Comment	PennEast Response
LU-22	<p>You appear to be proposing to have permanent water bars discharge within the riparian buffer of streams. The locations of the permanent waterbars should not create an outlet where the banks of the stream have the potential to erode. The permanent waterbars should outlet to mimic the existing conditions and provide sheet flow to then discharge into a surface water. Also, the permanent waterbars should be located outside of the riparian buffer, as practical. [25 Pa. Code §105.14(b)(4)]</p>	<p>Trench plug and waterbar spacing typically begin at low points, which are usually adjacent to wetlands and streams. Trench plugs are required on either side of a wetland and watercourse, and waterbar spacing begins upslope of the trench plug. All waterbars proposed were designed to meet the maximum 2% slope across the right-of-way as required by the E&S Manual and the FERC Plan and Procedures. The intent of this requirement is to minimize the discharge from a waterbar to mitigate against accelerated erosion. Therefore, the Project design does mimic the existing conditions to mitigate against accelerated erosion adjacent to watercourses.</p> <p>Based on the spacing requirements for waterbars listed in the E&S Manual Chapter 13, depending on the slope of existing grade, the placement of all permanent waterbars outside of riparian zones is not feasible.</p>
LU-23	<p>Please show on the Erosion and Sediment Control Plan Alignment Sheets the locations of the public and private water supplies. [25 Pa. Code §§105.13(e)(1)(ii) and 105.14(b)(5)]</p>	<p>PennEast has prepared separate maps that show the locations of public and private water supplies within the distances from HDDs specified by the PADEP. Within Luzerne County, this includes public water supply wells within 0.5 mile of the Interstate 81 bore path and private water supplies within 450 feet of the Interstate 81 bore path. This privileged information is provided in JPA Section L-2: EA Module 2, Appendix LU-L-2I.</p>
LU-24	<p>The Department does not recommend stockpiling soil or subsoil within the wetland. Evaluate the ability to stockpile soils outside wetland boundaries throughout project when possible. [25 Pa. Code §105.13(e)]</p>	<p>PennEast intends to stockpile soil or subsoil outside of the wetland boundaries to the extent practicable based on considerations of nearby topography, access, and availability of adjacent ATWS.</p>
LU-25	<p>Please clarify what soil is used below the 12-inches in the following statement found in the construction sequencing (File H-1_03) "BACKFILL PIPE TRENCH. BACKFILL THE TOP 12-INCHES OF THE EXCAVATED TRENCH WITH THE STOCKPILED WETLAND SOIL TO MATCH ORIGINAL SURFACE GRADES." [25 Pa. Code §105.13(e)]</p>	<p>Below the 12-inches of segregated topsoil, the pipe trench will be backfilled with previously excavated subsoil to supplement the bedding material. In addition, trench plugs are proposed every 100 feet in a wetland for wetland crossings exceeding 100 feet in length.</p>

Comment Number	PADEP Comment	PennEast Response
LU-26	Site-Specific Mapping is missing the elevation bar on several pages. Please revise accordingly. [25 Pa. Code § 105.21(a)(1)]	As stated on the JPA Section H-2: Site-Specific Mapping Legend notes, "Profiles are only shown on the drawings where the proposed pipeline crosses a wetland or watercourse." The purpose of the profile is to demonstrate and show the minimum pipe cover under wetlands and streams. Therefore, the profile is not shown on drawings where the floodway only crosses the pipeline centerline and access road drawings.
LU-27	It appears that there will be a conventional bore pit located near watercourse 071416_GM_1001_P_IN. Please verify that the bore pit will not be within the banks of the watercourse and that the bore pit location will be stable during construction of the pipeline. [25 Pa. Code §105.13(e)]	The bore pit depicted on JPA Section H-1: alignment sheet 000-03-01-021 prior to STA 511+86 is intended to be a section of pipeline trench consisting of a "bell hole" with reduced dimensions to avoid a bore receiving pit within the banks of watercourse 071416_GM_1001_P_IN. PennEast does not anticipate having a bore pit within the banks of the watercourse. Due to the proximity of the "bell hole" to the watercourse, dam and pump or flume pipes will be installed prior to commencing the railroad bore and will be utilized during the watercourse crossing. PennEast anticipates the "bell hole" location to be stable during construction.
LU-28	Watercourse 121814_JC_1008_P_MI is depicted on the Erosion and Sedimentation Control Plans as one name; however, the Site-Specific Mapping and the Aquatic Resource Impact Table have the watercourse as 121814_JC_1008_P_MI-1 and 121814_JC_1008_P_MI-2. Please revise the application appropriately. [25 Pa. Code §105.21(a)(1)]	As noted on the site-specific mapping legend notes and in the foot notes of the Aquatic Resource Impact Tables, in instances where the project workspace crosses a wetland/watercourse more than once, the crossing number (i.e. -1, -2, -3) has been added as a suffix to the wetland/watercourse name. In this instance, the delineated watercourse feature ID is 121814_JC_1008_P_MI, and is impacted by the project workspace twice. The JPA Section H: Site-Specific Mapping and E&S Plans have been revised to include additional callouts for features that are crossed by the Project in more than one location.

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LU-29	Evaluate the possibility of moving the wetland matting south of pipeline around mile marker 13.2 to lower impacts to wetland 060618_WA_002_PEM. [25 Pa. Code §105.13(e)]	The workspace was designed to have the working side on the north of the right-of-way as shown. The working side has more area available on this side to allow for construction traffic. If the travel lane changed to the south, there may not be sufficient space to excavate, string pipe, and accommodate construction traffic. Therefore, PennEast intends to leave the matting on the north to facilitate safe construction.
LU-30	It appears that Access Road AR-25A will impact the floodway of waterbody 121514_JC_E_MI as per Drawing No. 00-03-03-013. Please revise the Aquatic Resource Impact Tables and other associated documents to account for the temporary and/or permanent impact to the waterbody. [25 Pa. Code §105.21(a)(1)]	The limits of disturbance along the access road have been reduced to avoid impacts to stream 121514_JC_1001_E_MI, an ephemeral channel. Access Road AR-25A is an existing driveway that will not be widened or improved as a result of Project construction; therefore, floodway impacts associated with use of the driveway have not been included.
LU-31	Drawing No. 00-03-03-015 shows wetland, Wetland 081215_MK_017_P_IM; however, it appears that on the Aquatic Resource Impact Tables and the Site-Specific Drawings, this feature is identified as a watercourse. Please verify what this feature is and revise accordingly. [25 Pa. Code §105.21(a)(1)]	JPA Section N: Hydrology and Hydraulics Analysis Drawing No. 000-03-03-015 has been revised to properly label feature 081215_MK_017_P_IM as a watercourse.
LU-32	It appears that watercourse 092414_GO_1001_P_IM has wrong coordinates. Please revise. [25 Pa. Code §105.21(a)(1)]	PennEast has revised the latitude and longitude on within the Riverine ARIT (JPA Section A-1) to accurately reflect the crossing location.

Comment Number	PADEP Comment	PennEast Response
LU-33	<p>It appears that there is an access road crossing of stream 041917_MK_1001_P_IM which is not accounted for on the Aquatic Resource Impact Tables or the Site-Specific Crossing Plans. Please account for the impact and revise application accordingly. [25 Pa. Code §105.21(a)(1)]</p>	<p>PennEast delineated wetlands, watercourses, and floodways within an approximately 50-foot wide corridor along existing and proposed access roads. In many instances, where a watercourse crosses an access road, there is an existing culvert or bridge that maintains stream flow under the road. PennEast surveyed the culvert locations, assessed the culvert and bridge conditions, and reduced workspace to avoid impacts to culverted and bridged watercourses. Along some access roads, streams flow openly across the existing roads and appear to be forded by road users. PennEast proposes to construct temporary equipment bridges over these streams and impacts to the streams and floodways are addressed in the ARITs in JPA Section A-1 and the EAs in JPA Section L. PennEast also reduced workspace to avoid or minimize impacts to wetlands along access roads wherever possible. Where wetlands cannot be avoided, PennEast will install temporary mats across wetlands to minimize impacts from equipment and truck traffic. PennEast has added clarifying text to Section 1.2.1.2 of the Project Description Narrative (JPA Section J), as well as Table 1.2-3 which summarizes the aquatic resources that have been identified along each proposed access road and whether any impacts are proposed at those resource crossings.</p>

Comment Number	PADEP Comment	PennEast Response
LU-34	<p>The Access Road AR-033A crossing of waterbody 042517_GM_1002_I_MI does not appear to be crossing the stream at its narrowest point or perpendicular to the stream. Please revise the alignment of the access road. Also, the Aquatic Resource Impact Table shows the impact as (0.00). Please account for the impact using a minimum accuracy of 0.001 for consistency. [25 Pa. Code §§105.13(g) and 105.21(a)(1)]</p>	<p>Access Road AR-033A is an existing dirt road, and stream 042517_GM_1002_I_MI is currently forded along this access road. Photos in Attachment LU-34 show the intermittent stream flowing to the road from the southeast, following a tire rut along the road west for approximately 60 feet, then exiting the existing access road to the northwest. PennEast proposes to follow the access road's existing alignment so that impacts are primarily within the currently disturbed stream channel, which will minimize tree clearing, impacts to the riparian buffer, and the undisturbed stream channel. As noted in the ARIT, PennEast proposes to install a temporary bridge to avoid direct impacts to this stream. The acreage of proposed impact is 0.004 acres, which is included in the revised JPA Section A-1: ARIT and Section H-2: Site-Specific Drawings.</p>
LU-35	<p>As per Pa. Code 25 105.166, "Culverts shall be of sufficient width to minimize narrowing of the stream channel." It appears that the proposed culvert for Access Road AR-029 is narrowing the stream channel. Please revise the culvert size to maximize the span width and hydraulic capacity. [25 Pa. Code §105.166]</p>	<p>The proposed culvert located at the beginning of access road AR-029 is wider than the existing culvert. The existing culvert is a 55" high x 60" wide elliptical corrugated metal pipe. The proposed culvert is a 48" high x 76" wide reinforced concrete pipe. There is no narrowing of the stream at the existing culvert location as a result of replacing the existing culvert.</p>
LU-36	<p>The proposed Access Road AR-029 culvert must be depressed a minimum of 6-inches below natural streambed elevation since the drainage area is less than one square mile (640 acres). Please revise the plans and calculations accordingly. [25 Pa. Code §105.161(a)(3)]</p>	<p>The proposed culvert drawings were revised to demonstrate the proposed culvert will be at least 6 inches below the existing streambed. Elevations both existing and proposed are noted on JPA Section N: Hydrology and Hydraulics Analysis Section B-B of Drawing No. 000-03-03-015.1.</p>
LU-37	<p>Please provide the culvert length from upstream face to downstream face on the Access Road AR-029 Plans. [25 Pa. Code §105.161(a)(3)]</p>	<p>The culvert length is 23 feet as indicated in Drawing No. 000-03-03-015.1 in the Access Road 029 Culvert Sizing Analysis Mill Creek Tributary Report provided in December 2018 JPA Section N. The length of culvert is noted on the drawing as "Proposed Culvert 48"Hx76"Wx23'L".</p>
LU-38	<p>Please provide endwall details for the proposed culvert on Access Road AR-029 Plans. [25 Pa. Code §105.166(c)]</p>	<p>A detail for end wall has been added to JPA Section N: Hydrology and Hydraulics Analysis Drawing No. 000-03-03-015.1.</p>

Comment Number	PADEP Comment	PennEast Response
LU-39	Please provide details for aquatic organism passage for the proposed Access Road AR-029 culvert, the use of riprap, and how the slope of the culvert will tie into existing grade. [25 Pa. Code §§105.14(b)(4) and 105.16(d)]	A six-foot-wide and six-inch-deep low flow channel is proposed in the middle of the riprap apron to facilitate aquatic organism passage. Details of the low flow channel and grade tie-ins are shown on JPA Section N: Hydrology and Hydraulics Analysis Drawing No. 000-03-03-015.1.
LU-40	Please provide the data in a digital format that was used in the HEC-RAS modelling for the Access Road AR-029 culvert. [25 Pa. Code §105.161(a)]	A CD with HEC-RAS model digital data is included with this submittal (JPA Section N-1).
LU-41	Please show on the Erosion and Sediment Control Plan Alignment Sheets the location of the proposed Porta-dam for the crossing of the Susquehanna River. [25 Pa. Code §105.13(g)]	<p>The JPA Section H-1: Erosion and Sediment Control Plan Alignment Sheets will not be updated to include the Porta-dam crossing. However, a supplemental plan (000-03-06-001) has been added to the drawing package to show the approximate locations of temporary cofferdams and diversion dams, and the staging of installation.</p> <p>The JPA Section H-1: E&S Alignment Sheets 000-03-01-014 and 000-03-01-015, and Access Road Detail 000-03-03-006 have been updated to include this reference sheet as part of the reference block.</p>
LU-42	Please provide a contingency plan which includes steps that should be taken in the event that water levels in the Susquehanna River are predicted to rise above the maximum allowable depth of 12 feet. Also, please provide procedures that take into account the weather forecast and current weather conditions, be implemented prior to stream crossing installations. Such procedures should include a sign-off sheet documenting that the Environmental Inspector, Foreman, and any other responsible individual agree that the crossing can be constructed during that specific time frame. [25 Pa. Code §105.13(g)]	The JPA Section S-5: Susquehanna River Alternatives Analysis has been updated to address this comment.

Comment Number	PADEP Comment	PennEast Response
LU-43	Please show on the Erosion and Sediment Control Plan Alignment Sheets the location of the proposed coffer dams for the crossing of the Lehigh River. Also, please show the approximate locations of the pumps, discharges and any other items associated with the system. [25 Pa. Code §105.13(g)]	PennEast does not propose a coffer dam crossing of the Lehigh River. PennEast is proposing to cross the Lehigh River utilizing a flume pipe method (FX) during periods of low flow after the dam releases beginning in the month of October. When the dam lowers the water level, the river is much narrower and shallower than the ordinary high-water mark, normal pool elevation of 1,370'. PennEast anticipates the water elevation during the time of construction will be approximately 1,345'. The flume pipe method utilizes sandbags to dam the watercourse and divert river flow through various flume pipes to create a dry in-stream work area. Please refer to JPA Section H-1: E&S detail Figure 19 for additional information.
LU-44	The crossings of Watercourses 050416_DB_1002_I_MI and 121814_JC_1008_P_MI do not appear to utilize trench plugs. Please revise plans accordingly. [25 Pa. Code §§105.13(g), 105.13(e), and 105.21(a)(1)]	The crossing of Watercourse 050416_DB_1002_I_MI has been revised to utilize trench plugs. The crossing of Watercourse 121814_JC_1008_P_MI previously utilized trench plugs and has not been revised.
LU-45	Watercourse 071416_GM_1001_P_IN is very close to the bore pit. Please verify that the watercourse will not be impacted by the bore pit or consider moving the bore pit further away from this watercourse. Also, the Site-Specific Mapping does not note the bore pit depths and locations. Please correct as necessary throughout application. [25 Pa. Code §§105.13(e) and 105.21(a)(1)]	The bore pit depicted on JPA Section H-1: E&S alignment sheet 000-03-01-021 prior to STA 511+86 is intended to be a section of pipeline trench consisting of a "bell hole" with reduced dimensions to avoid a bore receiving pit within the banks of watercourse 071416_GM_1001_P_IN. PennEast does not anticipate having a bore pit within the banks of the watercourse. Due to the proximity of the "bell hole" to the watercourse, dam and pump or flume pipes will be installed prior to commencing the railroad bore and will be utilized during the watercourse crossing. PennEast anticipates the "bell hole" location to be stable during construction.

Comment Number	PADEP Comment	PennEast Response
LU-46	<p>There is a bore pit located in wetland 112014_JC_001_PFO. Consider moving the bore pit out of this wetland or consider horizontal directional drilling (HDD) at this location. [25 Pa. Code §§105.13(e) and 105.21(a)(1)]</p>	<p>PennEast requires this bore pit as part of the Meadow Run Road trenchless crossing. Extending the bore would require a length in excess of 400 feet, which is not feasible with standard trenchless technology.</p> <p>An HDD would require additional workspace impacts to site the drill pads on either side of the drill. In addition, steep slope/side slope conditions on the northwest and southeast of the crossing would make staging pipe strings for drilling operations impractical. Converting this road crossing to an open cut would allow for the removal of this bore pit from the PFO but would require PennDOT approval.</p>
LU-47	<p>On aerial photography, there appears to be a surface water conveyance at mile marker 11.2R2 and wet indicators at mile marker 12.1R3. Please verify whether resources exist and if either of these locations should be included in the ARIT. [25 Pa. Code §§105.13(e) and 105.21(a)(1)]</p>	<p>PennEast revisited the study corridor at MP 11.2R2 and 12.1R3 in July and August 2019. PennEast confirmed that there are no wetlands or watercourses at MP11.2R2. Biologists delineated new wetlands and a stream within a 400-foot study corridor near MP12.1R3, which had presumably formed as a result of poor post-construction grading on an abutting ROW since the initial delineations in 2014. A report documenting the confirmed and revised delineation boundaries, photographs of current conditions, and data forms are included in a Wetland Delineation Report Addendum (JPA Section L-2B).</p> <p>Representatives from the USACE and the PADEP participated in a site visit on August 29, 2019 to verify the accuracy of the revised wetland delineation near MP 12.1R3. Minor changes to the delineation boundaries were made during this site visit, which have been incorporated into project plans and impact tables.</p>

Comment Number	PADEP Comment	PennEast Response
LU-48	<p>Pennsylvania Fish and Boat Commission (PFBC) has provided a concern regarding pipe exposure following restoration of Stony Run (Stream 050615_JC_1001_P_IM). Please discuss stream restoration at this site and consider incorporating displaced boulders to recreate the existing step-pool stream channel. [25 Pa. Code §105.13(e), 105.16(d), and 105.313(c)]</p>	<p>Figure 21 in the JPA Section H-1: E&S Details demonstrates PennEast's proposed stream bank stabilization approach. Briefly, this includes restoring the natural grade, using native material for streambed restoration, and NAG SC150/C125 erosion control blanket from top of bank outward (100 feet in special protection watersheds and 50 feet in non-special protection watersheds).</p> <p>PennEast intends to assure that no significant changes in the bed grade occur by visually comparing pre- and post-construction conditions. The EI will take pre-construction photos at each of the crossing areas to document the existing conditions and will visually compare the stream bed dimensions and flow patterns to confirm that pre-construction contours have been restored to the extent practicable. The EI will prepare and maintain a record of pre- and post- construction conditions of each stream crossing. The JPA Section M: Erosion and Sediment Control Plan Narrative and JPA Section H-1: E&S General Notes have been revised to include this language.</p>
LU-49	<p>Provide adequate provisions for shut-off in the event of pipeline break or rupture. Provide locations and descriptions of how this action will be completed if a break or rupture occurs. [25 Pa. Code § 105.301(9)]</p>	<p>Shut-off provisions were provided in Section 1.1.2.5 of the December 2018 JPA Project Description Narrative (JPA Section J). As indicated in the text and as required by USDOT Title 49 CFR Part 192, valves must be installed along the pipeline at specified intervals to sectionalize the pipeline. The class location of the pipeline, which is based on the population density near the pipeline, determines the maximum MLV spacing along the pipeline. These valves can be used to shut off the flow of natural gas in the event of an emergency or for planned maintenance and repairs. The MLV locations were provided in Table 1.1-5 of the Project Description Narrative.</p>

Comment Number	PADEP Comment	PennEast Response
LU-50	The Cultural Resource Summary indicates there will be an upcoming Determination of Effect Report. Please verify if the proper documentation has been received and update the application where applicable. [25 Pa. Code §§105.13(e), 105.14(b)(5), 105.21(a)(1), and 105.24]	The Cultural Resources Summary (JPA Section D) has been updated to include the results of consultation with the Pennsylvania State Historic Preservation Office (PASHPO) since the December 2018 JPA submittal. Correspondence with and reports submitted to the PASHPO can be found in Sections D-1 and D-2. The Determination of Effect Report (PA Effects Report) for architectural history was received by the PASHPO on 5/6/19. The PASHPO responded on 6/5/19 requesting additional information related to Project impacts on resources in Bucks and Luzerne counties. Additional information was provided as an addendum to the PA Effects Report on 7/22/19, and PASHPO concurred with PennEast's recommendations on the Revised PA Route. PennEast submitted an Archaeology Phase I Addendum 5 for workspace changes on 10/1/19, on which PASHPO review is pending.
LU-51	Please update any table in the Environmental Assessment (EA) which may relate to changes to the ARIT. [25 Pa. Code §105.21(a)(1)]	The Environmental Assessment documents have been updated to reflect the changes made to the JPA Section A-1: ARIT.
LU-52	EA Module 2, Section S2.A.4 references Appendix LU-L-2C as the location map “that identifies regulated waters of the Commonwealth, natural areas, wildlife sanctuaries, natural landmarks, political boundaries, publicly available service areas for public water supplies, and historic landmarks within 1 mile of the Project and State Parks and prime farmland within 100 feet of the Project...”. Appendix LU-L-2C is not a map. It is the table of prime farmland referenced in EA Module 2, S2.A.5. Please provide the location map for EA Module S2.A.4 or verify if I_LocationMap_2400 is the correct document and correct language in the EA. [25 Pa. Code §§ 105.13(e) and 105.21(a)(1)]	The location map reference in the JPA Section L-2: EA Module 2, Section S2.A.4 has been updated from Appendix LU-L-2C to JPA Section LU-I.

Comment Number	PADEP Comment	PennEast Response
LU-53	<p>Discuss how sensitive resources will be protected and proper vegetation establishment will be assured before agriculture land is handed over to landowner. [25 Pa. Code §105.13(e)]</p>	<p>Upon completion of final grading, the contractor will stabilize disturbed areas within 4 days of the cessation of construction activities. In most areas, this will include seeding with a permanent seed mix and mulching. Wetland and riparian seed mixes will be used where noted on the Wetland and Riparian Reforestation Plan. Erosion control blankets will be installed along steep slopes and near watercourse crossings in accordance with the E&SCP (JPA Section M). Restoration will be monitored for the overall Project until permanent stabilization is achieved, the PADEP determines that permit conditions have been met, and the PADEP terminates the permit.</p> <p>In cultivated croplands, landowners may request that PennEast not seed the Project area with the Project's seed mixes to prevent the introduction of new plant species to their fields. Landowners may plant crops soon after Project construction is complete, which could be substantially before the entire Project has reached stabilization. Alternately, a cover crop may be used to stabilize the soil. In these instances, PennEast will coordinate with the PADEP and Luzerne Conservation District to complete post-construction inspections of agricultural lands. Perimeter BMPs will be removed to allow the farmer access to the Project area, but BMPs along the edges of wetlands or watercourses would be left in place to provide continuous protection of sensitive resources. PennEast would request agency approval to release these areas from the permit's permanent stabilization requirements to allow for continued crop production.</p> <p>PennEast has provided clarification in the E&SCP (JPA Section M).</p>

Comment Number	PADEP Comment	PennEast Response
LU-54	The EA Module 2, Section S2.A.5, suggests the applicant is still in consultation with the Pennsylvania Department of Conservation and Natural Resources (DCNR) regarding outstanding issues on the Frances Slocum State Park and Pinchot State Forest impacts. Please provide final documentation and revise application accordingly. [25 Pa. Code §§105.21(a)(1) and 105.24]	As noted in the December 2018 JPA Section L-2: EA Module 2, PennEast has coordinated with PADCNr since 2014 regarding the Project crossing State Parks and State Forests. Since the December 2018 JPA submittal, PennEast and PADCNr have completed additional steps in the State Forest Environmental Review Process, including a Post-Survey Meeting held April 17, 2019. PennEast will continue to coordinate with PADCNr to obtain license agreements to construct and operate the Project within affected State Parks and State Forests before construction commences. It is PennEast's understanding that no further requests for route or workspace changes are forthcoming from PADCNr within State Parks and State Forests.
LU-55	In the EA Module 2, the application indicates eastern small-footed bat surveys still need to be conducted in the Spring 2019. Please provide the report and update the application where applicable. [25 Pa. Code §§105.13, 105.21(a)(1), and 105.24]	Eastern small-footed bat surveys have been completed, and the Phase 2 survey report has been submitted to the PGC for review. This has been updated in EA Module 2, Section S2.C. Record of the transmittal of this report is included in Appendix G-1, and the report is provided in an enclosed addendum to JPA Section G-2.
LU-56	The EA Module 2, Section S2.C, indicates coordination with Pennsylvania Game Commission (PGC) is ongoing, and that the U.S. Fish and Wildlife Service (USFWS) recommends the Federal Energy Regulatory Commission (FERC) re-initiate consultation. Please provide final reports and clearances from applicable agencies and revise this section. [25 Pa. Code § 105.21(a)(1)]	Final clearance from the PGC (January 9, 2019) and USFWS (July 29, 2019) are found in the updated JPA Section G-1. This has been updated in Section L-2: EA Module 2, Table LU-L2-5 and Section S2.C.2
LU-57	Please supply the consultation update letter from the USFWS regarding the modified 2017 Biological Opinion and discuss any changes to avoidance and minimization plans. [25 Pa. Code §§105.13(e), 105.14(b)(4),105.21(a)(1), and 105.24]	This letter is included in the updated JPA Section G: Pennsylvania Natural Diversity Inventory. Requirements remain the same under the updated BO for the federal species of concern. PennEast has voluntarily committed to additional measures in a state-level Biological Assessment at one bog turtle site in Northampton County, which is currently being reviewed by the PFBC.

Comment Number	PADEP Comment	PennEast Response
LU-58	EA Module 2, Section S2.D.1, states, "Following restoration, a 50-foot-wide permanent right-of-way (ROW) will be maintained for the life of the pipeline. No trees will be permitted to grow within that width." Module 3 and 4 discuss a 30-foot corridor for tree cutting. Please clarify and revise application as needed. [25 Pa. Code §§ 105.21(a)(1)]	PennEast has revised JPA Section L-2: EA Module 2 to clarify that a 30-foot operational ROW will be maintained for the life of the Project.
LU-59	In the EA Module 3, Section S3A, provide a final summary of total impacts for each table (Tables L3-1 through 4). [25 Pa. Code §105.21(a)(1)]	Total impact rows have been added to each table in JPA Section L-3: EA Module 3.
LU-60	Please provide the invasive species plan (ISMP) referenced in Module 3 of the EA. Clarify and indicate if this plan will be used during the monitoring periods for the ROW and compensatory mitigation sites. [25 Pa. Code §105.13(e)]	The ISMP, included in this response as JPA Section L-3: EA Module 3 Appendix LU-L-3I, has been prepared to provide BMPs that should be implemented within the workspace required to construct the pipeline and has not been prepared to address offsite mitigation sites. Invasive species management for the compensatory mitigation sites is addressed in Section 6.1.4 of the Compensatory Wetland Mitigation Plan (JPA Section L-4B).
LU-61	Per the EA instructions S3C10 and EA Appendix V (3150-PM-BWEW0017), please provide the key details for each subfacility. In addition, after consultation with the Bureau of Waterways Engineering and Wetlands, WETRE will not be a required subfacility on the pipeline, it may be required for offsite mitigation locations. Please use PIPE, which should include O&M; FLACT for floodway impacts not associated with pipe, such as access roads; and TMPWI for wetland disturbance areas during construction. At this time, WTIIIM will not be required if the disturbance is captured in TMPWI. Neither WTIIIM nor TMPWI is required for horizontal directional drilling (HDD) bored pipe impacts. [25 Pa. Code § 105.21(a)(1)]	The subfacility tables in JPA Section L-3: EA Module 3, Appendix L3-A have been revised as requested.

Comment Number	PADEP Comment	PennEast Response
LU-62	<p>In the EA Module 3, PennEast discusses reducing workspace to 75-feet with a 30-foot-wide permanent ROW in Frances Slocum State Park. Explain why such standards cannot be applied to other key areas to reduce impacts to resources and the environment including forests. [25 Pa. Code §105.13(e)]</p>	<p>PennEast agreed to the 75/30 workspace configuration through Hickory Run State Park after consideration of constructability, terrain, access, and operability. In addition, PennEast has reduced workspace through Pinchot and Weiser State Forests. PennEast has also committed to reduced workspace through smaller and isolated key areas such as delineated watercourses, floodways, and wetlands where practicable and has implemented trenchless crossing methodologies through many sensitive areas. For parcels managed by the PGC and PADCNr, the likelihood of encroachments upon the PennEast easement and 3rd party damage upon the pipeline is reduced and a 30-foot permanent easement can be accommodated.</p>
LU-63	<p>Several data forms are missing information or have contradicting data (e.g. the resource is labeled as wetland but check boxes indicate it is not and vice versa) with no supporting remarks. Provide complete and accurate datasheets, specifically address 053117-MB-1001-PSS-WET, 053117-MB-1001-UPLAND, 053117-MB-1001-PEM-WET, and 111014_JC_001_PFO. [25 Pa. Code §105.21(a)(1)]</p>	<p>PennEast has reviewed and revised the wetland and upland data forms for wetlands identified within Luzerne County, including, but not limited to 053117-MB-1001-PSS-WET, 053117-MB-1001-UPLAND, 053117-MB-1001-PEM-WET, and 111014_JC_001_PFO. The revised Wetland Delineation Report Appendix C-2 is included in this submittal (JPA Section L-2B Appendix C-2).</p>

Comment Number	PADEP Comment	PennEast Response
LU-64	<p>The Cumulative Impacts analysis notes 1.71 acres of permanent PFO/PSS wetland impacts from the 30-foot maintained ROW. Please note, for the purposes of mitigation, all cleared PFO and grubbed PSS wetlands must be calculated and mitigated for, regardless of location on or off permanent ROW. Please revise application accordingly, including mitigation documents. [25 Pa. Code §§105.14(b)(13) and 105.20a(a)]</p>	<p>The intent of the Cumulative Impacts Analysis was to assess the cumulative impacts of the project and other existing and potential projects, including direct and secondary impacts that are permanent in nature, as required by 25 PA Code Sections 105.13(e)(1)(x), 105.18(a)(6) and 105.18a(b)(6) and as described in PADEP's Guidance Document for the Comprehensive Environmental Assessment of Proposed Project Impacts for Chapter 105 Water Obstruction and Encroachment Permit Applications. PennEast proposes offsite compensatory mitigation for permanent impacts, which include the permanent conversion of wetland cover types, periodic impacts from maintenance activities, and wetland fill). PennEast proposes to mitigate temporary wetlands impacts with onsite restoration and reforestation as described in the Mitigation Plan (EA Module 4, JPA Section L-4).</p>

<p>LU-65</p>	<p>Please include in the HDD Inadvertent Returns and Contingency Plan and the Erosion and Sediment Plans provisions to contact the Department immediately by email, phone, or electronically delivered letter if a loss of pressure or an inadvertent return occurs during the horizontal directional drilling operations. Drilling operations should not continue until a Professional Engineer (PE) or Professional Geologist (PG) has performed an inspection of the drilling site and drill alignment. The PE or PG should then notify the Department in writing that the drilling can commence without the risk of an inadvertent return.</p> <p>Should an inadvertent return occur during drilling operations, a Re-evaluation Report should be submitted to the Department by the PE or PG examining the drilling alignment and ensuring that another inadvertent return is unlikely. The Department will need to review this submitted information and approve the restarting of drilling operations. [25 Pa. Code § 105.302(6)]</p>	<p>PennEast does not consider a pressure drop on its own to warrant a PADEP notification per the following rationale. A downhole pressure drop in itself is not a strong indicator of an occurrence of an inadvertent drilling fluid return, as downhole drilling fluid pressures fluctuate regularly as the drill bit is advanced through the subsurface materials. Downhole drilling fluid pressure fluctuations are common and arise from the interaction of the downhole tooling and cuttings as the cuttings work or move past the downhole drilling assembly. As the cuttings move past the downhole drilling assembly, the downhole drilling fluid pressure can increase in response to a buildup of cuttings behind the drill bit. These types of drilling fluid pressure increase events are short lived and typically do not result in any appreciable loss of drilling fluid returns or an inadvertent drilling fluid return as they occur momentarily during the drilling process. Often, when the required drilling fluid pressure increases, the drill rig operator ceases forward progress and the drilling assembly is pulled back through the bore to swab it and clear any blockage or deposit of cuttings that has accumulated behind the drill bit. As a slug of cuttings is cleared during this swabbing event, the observed downhole drilling fluid pressures decrease back down to the anticipated drilling fluid pressure magnitudes associated with the advancement of pilot bore. It is not anticipated that these types of events meet the requirements to notify any agencies or regulatory entities. Again, these types of pressure increase events are common to the HDD drilling process and the loss of drilling fluid pressure associated with the clearing of these events does not necessarily relate to an inadvertent drilling fluid return, especially when full drilling fluid returns are occurring back to the drill rig.</p> <p>Close monitoring of the downhole drilling fluid pressures during pilot bore drilling operations and reacting quickly to the buildup of unanticipated drilling fluid pressures is key to preventing the migration of drilling fluids up through the subsurface/geotechnical</p>
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Comment Number	PADEP Comment	PennEast Response
		<p>materials that can result in an inadvertent return. Reacting quickly to higher than anticipated drilling fluid pressures will reduce the probability of an inadvertent drilling fluid return. In the event a large unaccounted-for drilling fluid pressure loss occurs, accompanied by significant losses in drilling fluid return volumes at the drill rig entry location that swabbing does not restore drilling fluid flow, the HDD Contractor will enact the HDD Inadvertent Return and Contingency Plan (JPA Section L-3C) and the appropriate notifications will be provided.</p> <p>Section 6.9 of the HDD Inadvertent Return and Contingency Plan has been revised to state, “Following an inadvertent release of drilling fluid, and after containment is achieved, drilling operations may continue if the root cause of the return is determined and a plan is developed to reduce or eliminate the risk of reoccurrence (re-evaluation report). This will take place under the supervision of a PE or PG, who will inspect and report back to PADEP. Construction activities will not restart without prior approval from PADEP and PennEast.”</p>
LU-66	An analysis of well production zones were not evaluated. Please provide this analysis. [25 Pa. Code §105.14]	PennEast has contacted potential public water suppliers within 0.5 mile of HDDs to request feedback on whether any public water supply wells are within that buffer, and, if so, for information that can be used to conduct a well production zone analysis. To date, no public water supply wells have been identified within 0.5 mile of HDDs. PennEast will continue with outreach efforts described in response to LU-67 and in the revised JPA Section L-2: EA Module 2 and Section L-3: EA Module 3. If any public water supply wells are identified, PennEast will conduct a well production zone analysis.

Comment Number	PADEP Comment	PennEast Response
LU-67	All private water supply wells located within 450-feet of the bore path and public water supply wells within 0.5-mile radius of the bore path should be identified. A physical investigation of the area should be conducted due to online resources being unreliable for listing public and private water supply well locations. [25 Pa. Code §§105.13(e)(1)(ii) and 105.14(b)(5)]	<p>As described in December 2018 JPA Section L-2: EA Module 2 Section S2.A.5, PennEast used a combination of the PaGWIS database, consultations with public water suppliers, and outreach to landowners to determine the location of groundwater wells within 150 feet of the workspace and 500 feet of the workspace in karst areas and near HDDs. In response to PADEP comments, PennEast has expanded the search radius surrounding the PA State Route 315/Interstate 81 HDD to 0.5 mile for public water supplies within Pennsylvania.</p> <p>PennEast revised Section S2.A.5 of EA Module 2 (JPA Section L-2) and Section S3.B.1(vi) of EA Module 3 (JPA Section L-3) to provide a more detailed explanation of the data collection methods, discuss the expanded search radii near HDDs, present the information PennEast has collected to date in this continuous research effort, and explain the monitoring and notification programs PennEast will implement.</p>
LU-68	The Department recommends that any private or public water supplies within the requested search radii be sampled pre- and post- construction for water quality, yield, and turbidity parameters for horizontally directionally drilled pipeline section. Additional supply wells outside of the search radius that are determined to be at high risk for impact (e.g. along a fault line) should also be included. [25 Pa. Code §105.14]	PennEast has committed to offer pre- and post-construction testing of private and public water supply wells within 150 feet of Project workspace and within 500 feet of the Project workspace in karst terrain. The monitoring radius will be expanded to 450 feet at HDDs and to 1,000 feet at HDDs in karst areas. The water quality testing procedures and parameters are included in PennEast's Well Monitoring Plan (JPA Section L-3G). This plan has been revised to include the expanded well buffer of 1,000 feet for HDDs in karst areas. PennEast does not believe there to be any high-risk wells beyond the 1,000-foot search radius that require testing.

<p>LU-69</p>	<p>Due to the presence of mine drainage in the area, local mine pool outfalls should be identified and monitored. Drilling fluid loss may occur into the mine pool, and impacts need to be considered. [25 Pa. Code §105.14(b)(5)]</p>	<p>PennEast is aware of the worked coal seams beneath the proposed HDD alignment. Project specific geotechnical investigations encountered collapsed and open coal workings, accompanied by fractured bedrock above the workings. The Ross coal seams are the closest to the HDD alignment. Around 100ft below the Ross seam is the 3ft coal seam. Due to the separation, it is considered unlikely that significant quantities of mud will flow down into the 3ft seam, thus a discussion of the potential fluid flow to surface focuses on the Ross coal seams. A review of the complex and undulating coal bed elevation mapping indicates that fluid is most likely to flow to the west/north west from the HDD crossing location. The nearest portals to the Ross coal seam workings are found approximately half a mile to the south east of the crossing location along the banks of Mill Creek, however these easily identified mine portals are up-dip from the HDD crossing location so fluid is unlikely to flow in this direction. PennEast has proposed 6 monitoring points to the west of the Crossing. These locations will be monitored visually on a frequency not exceeding 12 hours interval between visual observations during drilling operations This will enable the effective detection of muds flowing through the ross coal seam workings to surface.</p> <p>There is also a scenario that some portion of drilling muds will flow downwards through fracturing between the multiple levels of coal workings and intersect the mine pool. The lowest point of the HDD alignment is located more than 150ft higher elevation than the Susquehanna river surface elevation, therefore there will be significant dispersion, attenuation and delay to any flow downwards to the mine pool. The volume of drilling mud to be used on the I81 HDD is miniscule in comparison to the volume of water considered to be a part of the mine pool. Due to the significant dilution effects it is not anticipated that drilling muds will have any notable effect on the mine pool.</p>
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Comment Number	PADEP Comment	PennEast Response
		<p>PennEast considers the most likely terminus of any lost drilling muds to be within close proximity to the HDD drill path. The drilling mud is engineered to have a high viscosity which is bolstered further by the cutting's particles carried by the mud. The open nature of the underground coal workings and undulating subterranean topography leads to a large capacity to accommodate any lost drilling mud. It is considered most likely that any lost drilling mud will simply pond up in low spots within the Ross Coal seams and sit within rock fractures close to the drill path.</p>
LU-70	<p>Please provide the approved Aids to Navigation (ATON) plan for the Susquehanna River and the Lehigh River. [25 Pa. Code §105.14(c)(3)]</p>	<p>The approved Aids to Navigation plan for the JPA Section L-Lehigh and Susquehanna River has been included in the response to comments package along with the letter of approval from the PFBC.</p>
LU-71	<p>In the Alternative Analysis section 11.2.3, please further describe which "specific conditions [would] render a dry crossing infeasible" and the course of action to be followed if a dry crossing is infeasible. [25 Pa. Code §§ 105.13(e) and 105.21(a)(1)]</p>	<p>The proposed primary, secondary, and tertiary methods for watercourse crossings are provided in the JPA Section M: Erosion and Sediment Control Plan narrative and Section H-1: Alignment Sheets. PennEast proposes to cross watercourses in a dry condition. Primary considerations that could impact the feasibility of a dry crossing include a channel configuration, bank stability, substrate permeability, excessive stream flow (rain events or groundwater baseflow), or the installation and construction of the dry crossing adversely affecting the bed or banks of the watercourse. Should these considerations temporarily render a primary dry crossing method infeasible, PennEast would defer to the secondary/tertiary methods proposed. In the event a dry crossing cannot be accomplished within the allowable construction window, consultation with PADEP will take place to discuss alternative options.</p>

Comment Number	PADEP Comment	PennEast Response
LU-72	<p>In the Alternative Analysis Table: Riverine Resources (S4), some streams specifically state they can be crossed within 24 or 48 hours. Please state the expected crossing time for each resource. Based on previous projects, unexpected circumstances can arise during stream crossings which result in an extended crossing time. Please state if any streams are expected to exceed the recommended crossing time of 24-48 hours (respectively). Discuss the plan of action if the proposed crossing timeline is exceeded and state the proposed timeline in both the AA table and construction narrative. [25 Pa. Code § 105.21(a)(1)]</p>	<p>PennEast is providing revised JPA Section S-4: Alternative Analysis Table: Riverine Resources with an estimated construction duration for each watercourse where applicable. The proposed primary, secondary, and tertiary methods for watercourse crossings are provided in the JPA Section M: Erosion and Sediment Control Plan narrative and JPA Section H-1: E&S alignment sheets. PennEast proposes to cross in a dry condition in accordance with the 24 hour and 48-hour timeframes for a majority of the minor and intermediate watercourses except where noted. In the event PennEast anticipates a crossing taking longer than proposed, consultation with PADEP will take place to discuss alternative options. A refined crossing timeline will be presented at this time.</p>
LU-73	<p>Throughout the permit (including EA-Module 4 and the Alternative Analysis), wetland and watercourse restoration monitoring timelines are not consistent stating in some places two years and in other places three years of monitoring (respectively). In any event, the proposed monitoring timelines are inconsistent with the Department's guidance for Wetlands Replacement/Monitoring, Department document 363-0300-001, which states wetland replacement must be monitored for a period of not less than five years. Please revise the monitoring timelines to reflect a 5-year monitoring period. [25 Pa. Code §105.21(a)(1)]</p>	<p>PennEast has revised the monitoring requirements in the Post-Construction Wetland and Watercourse Monitoring Plan (JPA Section L-4C), EA Module 3 (JPA Section L-3), EA Module 4 (JPA Section L-4), and the Alternatives Analysis (JPA Section S) to consistently state that impacted wetlands and watercourses will be monitored for a period of five years, or until restoration is considered successful and agreed upon by the USACE and PADEP. The exception to this revision is in Section 3.3 of the Monitoring Plan that explains the FERC reporting requirements.</p>

Comment Number	PADEP Comment	PennEast Response
LU-74	<p>The Wetland and Riparian Reforestation Plan does not clearly show what the intentions are with respect to which wetlands and riparian areas get seeded and which wetlands and riparian areas get reforested. Please provide a Reforestation Plan that clearly demonstrates the vegetation type proposed for each site that will be restored. Please include the resource ID and designation on the plans as well as the planting schematics, including width of plantings in riparian buffers based on water course designation (typical vs. EV/HQ, according to §102.14 requirements, where applicable). [25 Pa. Code §§ 105.13(e) and 105.16(d)]</p>	<p>PennEast edited the symbology of seeding and planting areas of the Wetland and Riparian Reforestation Plan (JPA Section L-4A) to clarify the restoration treatment for each impacted area. The revised plan also includes resource ID labels, watershed boundaries with designated/existing use labels, and the width of riparian buffers that will be seeded and/or reforested. Minor workspace and delineation changes that were incorporated in the Project design since the December 2018 JPA, and minor edits to a few of the planting areas have also been addressed in this revised plan. The note and detail sheets were updated to include planting schematics and a table that details the acreage of seeding and planting for each resource ID.</p>

Comment Number	PADEP Comment	PennEast Response
LU-75	<p>In the Wetland and Riparian Reforestation Plan, consider replanting shrubs up to the 10-foot wide buffer (between 15 and 5 feet from center of pipeline) in exceptional value watersheds, where trees would otherwise not be permitted or consider replanting shrubs across the entire ROW, where tree roots would otherwise not be permitted, as stated in the EA Module 3 “A 10-foot wide operational easement centered on the pipeline will be maintained in an herbaceous or scrub/shrub vegetative state in emergent or scrub-shrub wetlands.” [25 Pa. Code §§105.16(d) and 105.18a(b)(3)(ii)(B)]</p>	<p>PennEast is required by FERC and PHMSA to maintain an open line of sight over the pipeline corridor for ongoing visual inspection of the ROW corridor against intrusion or damage. This inspection is typically done by drone or aircraft. In addition, to protect the integrity of the pipeline coating from damage from tree roots, the ROW must be maintained 15 feet on either side of the pipeline (30 feet total width). Although the 30-foot ROW will not be mowed annually (only a 10-foot wide operational easement may be mowed annually), PennEast may mow it as frequently as every 3 years. Trees and shrubs may naturally colonize the maintained ROW, and PennEast will remove trees with roots that grow to a size that have the potential to obscure visual assessment and/or to damage the pipe. Planting shrubs within the 30-foot ROW that will be mowed regularly would not be practicable from an operations perspective. PennEast proposes to plant trees and shrubs outside of the 30-foot maintained ROW to enhance restoration of the Project area. In areas where reforestation plantings are impracticable (i.e. within the 30-foot maintained ROW within forested riparian buffers, PFO, and PSS wetlands), PennEast has proposed offsite compensatory wetland enhancement to mitigate the impacts associated with changes in wetland cover types.</p>
LU-76	<p>In the Wetland and Riparian Reforestation Plan, it appears that riparian planting may be advantageous between mile marker 7.0 and 7.2 and consistent with similar locations, consider expanding plantings in this riparian buffer. [25 Pa. Code §§105.13(e) and 105.16(d)]</p>	<p>PennEast proposes to plant trees and shrubs within the existing riparian buffers along the right and left banks of the Susquehanna River areas that currently are forested or have an existing treelined. PennEast does not propose any plantings on Monadnock Island, which is a dynamic island that floods regularly.</p>
LU-77	<p>Please include in the EA Module 4, Section S4.C, the total acres to be mitigated for and the total acres WHM Solutions will uplift/enhance. [25 Pa. Code §§105.20a(a) and 105.21(a)(1)]</p>	<p>PennEast has revised Section S4.C of EA Module 4 (JPA Section L-4) to include the total acreage of permanent wetland impacts and the acreage of compensatory mitigation proposed.</p>

Comment Number	PADEP Comment	PennEast Response
LU-78	<p>The Department requests function and value mitigation at a rate of 2:1 for conversion impacts to “other” PFO wetlands, 2.5:1 for conversion impacts to EV PFO wetlands; 1.5:1 for conversion impacts to “other” PSS wetlands, and 1.75:1 for conversion impacts to EV PSS wetlands. [25 Pa. Code §§105.14(b)(13) and 105.20a(a)(2)]</p>	<p>PennEast has revised the Compensatory Mitigation Plan (JPA Section L-4B) to provide additional mitigation for wetland cover type conversion impacts. PennEast proposes to implement the requested 2.5:1 ratio for the conversion of EV, PFO wetlands to PEM wetlands within the 10-foot wide annually-maintained ROW and a 1.75:1 ratio for the conversion of EV, PSS wetlands to PEM wetlands within the 10-foot wide annually-maintained ROW. PennEast proposes to adhere to the previously proposed 2:1 ratio for PFO and 1.5:1 ratio for PSS for all other wetland conversion impacts. As described in the response to comment BU-42, PennEast will only mow the entire 30-foot maintained ROW every 3 years, or less often as needed, to facilitate visual assessments and to protect the integrity of the pipeline coating. This reduced mowing frequency will result in PSS wetlands within 20 feet of the 30-foot wide operational ROW, with the remaining 10 feet typically as PEM wetlands. Per FERC’s Plan and Procedures, mowing will take place either at the end of or outside of the growing season (between August 2 and April 14). PennEast has committed to a more restrictive mowing schedule of September 11 to March 31 to avoid the nesting seasons of migratory bird species. PennEast believes that a 2:1 mitigation ratio for the conversion of PFO to PSS wetlands and a 1.5:1 ratio for the relatively infrequent maintenance of PSS wetlands within this 20-foot wide corridor adequately mitigates the impacts.</p>

Comment Number	PADEP Comment	PennEast Response
LU-79	Please submit final documents in the Compensatory Wetland Mitigation Plans that are not labelled "Draft." [25 Pa. Code §§105.20a(a) and 105.21(a)(1)]	The documents that were labeled "Draft" in the December 2018 JPA were draft Declaration of Restrictive Covenants that WHM Consulting, Inc. would finalize and file with the county courthouse upon issuance of a PADEP and USACE permit. As the review of the compensatory mitigation plan is still underway and the project has not been approved, it would be premature to put a deed restriction on a property at this time. PennEast commits to finalizing the document and filing the deed restriction before wetland impacts would occur.
LU-80	The off-site Compensatory Wetland Mitigation Plan Performance Standards provide for a contingency of 30% canopy cover prior to the end of monitoring." Department guidance, Design Criteria - Wetlands Replacement/Monitoring, DEP Doc. No. 363-0300-001, suggests 85% survival of planted species and a monitoring period of not less than five years. The contingency regarding "30% canopy cover prior to end of monitoring" will not be acceptable. Please revise the off-site Compensatory Wetland Mitigation Plan Performance Standards to be consistent with the Department guidance. [25 Pa. Code §§105.20a(a), 105.21(a)(1), and 105.13(e)]	The contingency for 30% canopy cover prior to end of monitoring has been removed from the performance standards. The revised Compensatory Wetland Mitigation Plan is provided in JPA Section L-4B.
LU-81	Regarding the EA Module 4 and Post-Construction Wetland and Watercourse Monitoring Plan, Department guidance, Design Criteria - Wetlands Replacement/Monitoring, DEP Doc. No. 363-0300-001, requires 85% cover of hydrophytic species. Please revise performance standards accordingly. [25 Pa. Code §§105.20a(a), 105.21(a)(1), and 105.13(e)]	PennEast revised the performance standards in Section 2.1 of the Post-Construction Wetland and Watercourse Monitoring Plan (JPA Section L-4C) to include a criterion that revegetated areas will have 100% cover, with at least 85% cover of hydrophytic species (FAC, FACW, and/or OBL) at the end of two growing seasons. Additionally, PennEast edited the report components and included statements that PennEast may request an early release of monitoring requirements for wetlands and watercourses that meet performance criteria.

Comment Number	PADEP Comment	PennEast Response
LU-82	The Post-Construction Wetland and Watercourse Monitoring Plan states that you intend to only monitor wetlands 0.1 acres or greater in size. All restored wetland impacts need to be monitored regardless of size. Please revise application to reflect that all restored wetlands will be monitored. [25 Pa. Code §105.21(b)]	PennEast revised Section 3.1 of the Post-Construction Wetland and Watercourse Monitoring Plan (JPA Section L-4C) to state that impacted wetlands will be monitoring.
LU-83	In the Compensatory Wetland Mitigation Plan, consider providing a method to clearly and permanently demarcate easement boundaries. [25 Pa. Code § 105.13(e)]	A “Boundary Demarcation” section has been added to the Compensatory Wetland Mitigation Plan (JPA Section L-4B) which outlines the boundary of the recorded conservation area to be demarcated in the field with either fiberglass sign/posts marked “Conservation Area”, with metal t-posts, or with large boulders. Once trees and shrubs are established within the mitigation area, the woody vegetation shall also serve as the demarcation of the conservation area.