Reasons for the New Jersey Department of Environmental Protection (NJDEP) to Deny Permits for the Northeast Supply Enhancement (NESE) Project

APPLICATIONS FOR NESE DO NOT ADHERE TO REGULATIONS' STANDARDS FOR SURFACE WATER QUALITY

Construction of the NESE Project threatens surface water quality, increased stormwater flooding, and threatened & endangered species and their habitats.

(a) From construction in Raritan Bay -
- **Unearthing toxics above levels acceptable in the regulations**
- **Generating turbidity (clouding the water) that would interfere with designated use of the waters**

(b) From construction of the Madison Loop –
- **Digging in acid-producing soils would result in poor re-vegetation on steep slopes and could lead to excess runoff into wetlands (some of which are classified as "exceptional resource").**

(c) From the design of the retention basin for Compressor Station 206 –
- **This will not adequately address stormwater runoff.**
- **NOTE: Williams/Transco made similar errors that NJ DEP failed to detect and correct in the design and construction of a recent compressor station in Chesterfield Township ("Garden State Expansion" project).**

RARITAN BAY LOOP –

The NESE permit applications violate the Coastal Zone Management Rules, N.J.A.C. 7:7-12.7, and the proposed dredging could affect surface water quality and exceed surface water criteria for toxic substances according to NJ's Surface Water Quality Standards, N.J.A.C. 7:9B (SWQS). Additionally, there are still concerns that have not been adequately addressed about harm to threatened & endangered species from development which lowers the water quality to such an extent as to interfere with the movement of fish along migratory pathways – prohibited under the Coastal Zone Management Rules, at N.J.A.C.7:7-9.5(c).

- The process of installing the pipeline will disturb the toxic-laden sediments at the bottom of the Raritan Bay which will smother marine life dwelling on the floor and elsewhere. The construction of the Raritan Bay Loop in New Jersey, New York and Federal waters would **directly disrupt 87.8 acres of seafloor which now provides cover to years of toxics such as PCBs, mercury and copper** that would be unearthed and result in deposition of toxics on the seafloor. NESE's Final Environmental Impact Statement revealed that construction of the Raritan Bay Loop would result in the **resuspension of 1,091,734 cubic yards of toxic-laden sediment.**

- The proposal to build approximately six miles of pipeline under the Raritan Bay in NJ waters (out of a 23.49 mile pipeline in the NY Bight) will quite likely end up re-releasing arsenic, lead, PCBs and other toxic substances in the sediment back into the Bay. The resuspension of toxic-laden sediments, throughout the dredging and drilling process as well as through the discharge of drilling muds, hydrostatic testing, vessel anchoring and operations, will **significantly degrade the water quality** of the Raritan Bay and result in concentrations, harmful to fish and shellfish, that are detrimental in the short- and long-term.

- The seafloor would be covered by over 1.2 inches of sediment - known to include harmful pollutants - on areas up to 21.7 acres (from clamshell dredging), up to 3.7 acres (from use of a hand jet and submersible pump/suction dredge), and over 183.2 acres (from backfilling over the pipeline).

- Thinner deposits of 0.12 inches or more would cover over 251.7 acres from excavation and another 695.7 acres for backfill (total of 947.4 acres).

- Over 134 acres of NJDEP 2014 hard clam beds would receive some level of additional sedimentation, with 76 acres receiving more than 1.2 inches of sedimentation.

Construction of the Raritan Bay Loop of NESE would violate **NJ's Surface Water Quality Standards.**

- Construction of the Raritan Bay Loop would pollute the water so that their existing uses, such as shellfish harvesting and the maintenance, migration, and propagation of natural and established biota, would be impaired, in violation of Surface Water Quality Standards - N.J.A.C. 7:9B-1.12(d).
- Construction of the pipeline would increase the level of total suspended solids in Raritan Bay to an extent that it would render the water unsuitable for designated uses, in violation of N.J.A.C. 7:9B-1.14(d)(7).
- Construction would also resuspend toxic substances in the water column such that they would be detrimental to the natural aquatic biota, rendering the waters unsuitable for the designated uses, in violation of N.J.A.C. 7:9B-1.14(d)(12).
- Resuspended sediment could also exceed numerical criteria for several contaminants, including mercury and copper, as set forth in N.J.A.C. 7:9B-1.14(d).
- Construction would cause the suspension and eventual deposition of settleable solids in amounts that would be noticeable in the water and on aquatic substrata in quantities detrimental to the natural biota and rendering the waters unsuitable for the designated uses, in violation of N.J.A.C. 7:9B-1.14(d)(3).
- By resuspending sediment in the water column, construction of the pipeline would also exceed numerical criteria for several contaminants, including mercury, set forth in N.J.A.C. 7:9B-1.14(f)(7),(g).

1. Contaminants that would be unearthed, suspended and redistributed in the Raritan Bay exceed "acceptable" levels.

- NJDEP noted that dredging for the Raritan Bay Loop would exceed applicable surface water criteria for the following toxic substances: Bis(2-Ethylhexyl)phthalate, Phenanthrene, Arsenic, Manganese, Mercury, PCBs, and 4,4'-DDE (pesticides).
- Exceedances were found by the NYSDEC for heavy metals (copper & mercury) in New York waters, too.

In the June 5, 2019 letter, the New Jersey Department of Environmental Protection conditionally denied NESE permits for Freshwater Wetlands, Flood Hazard Area, Waterfront (in-water and upland), and Coastal Wetlands with Water Quality Certification.

- One of the reasons was: *"Accordingly, the available information indicates that the proposed dredging could adversely impact surface water quality and that Transco has not sufficiently demonstrated how it would avoid adverse impacts to surface water quality."*
- Another reason given was: *"Transco did not provide modeling to show that turbidity concentrations and water quality parameters for the identified chemicals of concern downstream and upstream of the dredging site will meet the SWQS."*

Since then, Williams/Transco submitted additional documentation, but the NJDEP's conclusions from their review of that information are not yet known to the public.

According to the Coastal Zone Management Rules, N.J.A.C. 7:7 (last amended March 6, 2019) -
7:7-12.7 New dredging
(c) New dredging is conditionally acceptable in all general water areas for boat moorings, navigation channels, anchorages, or submerged cable or pipelines provided:

10. The new dredging shall be accomplished consistent with all of the following conditions, as appropriate to the dredging method:

iii. Turbidity concentrations (that is, suspended sediments) and other water quality parameters at, downstream, and upstream of the dredging site, and discharges from dredged material management areas (see N.J.A.C. 7:7-9.49) shall meet applicable Surface Water Quality Standards at N.J.A.C. 7:9B. The Department may require the permittee to conduct biological, physical**,** and chemical water quality monitoring before, during, and after dredging and disposal operations to ensure that water quality standards are not exceeded

2. The shortening of the in-water construction schedule raises serious concerns about more concentrated negative impacts on water quality from vessel traffic, construction activities and resuspended contaminated sediments, and concerns persist for adhering to time-of-year restrictions to protect threatened and endangered species if the schedule needs to be altered due to unforeseen circumstances.

Under the **Coastal Zone Management Rules,** at N.J.A.C. 7:7-9.5(c), development which lowers the water quality to such an extent as to interfere with the movement of fish along migratory pathways is prohibited.

- **Migratory fish pathways** lie within the water column above the proposed pipeline path, where sediment will be resuspended and where vessels will be travelling to conduct the proposed work. Many of the species will be impacted during their annual migration and spawning season through the water column and not just along the bottom. For example, **winter flounder** spawn from December 15 through May 15 from Raritan Bay to the Ambrose Channel. The **Atlantic sturgeon**, which is on the Federal endangered species list, migrates from March 1 to June 30 into the western part of the pipeline's route, and then returns through the eastern part of the pipeline route from October 1 through November 30.

- The 24 hours/day, seven days/week **construction schedule** for the Raritan Bay Loop of the NESE Project has been shortened several times, but the impact of adding more vessels in more spaces in a shortened time period has not been adequately provided to NJDEP. In 2016, the plan was for 12 months of in-water construction. In 2018, it was shortened to 9 months to try to work around restrictions for construction during times when threatened and endangered species migrate and spawn. Now, they propose to complete all in-water work in 7 months (May 1 to November 25), with an extra month to compensate for any unexpected delays (to December 31). This plan to compress construction into less time is a significant change of plan.

  - Coupled with the fact that Williams/Transco has said that it will *slow down* dredging in some areas to minimize the release of toxic contaminants, skepticism that Williams/Transco could indeed complete this project in seven or even eight months is warranted. Construction delays could result from an extreme weather event, equipment failure, an unexpected difficulty with seafloor geology, etc.

  - Indeed, Williams/Transco experienced such delays during its 2014/15 construction of the Rockaway Delivery Lateral pipeline - to which this NESE pipeline is proposed to connect off the coast of the Rockaways. That project was much shorter, a mere 3.2 miles, yet the delays Williams/Transco encountered meant that its construction went over budget by 79%. These delays stemmed from problems Williams/Transco encountered in executing the horizontal directional drilling part of its construction, and from bad weather, as well as difficulty refurbishing an on-land facility.

  - Delays beyond several weeks for the Raritan Bay Loop of NESE would require that Williams/Transco either speed up the dredging or extend the construction into months that threaten vulnerable marine life.

  - Horizontal directional drilling would also be used for part of the proposed NESE project. Bad weather can occur at any time, but note that the NESE plan calls for work from May 1 through November 25, much of which falls in hurricane season.

  - When they built the Rockaway Lateral pipeline, Williams/Transco ran way over schedule. That's very likely to happen with their current proposal and, if Williams/Transco were to speed up dredging and generate higher levels of toxics and heavy metals, or if Williams/Transco were to extend construction into January and beyond, thereby endangering a number of species, the NJDEP and NYSDEC would have few options to stop them once construction has begun.

Sources:

For problems with the Rockaway Transfer Lateral: Scott Turkington (of Williams) to the Federal Energy Regulatory Commission, letter, April 8, 2015. FERC Accession No. for CP13-38: 20150408-5185(30471014)

For the NYSDEC's concern with construction delays and "time-of-year" restrictions: New York State Department of Environmental Conservation, "Notice of Denial of Water Quality Certification," May 15, 2019, p. 8. https://www.dec.ny.gov/press/117017.html

For Williams/Transco's revised construction schedule: Williams, "Updated Construction Schedule" in File 7 "NESE NOIA Response," https://northeastsupplyenhancement.com/ https://www.dropbox.com/sh/9kdawh8cntme1f6/AACZcnRxtZYjziXSZ9BkYWy1a?dl=0

For the 2016 plan for working 24/7, 7 days a week with a year to completion: Williams, "NESE Resource Report 9," November 2016, p. 32; for 2018 plan for working 9 months: Federal Energy Regulatory Commission, "NESE: Draft Environmental Impact Statement," March 23, 2018, p. 2-52.

3. Suspended sediments are of concern in two ways:

- They create turbidity (cloud the water), impeding the ability of marine life to navigate and to avoid prey.
- They settle on seafloor organisms with the potential of smothering them. Many of these sediments are toxic to marine life and humans.

Suspended sediments can cause both short- and long-term responses/impacts on aquatic biota including social disruption, changes in migratory patterns, displacement of fish, intraspecific aggression, reproductive pairing–spawning success, predator–prey interactions, food web dynamic alternations, larvae disbursement and settlement, reduced hatching success, and direct mortality. (Coen, 1995; Kjelland et al., 2015).

Heavy metals may also negatively affect various metabolic processes on benthonic communities resulting in developmental retardation, high incidences of mortality, hatching delay, altered body-shape, and body anomalies (Sfakianakis et al., 2015).

Recovery from redistribution of sediments from the pipeline construction could take 3 years, or even longer, if the physical characteristics of the habitat are altered (e.g., sediment type, hydrology), resulting in recolonization of different species.

Sources:

Coen, L.D. (1995 January 12). A review of the potential impacts of mechanical harvesting on subtidal and intertidal shellfish resources. South Carolina Division of Natural Resources, Marine Resources Research Institute, James Island, South Carolina, pg. 46. Accessed at: http://portal.dnr.sc.gov/marine/mrri/shellfish/harvester.pdf

Kjelland, M.E., Woodley, C.M., Swannack, T.M. and Smith, D.L. (2015 July 23). A review of the potential effects of suspended sediment on fishes: potential dredging-related physiological, behavioral, and transgenerational implications. Environment Systems and Decisions, 35(3), pp.334-350. Accessed at: https://link.springer.com/content/pdf/10.1007%2Fs10669-015-9557-2.pdf

Sfakianakis, D.G., Renieri, E., Kentouri, M. and Tsatsakis, A.M. (February 2015). Effect of heavy metals on fish larvae deformities: a review. Environmental Research, Vol. 137, pp.246-255.

4. Disturbing toxics and heavy metals from the Raritan Bay Slag Superfund Site remain as a concern.

In their 9/9/19 response to concern #32, submitted to the DEP, Williams/Transco diminished concerns about unearthing and spreading lead from construction in the Bay. Part of the Raritan Bay Loop would go through the Raritan Bay Slag Superfund Site. Lead, arsenic, antimony, copper, iron and chromium, are the primary contaminants contained in slag. Other metal contaminants include manganese, vanadium and zinc.

- Areas 7 & 11 of the Raritan Bay Slag Superfund Site are part of the NESE construction workspace, and toxic levels of lead, arsenic and other heavy metals have been found by the EPA and NJDEP in soils, sediments and surface waters here.
- The Morgan Shore Approach HDD exit pit will disturb lead sediments. This concern cannot be dismissed because the EPA's multi-step remediation plan for the Raritan Bay Slag Superfund Site does not include this area yet.
- The complex currents, eroded slag particles, and dissolved metals from the jetty have not been adequately accounted for in avoidance plans by Williams/Transco or in the impacts from depositing clean backfill on this disturbed area of the seafloor.
- **EPA recommended continued consultation about construction here.**

5. The unique tidal flows in the Raritan Bay do not seem to have been given appropriate consideration.

The toxics and heavy metals that get re-suspended may not so readily settle down in the same locale in the Raritan Bay, and the estimations made for times for turbidity to go back to ambient conditions and their estimates for the likely distances for sediment to drift seem not to have been based on the specific conditions within the Raritan Bay.

- The Raritan Bay is shallow and has a number of different unique current patterns that interact to create a dynamic such that it takes the waters 16 to 21 days to fully flush out.
- At Rutgers, hydrographic studies have found that the mixing of fresh water from Raritan River and saltwater from lower New York Bay creates a large, slow moving counter-clockwise circulation pattern with much back-and-forth movement within Raritan Bay.
- The tides bring water in from the ocean but, as the water nears the mouth of the Raritan River, the current turns and follows the Bayshore toward the east. Pollutants may also get further concentrated along the Bayshore in NJ in a slow moving, clockwise (cyclonic) circulation pattern (an eddy or gyre) which you can see along the muddy flats between Keansburg and the Naval Weapons Station Earle Pier in Leonardo.
- Since the tidal and current patterns of the Raritan Bay are a bit unique, is the modeling done for Williams/Transco adequate for determining how far the suspended sediments might travel and for how long they might remain in the water column?

Sources:

Jeffries, Harry P. (1962). Environmental Characteristics of Raritan Bay, A Polluted Estuary. Accessed at: https://aslopubs.onlinelibrary.wiley.com/doi/epdf/10.4319/lo.1962.7.1.0021

Zimmer, Bonnie J. (September 2004). Raritan and Sandy Hook Bays Sanitary Survey Report 1997-2000 - Water Monitoring Report. New Jersey Department of Environmental Protection. Accessed at: http://raritan.rutgers.edu/wp-content/uploads/2015/10/Zimmer-2004-Raritan-and-sandy-hook-bays-sanitary-survey- report-1997-2000.pdf

According to N.J.A.C. 7:7A, Freshwater Wetlands Protection Act Rules, the Department may not issue a Freshwater Wetlands permit unless the Project -

- will not cause or contribute to a violation of any applicable State water quality standard;
- will not cause or contribute to a violation of any applicable toxic effluent standard or prohibition imposed pursuant to the Water Pollution Control Act;
- will not cause or contribute to a significant degradation, as defined at 40 C.F.R. 230.10(c), of ground or surface waters;
- is in the public interest, as determined by the Department in consideration of the following: The extent and permanence of the beneficial or detrimental effects which the proposed regulated activity may have on the public and private uses for which the property is suited;
- will not involve a discharge of dredged material or a discharge of fill material, unless the material is clean, suitable material free from toxic pollutants in toxic amounts, which meets Department rules for use of dredged or fill material; and
- in accordance with N.J.A.C. 7:7A-2.7, is part of a project that in its entirety complies with the Stormwater Management rules at N.J.A.C. 7:8.

MADISON LOOP SITE –

Difficulty in revegetating acid-producing soil areas after construction threatens nearby wetlands from increased runoff risks.

Given the likely presence of acid producing soil in the areas where HDD is proposed, the permit applications do not meet the **Goals of the Stormwater Management Act Rules** for stormwater management planning found at N.J.A.C. 7:8-2.2(a)(1) - Reduce flood damage, including damage to life and property or N.J.A.C. 7:8-2.2(a)(3) - Reduce soil erosion from any development or construction project.

According to the Coastal Zone Management Rules, N.J.A.C. 7:7-9.39(a), "Special hazard areas include areas with a known actual or potential hazard to public health, safety, and welfare, or to public or private property, such as the navigable air space around airports and seaplane landing areas, potential evacuation zones, and areas where hazardous substances as defined at N.J.S.A. 58:10-23.11b are used or disposed, including adjacent areas and areas of hazardous material contamination." *(underlining added)*

Acid producing geologic materials of both the Raritan and Magothy formations would be encountered when constructing the Madison Loop and onland Raritan Bay Loop trenches and HDDs.

Williams/Transco fails to mention to FERC or the NJDEP the suspected presence of geologic formation of pyritic clay – high acid (pH3) producing soils at the Madison Loop that would not only create a risk from HDD to wetlands and steep slope stability, but introduce new risks to pipeline integrity. Low pH soils are more corrosive to pipelines. Upon exposure to air from trenching, the sulfide minerals in the clays oxidize and produce sulfuric acid. Once these acid producing clays are exposed to air, they will be difficult to stabilize due to the inability of plants to grow and thrive in these soils.

- Importantly, the absence of plants in these areas is frequently related to aluminum toxicity driven by the low pH levels. The incomplete revegetation of this area was noted as apparent in Ruth Foster's 3/11/19 letter to FERC, citing the NJDEP's aerial photography logs that were examined pre-pipeline (1961), and post-construction (1974 through 2017) along the pipeline route that parallels NESE's proposed Madison and Raritan Bay Loops.

- For construction of the HDD segments of the Madison Loop, the NJDEP noted that Williams/Transco would not be able to segregate the acid producing from non-acid producing sediments. According to the 3/11/19 letter to FERC from Ruth Foster of the NJDEP, a notation was made that this meant that "all of the installation sediment cuttings should be considered acid producing here. All the HDD borings indicated Magothy clay at depths the HDD will transverse." Stabilization issues were also noted as a potential concern.

- It is noteworthy that Williams/Transco was aware of concerns about acid soils along the route of the Madison Loop from their Application (7/8/15) and Environmental Assessment (4/4/16) for the New York Bay Expansion Project, CP15-527, but nothing about this was noted in their Applications to FERC or NJDEP for the NESE Project.

COMPRESSOR STATION 206 SITE –

According to the DEP's 7/12/19 letter, Williams/Transco needed to provide additional data to account for discrepancies in soil types between Soil Survey and geotechnical investigation reports that are needed to establish groundwater recharge and existing runoff conditions. ***This was submitted, but –***

On page 6/17 (#17) in Williams/Transco's 9/9/19 responses to comments sent to the DEP, they wrote that the Soil Erosion & Sediment Control Plan was reviewed, approved and certified by the Somerset-Union Soil Conservation District (SCD). However, the DEP's 7/12/19 letter cited above, along with the following information, raises questions about whether or not the SCD had all current and relevant information to make their decision.

It appears that information about the proposed basin at the CS206 site was "updated" after the SCD certified the Plan.

1. ***When did the SCD have accurate information about (a) the "final" design of the basin (<u>bio-retention</u> later changed to <u>infiltration</u>) which was later moved and made smaller, and (b) the soil types?***

6/22/17 via letter dated 6/15/17	Plan submitted by Williams/Transco to SCD
9/21/17	SCD sent Williams/Transco a deficiency letter
2/21/18	AECOM (contracted by Williams/Transco) responded to SCD
3/28/18	SCD certified the Soil Erosion & Sediment Control Plan

- June 2018 & revised August 2018 : AECOM's Stormwater Management Report references the basin as "bio-retention basin"
- June 2019 : AECOM's Stormwater Management Report references the basin as "infiltration basin"
- 8/31/18: Williams/Transco's response to the #9 deficiency from 7/18/18 references the basin as "bio-retention basin"
- 2/6/19: Williams/Transco's letter to DEP about the DEP's 9/27/18 deficiency letter references the basin as "infiltration basin"
- Large drawings and maps from 2018 & 2019 submissions do not consistently indicate when the basin design was changed from bio-retention to infiltration. For example, references to a bio-retention basin/pond are on plans in the August 2018 Stormwater Management Report which is after the SCD issued their certification.

2. ***Design of the infiltration basin still presents issues with its ability to control stormwater runoff in compliance with New Jersey's Stormwater Management Rules.***

- The groundwater table here is high, and bedrock is found shortly below ground level. Flooding at CS206 could impact the plumes of contaminated groundwater at Higgins Farm Superfund Site. Even with the additional reports/analyses, there's no certainty about groundwater mounding & potential modification of contaminated plumes at the Higgins Farm Superfund Site.

- Forests help to address stormwater runoff, and destroying forested land to build the NESE Project would hinder this protection. Removal of 16.6 acres forested land at the CS206 site creates lost benefit of absorbing stormwater & pollutants. Recovery of forested areas that are not permanently removed could take 50+ years.

- Construction of the NESE Project could reduce the capacity of wetlands to buffer flood flow and control erosion. There was no factual determination by Williams/Transco that their Erosion and Sediment Control Plan would ensure that ground or surface water would not be degraded.
- An inadequately designed stormwater infiltration basin would likely create more stormwater flooding to local communities. Issues with the design have been documented in reports from Princeton Hydro.

On page 5/17 (#12) in Williams/Transco's 9/9/19 responses to comments sent to the DEP, they wrote about using excavated soil from the site that would predominantly be sandy silt (not clay) to refute identified issues about the basin design and soil types. However, the reference by Williams/Transco to the test pits (TP) that would be downgradient as not containing clay bedrock raises questions since the following information, from TP logs (2/23/17), is for two of the six TPs they cite as being downgradient:

Test Pit	Depth	Soil Evaluation	Test Pit Depth
TP 1A	6" to 48"	silty claey	6'
TP 1B	8" to 80"	silty clay loam	8'

Of interest – Future test pit reports often do not distinguish the silty loam as sandy or clay in nature.

Considering the identified issues with the design of the infiltration basin at the Compressor Station 206 site, and lack of consideration of the immediate and long-term impacts from all of NESE's pipeline construction, the applications for water permits for the NESE Project do not meet the **Goals of the Stormwater Management Act Rules** for stormwater management planning found at N.J.A.C. 7:8-2.2(a).

Still Need Clarity about Permit Application for Dam Safety:

Williams/Transco applied for a Dam Safety Permit from the NJDEP on or before May 1, 2019 for the proposed stormwater infiltration basin at the CS206 site. The report by their contracted group, AECOM, noted that this application was for a Class III designation dam according to N.J.A.C. 7:20-1.8. However, in the new June 2019 application materials, they assert that the design of the basin does not meet requirements to consider it as a dam.

Additionally, due to the proposed clearing of riparian zone vegetation of three tributaries to Carters Brook to build the proposed access road, the application does not comply with the requirements for a Flood Hazard Area Permit according to N.J.A.C. 7:13-11.2(b)2ii.