

March 15, 2019

Ms. Maya K. van Rossum  
 The Delaware Riverkeeper  
 Delaware Riverkeeper Network  
 925 Canal Street, 7<sup>th</sup> Floor, Suite 3701  
 Bristol, PA 19007

**RE: Review of PennEast Pipeline Application for Chapter 102 and 105 Permits**

Dear Ms. van Rossum,

At your request, I have reviewed various documents and information related to the proposed PennEast Pipeline’s Application for Chapter 102 and 105 Permits. Our office also previously provided comments related to the project’s previous FERC permit submission in 2016.

Overview of Findings

There is a lack of coordination between temporary and permanent E&S controls. Many temporary E&S controls rely heavily on permanent controls that will not be constructed until much of the construction of the pipeline has taken place. This means while the largest earth disturbance is present within the Construction Work Area (CWA) and for the longest duration of construction, the E&S controls have been undersized and inadequately designed. This practice, as observed on other pipeline routes, often leads to off-ROW discharges and sediment laden water leaving the ROW and, in some instances, entering nearby wetlands and waterbodies.

The plans, details, and narrative leave numerous important field decisions up to the Environmental Inspector, which prevents the Department and the public from having an opportunity to review these decisions that the EI makes independently from outside input, and who may not necessarily be qualified to make these decisions.

The plans also do not adequately protect the sensitive environmental resources such as EV wetlands and HQ/EV streams within the CWA. The pipeline traverses through 37.7 miles of HQ watersheds and 9.5 miles of EV watersheds in PA (E&S Plans, General Notes, Drawing No. 000-01-01-003F), which include impacts to 22.25 acres of PEM, PSS, and PFO wetlands (E09-998, E13-185, E40-780, and E48-435 – Aquatic Resources Impact Table – Wetland Resources), 86 crossings of HQ streams, and 18 crossings of EV streams (Table 2.2-1 in E&S Narrative). Many of these features are shown on the plans to be impacted by construction practices despite narrative and details suggesting alternative practices to minimize these impacts. This lack of coordination between the narratives, details, and plans will cause confusion in the field for the contractor and best practices will not be followed. It is common practice for the contractors to only refer to the plans in the field because it is expected that the plans contain everything that the contractor needs to complete the work correctly and safely with minimal environmental impacts.

Construction Sequence

- Assembly line method

- The Construction Sequence for the PennEast pipeline is described as an “assembly line flow” where there are separate crews conducting different portions of the pipeline installation process. This means steps in the construction are sequential and are not happening all at once. This leaves large gaps in time where one process may lag behind another in the pipeline assembly flow. This is critically important with how and when erosion and sediment control procedures are implemented. By disturbing the CWA and not immediately installing the pipeline, the construction sequence allows for long periods of earth disturbance to be exposed to weather and erosive conditions.
- Based on the construction sequence, the site is to be cleared and subsequently graded to create a safe work environment to allow for truck and equipment traffic. Erosion and sediment controls such as temporary water bars are installed at this time. Presumably, compost filter socks are to be installed following clearing activities according to E&S Narrative Section 9.5.1.1 of the construction sequence outlining the installation of these practices following site clearing. However, the listing of order of operations from 9.5 Construction Sequence suggests some practices are to be installed prior to site clearing and then only after grading has taken place. The E&S narrative has contradictory information about the sequence of BMP installation, which will be confusing to a contractor since they rely on the plan documentation and drawings to implement the project in the field.
- Previous experience with oil and gas pipeline construction projects has shown that as much as 6 months can pass between site clearing and grading and pipeline trenching. This allows for an excessive amount of time for the site to be left disturbed. The minimum design requirement for E&S practices is to control runoff from the 2-year 24-hour storm. It is likely that a storm that exceeds the design standards for the temporary E&S controls will occur during this time and cause practices to fail, which leads to sediment pollution leaving the CWA.
- Topsoil segregation
  - The E&S narrative only specifies topsoil segregation for residential, agricultural, or wetland landuses. This limits the reestablishment of vegetation within all other landuses as topsoil is disregarded and stockpiled with mineral subsoils. When the ROW area is reestablished following pipeline construction, plant growth is inhibited due to a lack of topsoil which contains the organic matter, nutrients, and microbial/fungal communities necessary for plant reestablishment. Top soil piles and subsoil piles along other pipeline projects disturbed for extensive lengths of time, have been observed with invasive plant species (like Japanese stiltgrass) growing and seeding on exposed soil piles in areas with lengthy disruption. This can lead to longer term colonization and spreading of potentially invasive plants and seeds that will also make it more difficult for desirable species to grow.

#### Temporary E&S Measures

- Compost Sock
  - Compost filter socks on the PennEast plans have been sized for the slope length to the upslope permanent waterbars. During the period from the Grading stage to restoration of ROW, no permanent waterbars are proposed based on the Construction Sequence

although the design of all compost socks relies heavily on permanent waterbars shown on the plans to reduce runoff impacts from long hillslopes. Compost filter socks exposed to long slope lengths above the compost filter socks will fail due to being undersized for a shorter slope length to the permanent waterbars. In most cases, no compost filter sock size is appropriate for the very long slope lengths of this project when you consider that permanent waterbars are to be installed following restoration of the CWA.

- For example, at STA 1819+15, the slope length above barrier provided in the compost sock table is listed as 38 ft, which is the measurement from the permanent waterbar to the compost sock. However, before the permanent waterbar is installed, the slope length above the compost sock is in fact over 600 ft, as measured from the plans. The Department should carefully examine each compost sock’s design parameters to ensure that they reflect reality and consider the E&S BMP installation sequence.
  - Proper installation of compost filter socks is difficult due to design information being provided by LiDAR developed topography which is not always representative of actual field conditions. Varying topography within many environmentally sensitive areas can limit a contractor’s ability to properly install compost filter socks on contour as required. Because the plans were based on assumed topography that may vary and the contractor has to use their best judgment in placing the practices, areas of concentrated flow and overtopping often occur.
  - According to Section 12.1.2.1.d) of the E&S Narrative, the contractor must “install BMPs immediately after initial ground disturbance along the edge of the CWA as necessary to contain spoil and sediment within the ROW through wetlands.” Compost filter socks are not shown along CWA boundary within wetland area 042315\_JC\_1001\_PFO as specified in the E&S Plan. By the time an Environmental Inspector could deem a situation “necessary” to install BMPs, spoil and sediment would have already runoff the CWA into the wetland, due to a lack of E&S controls being installed.
  - Compost filter socks shown on plans are hard to interpret as color differentiation of size is difficult to determine from the plans. The contractor in the field will have a hard time installing compost filter socks properly due to this difficulty in interpreting the plans.
- Waterbars
  - According to the PennEast E&S narrative, temporary water bars are to be installed where shown on plans or as necessary to prevent accelerated erosion. These practices span the entire width of the disturbed right-of-way and must be traversed by vehicles and construction equipment. Because they require specific geometries, alignments, and stabilization to be effective, this traffic can degrade the ability of a water bar to perform its function properly. Temporary waterbars can be made of staked compost sock as indicated in the E&S narrative but this material is not able to be traversed without damage by construction traffic. Either the temporary waterbars of this material will be destroyed by vehicle traffic or continually removed and reinstalled to allow for vehicle traffic. Even the compacted soil temporary waterbars will lose their shape and effectiveness when exposed to vehicle traffic.

- There is a single detail for the construction of both temporary and permanent water bars. This detail shows a note requiring to “INSTALL A PROTECTIVE LINER, WHEREVER ERODIBLE SOILS ARE PRESENT, OR WHERE THERE IS NOT SUFFICIENT VEGETATIVE GROWTH.” Because these temporary waterbars are subjected to vehicle and construction traffic, the liner or sufficient vegetation cannot be maintained through staging of the pipeline installation and will lead to sediment discharges to non-ROW areas. At station 2148+00, a temporary waterbar is clearly shown on the plan, but no liner is shown on the plan. The soil is AcB – Albrights Very Stoney Loam 0-8% Slopes and is listed as easily erodible on the Limiting Soil Characteristic legend. When a waterbar is installed and not protected from erosion as specified in the details, the system will fail and discharge sediment to adjacent lands. This portion of the pipeline is within the White Oak Run watershed and is designated Exceptional Value.
- Temporary waterbars are indicated to be placed on either side of all watercourses and wetlands by both narrative and plan details. At station 1825+00, no temporary waterbar exists uphill of wetland 042315\_JC\_1001\_PFO.
- The Waterbar Installation and Maintenance E&S Detail (Figure 9) instructs the contractor to “POSITION OUTFALL TO PREVENT SEDIMENT DISCHARGE INTO WETLANDS, WATERBODIES, OR OTHER SENSITIVE RESOURCES.” In several instances, the plans show temporary waterbars discharging to both wetlands and watercourses. Between STA 1835+00 to 1843+00, the waterbars are directed into wetlands 042315\_JC\_1002\_PEM (Exceptional) and 042315\_JC\_1003\_PEM (not listed in Aquatic Resources Impact Table) and waterbodies 042315\_JC\_1003\_P\_IN (Stony Creek, EV) and 042315\_JC\_1003\_I\_IN (UNT to Stony Creek, EV).
- The Waterbar Installation and Maintenance E&S Detail (Figure 9) instructs the contractor to “FILTER RUN-OFF WATER BY CONSTRUCTING THE DISCHARGE END IN A WELL VEGETATED STABLE AREA, OR BY USING AN ENERGY DISSIPATING DEVICE (SHOWN ABOVE) AS DIRECTED BY THE ENVIRONMENTAL INSPECTOR.” These energy dissipators were not identified on the plans. The project engineer should identify the locations where energy dissipators are necessary before construction begins, rather than leave the implementation of the energy dissipators to the discretion of the contractor or Environmental Inspector in the field.
- Clean water Slope pipes
  - The length of the level spreaders does not appear adequate to prevent reconcentration of flow from the slope pipes. Numerous level spreaders are between 5 and 10 feet long which is not enough distribution length along the slope to prevent immediate reconcentration.

#### Reestablishment of ROW

- Riparian Forested Buffers
  - The proposed PennEast pipeline route contains 61.52 acres of delineated riparian buffer within the LOD. Only 24.45 acres, or 40%, of the disturbed riparian buffer are to be reforested. PennEast claims that they cannot fully establish the riparian buffer because they will need to maintain a 30-foot wide tree-free corridor over the pipeline, and they “cannot, without landowner permission, place deed restrictions or conservation

easements to protect, convert, or establish a riparian buffer” on private property that does not belong to them (E&S Narrative). The latter line of reasoning is difficult to believe because presumably they would have had to have received permission from the landowners to remove the riparian buffer from the private property in the first place. Riparian buffer reestablishment should be a part of their right-of-way agreements established for the construction of the pipeline.

- Wetland reestablishment
  - Of the 22.25 acres of PEM, PSS, and PFO wetlands impacted by the PennEast pipeline construction, PennEast has proposed 10.37 acres of wetland mitigation, about 47% of the wetland impact. The wetlands will be addressed on a County-scale, so the wetland mitigation could occur anywhere within the county, which means that it could occur within a different watershed. As a result, the impacted habitat is degraded and the wetland function is removed from the HQ and EV watersheds.
- Stream crossings
  - Not all stream crossings are noted on the plan, therefore no direction is given to the contractor about what approach is to be taken to cross the undocumented watercourse. The plans were specifically developed by licensed professionals with large amounts of information at their disposal to provide planning and design to minimize impacts to natural resources. In this case, stream PA-NHD-057 in Pine Run watershed (EV) at STA 2117+30 is shown to start and stop around the right-of-way even though topography would suggest it continues north to south. This crossing is not noted in the Aquatic Resources Impact Table.
- Seeding
  - The Recommended Seed Mixtures for Stabilizing Disturbed Areas (Table 11.5) proposed in the PCSM and Site Restoration Plan General Notes is identical to the Recommended Seed Mixtures for Stabilizing Disturbed Areas (Table 11.5) in the E&S General Notes. While this seeding will eventually establish coverage and reduce active erosion of soils, it will not establish the hydrologic conditions nor the natural diversity and pollinator food sources of a native meadow, as required by Chapter 102.

Sincerely,



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Marc B. Henderson, PE  
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