

**PENNEAST BUCKS COUNTY JOINT PERMIT APPLICATION**

**APS ID# 890535, AUTH ID# 1107273**

**DEP Application No. E09-998**

**RESPONSE TO PADEP 7/3/19 TECHNICAL DEFICIENCY LETTER**

Comment Number	PADEP Comment	PennEast Response
BU-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-1: E&S alignment sheets, and in these locations no restoration will be required.
BU-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.

Comment Number	PADEP Comment	PennEast Response
BU-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.
BU-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)]	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.
BU-5	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 Tables (ARIT) in JPA Section A-1.
BU-6	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)]	In the JPA Section H-2: Site-Specific Mapping has been revised to include stationing that matches the JPA Section H-1: E&S Plans.

Comment Number	PADEP Comment	PennEast Response
BU-7	<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"> <li>a. 110714_JC_001_PFO</li> <li>b. 052915_JC_1002_C_IN</li> <li>c. 122315_DB_1001_P_MA</li> </ul> <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 0.0004 acres, impacts are rounded to 0.001 acre.</p>
BU-8	<p>There are several stream crossings that have a waterbody crossing method as DX-NF. However, the E&amp;S Typical Details Sheets do not include a waterbody crossing method DX-NF. Please include this waterbody crossing method to the E&amp;S Typical Details Sheets. [25 Pa. Code § 105.13(g)]</p>	<p>Figure 20A, "Typical Stream Dry Crossing if no Flow," has been added to the JPA Section H-1: E&amp;S details.</p>

Comment Number	PADEP Comment	PennEast Response
BU-9	<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&amp;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&amp;S General Notes have been revised to include this language.</p>

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BU-10	<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&amp;S General Notes have been revised to include this language.</p>
BU-11	<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&amp;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: Site-Specific and JPA Section H-1: E&amp;S drawing packages.</p> <p>Figure 22 has been revised to include provisions for instream support.</p>
BU-12	<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 does not propose any culvert replacements along existing access roads in Bucks County. PennEast has added Table 1.2.3 to the JPA Section J: 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. Existing culverts within Bucks County will not be affected by the Project.</p>

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BU-13	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)]	Tables 11.3, 11.4, and 11.5 in the and JPA Section H-1: E&S General Notes have been replaced with revised seed mixes, which do not include the use of crown vetch.
BU-14	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)]	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.

Comment Number	PADEP Comment	PennEast Response
BU-15	<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 prior to discharging 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&amp;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&amp;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>
BU-16	<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 Bucks County, this includes public water supply wells within 0.5 mile of the Delaware River HDD bore path, private water supplies within 1,000 feet of the Delaware River HDD bore path, and surface water intakes within 1 mile downstream of the Delaware River Crossing. This privileged information is provided in JPA Section L-2: EA Module 2, Appendix BU-L-2I.</p>
BU-17	<p>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)]</p>	<p>PennEast has revised the site-specific drawings (JPA Section H-2) to show the approximate locations and depth of bore pits to achieve a minimum depth of 5 feet of cover above the proposed pipeline.</p>

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BU-18	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)]	Shut-off provisions were provided in Section 1.1.2.5 of the December 2018 JPA Section J: Project Description Narrative. 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 JPA Section J: Project Description Narrative.
BU-19	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 JPA Section D: Cultural Resources Summary 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.
BU-20	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 (JPA Section L) documents have been updated to reflect the changes made to the JPA Section A-1: ARIT.

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BU-21	<p>EA Module 2, Section S2.A.4 references Appendix BU-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 BU-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)]</p>	<p>The location map reference in the JPA Section L-2: EA Module 2, Section S2.A.4 has been updated from Appendix BU-L-2C to JPA Section BU-I: Project Location Map.</p>

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BU-22	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>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 JPA Section L-4A: Wetland and Riparian Reforestation Plan. Erosion control blankets will be installed along steep slopes and near watercourse crossings in accordance with the JPA Section M: Erosion and Sediment Control Plan . Restoration will be monitored for the overall Project until permanent stabilization is achieved, the PADEP determinates 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 Bucks County 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 JPA Section M: Erosion and Sediment Control Plan .</p>

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BU-23	The EA Module 2, Section S2.C, indicates 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)]	This statement was specific to consultation with the USFWS. The FERC and USFWS re-initiated consultation to address the proposed Appalachian Trail PPL Crossing Realignment modification, and the USFWS' amended BO has been included in JPA Section G-1 and G-2.
BU-24	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.
BU-25	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.
BU-26	EA Module 2, Table BU-L2-6 indicates that watercourse 051515_JC_1004_E_MI, an ephemeral stream, has a Watershed size of 4. Please verify if this is accurate. [25 Pa. Code § 105.21(a)(1)]	PennEast used the USGS Stream Stats tool to estimate the watershed size of 051515_JC_1004_E_MI. The drainage area for this ephemeral stream is 0.0457 square miles. Table BU-L2-6 in JPA Section L-2: EA Module 2 has been edited to classify this watershed size as 1 (a drainage area greater than zero but less than 2 square miles).
BU-27	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.

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BU-28	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 BU-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 JPA Section L-4B: Compensatory Wetland Mitigation Plan.
BU-29	In reference to the following statements in the EA Module 3, “Selectively clearing, by hand methods, a 30-foot wide operational easement to improve line of sight between pipeline markers where horizontal directional drillings (HDD) are proposed” and “Wetland systems comprised of forested communities will be allowed to revert back to their original site condition (excluding locations maintained for line of sight),” please specify how much tree clearing will be done in the floodway and wetland for both the project construction and operation and maintenance (O&M) for the HDD crossings. Please note clearing of trees in PFO wetlands will be considered conversion and require mitigation. [25 Pa. Code § 105.302(6)]	Minor hand clearing between HDD entry and exit points is expected to include branch and low sapling/shrub clearing to maintain line of sight in between pipeline marker posts, typically the width of a walking trail. This would include branches at a height of eye level to the ground (to prevent a safety hazard to operation personnel) and cutting sapling/shrubs near the surface to avoid tripping hazards. By accommodating safety considerations for operation personnel, PennEast will eventually end up with a line of sight for placement of marker posts. It is common industry practice to place these posts at intervals of between 200 and 300 feet. Spacing could be closer to accommodate changes in topography and/or when mature trees are encountered. There will be no cutting of mature trees for line of sight or marker posts. Section S3.D.2(iii) of JPA Section L-3: EA Module 3 has been revised to include this clarification.

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BU-30	<p>Per the EA instructions S3C10 and EA Appendix V (3150-PM-BWEW0017), please provide the key details for each subfacility. Please use PIPE, which should include O&amp;M; FLACT for floodway impacts not associated with pipe, such as access roads; and TMPWI for wetland disturbance areas during construction. At this time, WTIIM will not be required if the disturbance is captured in TMPWI. Neither WTIIM nor TMPWI is required for horizontal directional drilling (HDD) bored pipe impacts. [25 Pa. Code § 105.21(a)(1)]</p>	<p>The subfacility tables in JPA Section L-3: EA Module 3, Appendix L3-A have been revised as requested.</p>
BU-31	<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</p>

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		<p>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 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>

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BU-32	An analysis of well production zones was 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 BU-16 and BU-33 and in the revised EA Modules 2 and 3. If any public water supply wells are identified, PennEast will conduct a well production zone analysis.
BU-33	Due to karst geology identified along the western side of the Delaware River, all private water supply wells located within 1,000-feet of the HDD bore path should be identified. Public water supply wells should be identified within 0.5-mile radius of the bore path. 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 the 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 Delaware River HDD to 1,000 feet for private water supplies and 0.5 mile for public water supplies within Pennsylvania.</p> <p>PennEast revised Section S2.A.5 of JPA Section L-2: EA Module 2 ( ) and Section S3.B.1(vi) of JPA Section L-3: EA Module 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>

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BU-34	<p>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]</p>	<p>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. In addition, the Delaware River HDD crosses a known fault trace. PennEast will commit to monitoring high-risk private water supply wells within a ½ mile buffer of the Delaware River HDD crossing.</p>
BU-35	<p>Surface water intakes for public and private water supplies within 1-mile downstream of the HDD crossing of the Delaware River should be identified. [25 Pa. Code § 105.14]</p>	<p>As described in the December 2018 JPA Section L-2: EA Module 2 Section S2.A.5, PennEast reviewed the PADCNr PaGWIS and consulted with public water suppliers to identify surface water intakes 1 mile upstream or 10 miles downstream of Project workspace. Through PennEast’s screening of public water supply service areas within proximity of the Project at the distances described above, no public water suppliers were required to be contacted in Bucks County.</p> <p>Since the December 2018 JPA, PennEast reviewed the PADEP’s Water Resources data (Published 07/2019), which is available on PADEP’s eMAP PA online tool and through PASDA. No surface water intakes were identified within 1 mile downstream of the HDD crossing of the Delaware River.</p>

Comment Number	PADEP Comment	PennEast Response
BU-36	<p>Geophysical data collected in the Delaware River indicates an area of higher Inadvertent Return (IR) probability. The area denoted where the thrust fault is anticipated should be approached with caution during drilling. [25 Pa. Code § 105.313(c)]</p>	<p>The location of the fault has been inferred beneath the River from the information obtained in geotechnical investigation, although the exact location of the fault has not been identified. Mott MacDonald and PennEast agree that the thrust fault area carries a slightly elevated risk of an inadvertent return probability that can be managed by the HDD contractor using good drilling practices. PennEast will continue to discuss this risk with the HDD Contractor and any other relevant parties before construction of the HDD begins. During construction, the HDD contractor will be required to monitor and maintain drilling fluid pressures beneath the maximum allowable fluid pressures identified in the hydrofracture evaluation provided in the Delaware River Crossing HDD Design Report (JPA Section S-6a). Although not anticipated, if an inadvertent return event occurs during installation, PennEast has outlined a strict response protocol within the Inadvertent Return Contingency Plan (JPA Section L-3C) created for the PennEast Pipeline Project.</p>
BU-37	<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 JPA 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
BU-38	<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: Alternative Analysis Table: Riverine Resources (S4) 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&amp;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 that time.</p>
BU-39	<p>Appendix BU-S-3 is referenced in Alternatives Analysis document (S_Bucks Alt Analysis_2018_12_20). Please verify if the Alternatives Analysis document should be referring to S4_Bucks_Riverine_AA and S4_Bucks_wetland_AA. If so, revise accordingly. Additionally, BU-S-4 HDD Design and Reports, appears to be labeled as file S-6., please clarify and revise application as needed. [25 Pa. Code § 105.21(a)(1)]</p>	<p>To maintain a consistent file structure among all four county JPAs, PennEast has revised the Table of Contents and Appendix references within the JPA Section S: Alternatives Analysis document to refer to the site-specific alternatives analysis tables as Appendix BU-S-4 and the HDD Design and GDR Reports as Appendix BU-S-6.</p>
BU-40	<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 JPA Section L-4C: Post-Construction Wetland and Watercourse Monitoring Plan, JPA Section L-3: EA Module 3, JPA Section L-4: EA Module 4, and the JPA Section S: Alternatives Analysis 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 (JPA Section L-4C) that explains the FERC reporting requirements.</p>

Comment Number	PADEP Comment	PennEast Response
BU-41	<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 JPA Section L-4A: Wetland and Riparian Reforestation Plan 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>
BU-42	<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>

Comment Number	PADEP Comment	PennEast Response
BU-43	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)]	PennEast has revised Section S4.C of JPA Section L-4: EA Module 4 to include the total acreage of permanent wetland impacts and the acreage of compensatory mitigation proposed.
BU-44	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)]	PennEast has revised the JPA Section L-4B: Compensatory Mitigation Plan 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.

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BU-45	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.
BU-46	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 the end of monitoring has been removed from the performance standards. The revised Compensatory Wetland Mitigation Plan is provided in JPA Section L-4B.
BU-47	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
BU-48	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 JPA Section L-4C: Post-Construction Wetland and Watercourse Monitoring Plan to state that impacted wetlands will be monitored.
BU-49	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 JPA Section L-4B: Compensatory Wetland Mitigation Plan 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.