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New Jersey Conservation
FOUNDATION

Honorable Norman Bay, Chairman
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

Re: Docket CP15-558-000 – Proposed PennEast Pipeline Project

Dear Chairman Bay and Members of FERC:

New Jersey Conservation Foundation is an intervener in Docket CP15-558-000 regarding the proposed PennEast pipeline.

In FERC's conclusions and recommendations (section 5.1) in the PennEast Draft Environmental Impact Statement (DEIS), FERC concludes that "….construction and operation of the PennEast Project would result in some adverse environmental impacts." FERC goes on to say that, "if the Project is constructed and operated in accordance with applicable laws and regulations, the mitigating measures discussed in this EIS, and our recommendations, most of the adverse impacts would be reduced to less than significant levels."

Neither PennEast nor FERC present any data or evidence to document that the proposed mitigation measures will be effective in reducing adverse environmental impacts to less than significant levels. This calls into question the foundation of FERC's preliminary, and premature, conclusion that the project can be completed without significant environmental impacts.

To the contrary, there is evidence that the typical mitigation measures required by FERC for interstate pipelines are not effective and don't prevent environmental degradation or restore natural resources to their prior state or healthy ecological conditions.

To document these mitigation failures, I was joined by forest restoration ecologist Leslie Sauer to examine the results of mitigation measures on the Tennessee Gas pipeline as it passes through the Highlands region of New Jersey. Attached is a summary of our observations of the pipeline ROW on August 18, 2016.

Thank you for your attention to this information.

Sincerely,

Emile DeVito, PhD
Senior Manager of Science and Stewardship
New Jersey Conservation Foundation

New Jersey Conservation
FOUNDATION

Comments on Proposed Mitigation Measures for PennEast Pipeline
Review of Tennessee Gas Pipeline Mitigation Failures

The draft EIS for the PennEast Pipeline provides an assessment of the potential environmental effects of the construction and operation of the project in accordance with the requirements of the National Environmental Policy Act. The DEIS states that "FERC staff concludes that approval of the Project would result in some adverse environmental impacts; however, most of these impacts would be reduced to less-than-significant levels with the implementation of PennEast's proposed mitigation and the additional recommendations in the draft EIS".

Avoidance of significant impacts through mitigation is a common theme throughout the DEIS, as is the frequent reference to the PennEast's Erosion and Sediment Control Plan (E&SCP). For example, the DEIS states that "Based on our analysis, we conclude that the Project is not expected to significantly impact groundwater, surface water, or wetland quality or quantity during construction or operation with implementation of PennEast's proposed mitigation measures as well as our recommendations". These statements are unsupported by any references or examples that would validate the DEIS's assertion that FERC's E&SCP and other stated mitigation measures can achieve the desired goal of reducing impacts to "less-than-significant levels".

The rhetoric of the DEIS is especially troubling when considering the impacts to highly sensitive habitats such as those associated with steep slopes, mature forest, complex wetland systems, endangered species habitat and anti-degradation streams. The mitigation of sensitive, rare or complex habitats may be easy to state, as FERC has done throughout the DEIS, but more often than not it is not possible to successfully mitigate unique or ecologically complex habitats.

The DEIS identifies a number of issues that are all relevant to the identification of adverse impacts and important to both the scale and complexity of the environmental issues that will complicate the successful mitigation of PennEast's impacts. The issues listed below are just some of the many issues that are relevant to mitigation.

1. About 723 acres (67 percent) of the soils along the proposed PennEast Pipeline and laterals are soils with a poor revegetation potential and would be temporarily impacted by construction.
2. 452 acres of forest would be permanently converted to an herbaceous state.
3. 43 category 1 anti-degradation streams will be impacted in New Jersey alone. It is also important to understand that the final number of Category 1 streams impacted in New Jersey has yet to be fully evaluated. These impacts also include the removal of riparian zone vegetation.
4. 30 acres of wetland impact and 104 crossings of wetland areas. The DEIS indicates that through the application of FERC's E&SCP and other Procedures, "we conclude that construction and operation of the Project would result in minor effects on wetlands that would be appropriately mitigated and reduced to less than significant levels".

5. About 406 acres (38 percent) of the soils along the proposed pipeline segments are considered highly erodible by either water or wind and would be temporarily impacted.
6. PennEast would also implement its Invasive Plant Species Control Plan during construction and operation of the Project in order to minimize the risk of invasive plants spreading within the Project rights-of-way and to control existing invasive populations that might prevent successful revegetation of the area. In addition the DEIS indicates that “No herbicides or pesticides would be used for clearing or maintenance within 100 feet of a waterbody”.

All of the items listed above indicate either the extent of sensitive lands to be impacted or the rhetoric describing how PennEast can avoid a designation of “significant Impact”. It is the unsupported rhetoric regarding the widespread use of mitigation to reduce impacts to less than significant levels that is disconcerting as it serves to form the foundation for FERC’s conclusion that the PennEast Pipeline will not result in significant impacts. In the absence of any supporting documentation that illustrates that FERC’s mitigation measures can actually minimize project related impacts to the level here suggested, the proposed mitigation measures should be simply considered conjecture and as such should not form the basis for an approval.

Moreover, with regard to regulated resources such as wetlands, nothing in the DEIS was based on the requirements for an individual wetland permit in New Jersey and no basis for believing that the 404(b)(1) guidelines were considered in the selection of the proposed route. Lastly, the regulatory thresholds for impacts to such important natural resources as anti-degradation streams are onerous and would be difficult for a large intrusive construction project such as PennEast to realistically satisfy. The NJDEP defines Category one waters as “those waters designated in the tables in N.J.A.C. 7:9B-1.15(c) through (i), for purposes of implementing the anti-degradation policies set forth at N.J.A.C. 7:9B-1.5(d), for protection from measurable changes in water quality based on exceptional ecological significance, exceptional recreational significance, exceptional water supply significance or exceptional fisheries resource(s) to protect their aesthetic value (color, clarity, scenic setting) and ecological integrity (habitat, water quality and biological functions).” Nothing in the DEIS supports the position that the trenching through these streams will not result in a measurable change in water quality or that the proposed mitigation measures would protect their ecological integrity or aesthetic value of these waters.

Since the DEIS contains no information or evidence regarding the effectiveness of FERC’s procedures to successfully mitigate natural resource impacts, we are providing our own investigation which proves that mitigation methods typically recommended by FERC in pipeline construction projects are not successful. An inspection of a section of the recently constructed Tennessee Gas (now Kinder Morgan) Pipeline in the Highlands of northern New Jersey was conducted to evaluate the success of the mitigation performed to reduce adverse impacts to less than significant levels. This pipeline was selected as it has similarities with PennEast regarding steep slopes, mature forest, sensitive wetland resources and anti-degradation streams. The results of the inspection are provided in the following sections.

A Review of Tennessee Gas Pipeline ROW Stabilization and Mitigation Failures in the Highlands of Northern New Jersey.

- **On August 18th, Emile DeVito and Leslie Sauer visited three sites along the recently constructed Tennessee Gas Pipeline in the New Jersey Highlands, constructed adjacent to an existing pipeline and completed in 2013.**
  - **where it crosses Canistear Road in the Newark Watershed near Highland Lakes,**
  - **the Clinton Road crossing at Bearfort Mountain Natural Area in Wawayanda State Park, and**
  - **near Union Valley Road primarily on private land.**

General conclusions from the field inspection:

The three sections of the ROW that we looked at shared many traits in common. All three sites showed signs of severe past erosion. Once they were finally installed and rebuilt, the enhanced stone and soil water bars have been effective. But it is clear that major soil discharges occurred before conditions finally stabilized, and significant impacts to water quality and damage to natural hydrologic conditions in headwater streams occurred through erosion, sedimentation, and increased turbidity. What remains now throughout the steep slopes is a highly mineral soil with few smaller particles and no organic matter (photos 1&2).

East of Canistear Road: Photos 1 & 2

"fragmented rock subsoil, trees growing poorly"

West of the Canistear Road crossing, just upstream from Highland Lakes, there appears to be the remains of a serious sedimentation event in the alder swamp. A large, unnatural depression has been excavated, perhaps to remove sediment deposits and to trap future sediment from entering Highland Lakes. Heavy equipment moving from the ROW to work at this sediment trap caused extreme compaction of the forest floor, so much so that even with sunlight streaming in from the south, virtually nothing has started growing on the forest edge (photo 3).

Just upstream from Highland Lakes (Photo 3).

“virtually no plant colonization due to severe soil compaction in southern exposure at edge of forest”

In addition, much of the ROW is too compacted for good forest regeneration. Some places were extremely compacted such as at Bearfort Mountain. Some of this compaction may have been a deliberate effort to reduce erosion (photo 4).

Bearfort Mountain Natural Area, east of Clinton road, Photo 4

"Highly compacted ORV trail over pipeline spreading knotweed, mugwort, stilt grass into nitrogen-enriched soil throughout entire ROW into Bearfort Mountain Natural Area. Seed mix including clover and trefoil and other nitrogen fixing plants will guarantee spread of invasive species, post-agricultural soil conditions, and virtual impossibility of ever establishing forest conditions beneath tree plantings"

All of the pipeline sections we walked are stabilized against severe erosion at the present time, primarily and unfortunately by mugwort, a mix of mugwort and ragweed, or a mix of mugwort, seeded native and alien herbaceous species, and weedy alien invasives such as stilt grass. Nitrogen-fixing plants like clover, bush honeysuckle and trefoil are abundant and further retard the establishment of native plants. Additional fertilizer was likely added with seeding which further limits native regeneration. The alleged stockpiling of topsoil and site preparation has not served to provide a reasonable growing medium for regenerating the former forest, despite abundant seed sources adjacent to the ROW (photo 5).

East of Canistear Road, Photo 5

“Japanese stiltgrass has colonized above the new pipeline, and is already invading into the nutrient-enriched soil in the tree planting area. This alien invasion in the altered soil will ensure that a native understory can never be recovered in the tree plantings in the temporary work area which was incorrectly deemed to have temporary, restorable impacts .”

While the woody plantings, both original and successive replacement plantings, appear to conform to the No Net Loss requirements in terms of survival, the requirements provide absolutely no chance that a native forest can ever recover on the site. The planted species are locally native, including various oak, maple, and other trees and shrubs, although the siting is sometimes inexplicable, e.g. white oak in a ponded wetland. The extensive planting of ash also seems futile, given that it has been assumed that emerald ash borer will invade the region for many years. Arrowwood viburnum plantings off Canistear Road are infested with viburnum leaf-eating beetles. It is likely that the beetles were brought in on nursery stock, aiding in the threat to local viburnum populations. The mature trees lost on state land are being replaced according to the numerical rule requirement, but no trajectory toward the ecological recovery of a forest ecosystem is apparent at all.

None of the sections we examined is on a trajectory to return to forest, much less anything similar to the forest that was lost. Virtually all of the upland tree plantation is likely to become a failed tree plantation underlain with dense mugwort or another set of alien weeds, with just pure mugwort and other invasive species over the actual pipeline (photo 6).

Along eastern edge of Union Valley Road, Photo 6

“Mugwort abundant throughout entire tree planting area east of union valley road is consuming and out-competing entire tree planting. It is impossible to establish forest conditions with this level of compaction and nutrient-enrichment.”

Giant reed and Japanese knotweed appear to be encroaching toward and replacing tree plantings in forested wetland habitats (photos 7 and 8). Palustrine forest replaced by giant reed represents a serious loss that should be quantified.

(East of Canistear Road, Photo 7)

“New patch of phragmites (giant reed) invading north edge of temporary work area, where intact forest was cleared and is supposed to return”

West of Canistear Road above Highland Lakes, Photo 8.

"Japanese knotweed marching downhill on pipeline corridor will reach wetlands that drain to Highland Lakes in the next growing season (2017). Knotweed has been herbicided, but herbicide failed to control knotweed instead killed only surrounding native plants just exacerbating spread of knotweed toward wetlands. "

The important hemlock forest and rhododendron bog habitats are not able to reclaim the planted areas adjacent to the pipeline, because those areas were so highly disturbed, compacted, and hydrologically altered that now they support dense populations of invasive giant reed (Phragmites) which inhibits the redevelopment of forest conditions. (photo 9).

East of Canistear Road in wetland, Photo 9.

"The left side of the photo reveals the original forest condition of dense shade, dense shrubs, dense understory, low nutrients, low pH, uncompacted and undisturbed soil; compare to the pipeline corridor on right side of the photo with high sunlight, high nutrients, high pH, high compaction (post-construction soil similar to post-agricultural soil), and altered hydrology - therefore high degree of alien species, impossible for native species to compete in the long term."

The lady sipper orchids in the debris next to the ROW will not colonize this landscape; in fact they will be lucky to survive adjacent to vegetation dominated by invasive species. Native regeneration is likely to be compromised for decades. Many areas of mugwort and giant reed elsewhere in the region have remained unchanged for 50 years or more. Sites that undergo soil disturbances such as this, given the ever-increasing abundance of aggressive alien species present throughout the landscape, will not be recovered to native forest.

Even within the 30 years PennEast claims natural regeneration will take place along their pipeline route, they propose no practices in their draft EIS to combat the obstacles to forest regeneration that are widespread across today's landscape.

Much of the giant reed on the Canistear section appears to be the consequence of serious ponding on the ROW due to major drainage modifications to the small stream channel that crosses the pipeline. Winter aerial photos from 2002 clearly show a meandering stream, and this stream configuration has been obliterated by the recent pipeline construction (photos 10 and 11). This may be a result of blasting and/or grading.

Photo 10 : December 2002

Photo 11 : October 2014

Hydrology has been altered significantly; one patch of hemlock/rhododendron forest remaining immediately adjacent to and downstream of the ROW may be deprived of some of its water supply and may suffer in the future. Some of the invasive giant reed has been herbicided, but is rapidly recovering due to ineffective results from the herbicide. (photo 12).

East of Canistear Road, Photo 12.

"Ineffective herbicide control of phragmites; phragmites spreading throughout pipeline ROW wetlands, especially where stream hydrology was altered, soils were compacted, and ruts had formed"

In places where Japanese knotweed has been herbicided, the herbicide treatment was ineffective. All native plants around the Japanese knotweed are dead, but the knotweed is alive, has flowered, and is setting seed, and encroaching toward the wetlands. In other areas, control of Japanese knotweed has not even been attempted, setting the stage for disaster in wetlands along the entire corridor (photo 13). Mugwort has been totally ignored, as if it were a beneficial species (photo 14).

East of Canistear Road – Photo 13

"Japanese knotweed perched on the hilltop, ready to invade wetlands along entire pipeline corridor"

Edge of Clinton Road, Photo 14

"Mugwort being ignored, consuming ROW and tree planting in background.

Other patches of invasive species have been killed, but these areas are now circles of dead vegetation which will be invaded by Japanese knotweed or mugwort, not native plants (photo 15).

East of Canistear Road (Photo 15)

"herbicide has killed all native plants in addition to the target invasive plant, especially warm season grasses. There is no re-planting of natives, and the area will be invaded by aggressive alien species."

Successful elimination of these aggressive alien species, including the abundant, invasive and persistent mugwort and Japanese knotweed, would be almost impossible now without extensive herbicide use or complete regrading and planting.

It should be noted that the current restoration specifications for PennEast are even less likely to foster natural recovery than what was implemented on the Tennessee Gas ROW, which at least included some native grasses and herbaceous native wildflowers in the mix.

PennEast claims in the DEIS that no herbicides or pesticides will be used in the ROW, but it is unclear how they will manage invasives. FERC asked for an Invasives Management Plan before construction, but the public should be able to review that plan now.
The DEIS for PennEast repeatedly claims, as does the FERC, that the Additional Temporary Work Space and Temporary Work Space (ATWS and TWS) will all be allowed to return to forest. These areas are treated as temporary impacts when in fact these are permanent impacts that need to be quantified in the EIS. Only the loss of the permanent ROW is acknowledged in the DEIS. The fact is that all cleared forest is a permanent loss, because of the uncontrolled disturbance using wide ROWs, heavy equipment and completely ineffective restoration specifications.

One small section of the Bearfort Mountain mitigation tree planting located immediately east of Clinton Road offers an image of the future, and it is not forest. The planted trees

are quite large in this small area, and underlain by six foot tall mugwort (photos 16 and 17). These losses must be acknowledged and quantified as impacts.

Along Clinton Road, Photos 16 and 17

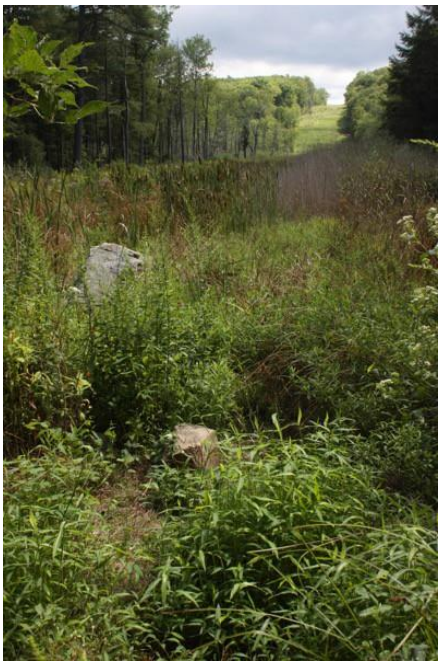
"Bird's foot trefoil enriching soil nitrogen in foreground. Mugwort spreading beneath all planted trees in background, eliminating chance for forest development."

In both directions from the Union Valley Road pipeline crossing, predominantly thick healthy mugwort plants and many other alien species, including black locust trees, are seriously outcompeting all the planted native woody trees and shrubs. The area is also being colonized by invasive Black Locust trees which thrive in these disturbed, compacted soil conditions. The Black Locust trees are growing 10-20x faster than hundreds of native trees that are staked and fenced, while the native plantings are being consumed by the mugwort.

Vast acreages here are on a trajectory to becoming alien invasive weed-dominated corridors, with no chance of ever developing native forest soil types or species assemblages. The best that can be expected are a few scattered trees and shrubs along a wide corridor dominated by aggressive, herbaceous weeds such as mugwort and non-native trees such as Black Locust. The plant communities that will eventually develop in areas that are supposed to return to forest will contain incredibly low species diversity for all native plants and animals, and be composed primarily of alien weeds with little structural diversity or complexity, and be virtually useless for local wildlife and migratory birds and insects (photos 18 and 19).

East of Canistear Road – photo 18

"Japanese stiltgrass & mugwort in foreground, herbicided phragmites still alive in background, entire pipeline corridor destined to become a linear weed patch due to lack of organic material and nutrient-enrichment of entire corridor."



East of Union Valley Road – photo 19

"Mugwort abundant throughout entire tree planting east of Union Valley road, consuming and out-competing entire tree planting. Impossible to establish forest conditions with this level of compaction and Black Locust trees invading.

ORV use on the Bearfort Mountain Natural Area section has led to serious off site damage as well as trails on the pipeline ROW. A gate was earlier installed at the end of a trail in an attempt to keep ORVs out. Another barricade was required when the ORV riders just created a new trail and now they are on their third trail. The ground was muddy and torn up when we were there. ORV use is simply not controlled here, and subsequent damage enters into the forest adjacent to the ROW.

The wetland sections at the Bearfort Mountain Natural Area crossing were also in better condition, possibly due to the use of a construction mat in that area with reduced soil disturbance.

The most successful sections on the ROW are the few small areas where native grasses, panic grass and goosefoot in particular, have become established. These small patches have a chance of returning to a native forest with enough time. The birch naturally colonizing is also likely to be very successful and may overwhelm some of the planted trees. The native sumac also can compete with mugwort often with its underground rhizomes. The rocky blasted areas with rocky debris also have a chance to return to native forest, albeit slowly, due to the low fertility and lack of established weedy species. PennEast also claims it will conform to FERC s requirement to restore native grasslands designated important to birds, but it will have to use better specifications and site prep than was used here.

PennEast has stated it will plant tree seedlings on all federal, state, county municipal and public conservation areas, but has provided no plan or evidence that any of the tree plantings can possibly mature into any habitat resembling native forest (photos 20-22).

Comparison: photos 20 and 21, taken from exact same location looking opposite directions:

"Original hemlock rhododendron forest compared to nitrogen- enriched tree planting with invasive weeds as mitigation"

Photo 20

Photo 21

Photo 22

"Mugwort abundant throughout entire tree planting west of union valley road consuming and out-competing entire tree planting. Impossible to establish forest conditions with this level of compaction and nutrient-enrichment."

FERC requires PennEast to submit a Habitat Restoration Plan before construction, but the public should be able to review it now, especially since the recent pipeline construction ROWs in New Jersey are characterized by weedy disturbance habitats throughout.

In conclusion, a close examination of mitigation measures in a recently constructed interstate pipeline ROW in New Jersey demonstrates that FERC's standard required mitigation measures did not achieve their stated objectives. No evidence has been provided that proposed mitigation measures for PennEast will be successful.