

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

A. Construction of a stormwater basin at the proposed Compressor Station 206 site does not include complete plans that account for the specific soil type that exists there.

Issues:

- 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 - 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 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.

B. Impacts to the habitat for the State threatened barred owl as well as protected vernal pool habitats at the proposed Compressor Station 206 site were not adequately assessed or avoided.

Barred Owls:

- The suitability of the site for barred owl led to reclassification of the onsite wetlands to "exceptional resource value," which required a 150-foot transition area.
- Williams/Transco wrongly claims that the Project's impacts to "exceptional resource value" wetlands are essentially *de minimis* by assuming - without providing any supporting data - that all 381 acres of identified forested wetlands within the contiguous area surrounding the site provide suitable Barred Owl habitat.

Vernal Pools:

- Vernal pools qualify as "critical habitat for fauna and flora" under New Jersey Rules, yet Williams/Transco's environmental and wetlands analysis has not addressed the impacts specific to vernal pools and vernal habitats. This is true for BOTH the newly proposed access road via the Higgins Farm/EPA road and the prior proposed road across property owned by Trap Rock.

C. Construction Schedule of the Raritan Bay Loop was reduced from 12 months to 7 months

- 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 construction of the Rockaway Delivery Lateral pipeline - to which this NESE pipeline is proposed to connect off the coast of the Rockaways - in 2014/15. 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 and/or migrating birds.
- 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.

In short, the construction schedule is not credibly designed to ensure that the NESE Project meets water quality standards.

Sources:

For problems with the Rockaway Transfer Lateral: Scott Turkington (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/AACZcnRxtZYziXSZ9BkYWy1a?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.

D. A shortened timeline increases the intensity of work, so the overall impacts will be magnified.

More construction vessels in different parts of the Raritan Bay Loop construction at the same time means more intense construction noise and vessel traffic, all of which threaten aquatic life.

- Williams/Transco has said it will compress its construction time frame by using even more vessels. Williams/Transco always had planned to use many types of vessels to do this work: barges fitted with a number of different mechanisms such as clamshell dredges, pipelay equipment, and cranes; supply vessels and barges; and a variety of support vessels such as tugs, personnel transport, and security boats. To allow for the compression of the construction schedule into seven months, Williams now plans to hire many more of them. For example, three clamshell dredging barges will now work in different portions of the proposed pipeline path simultaneously.
- More vessels mean more noise, and noise damages marine life. Thirty-two species of fish inhabit Raritan Bay and New York's Lower Harbor. Fish are very sensitive to noise and to the vibrations caused by vessel engines. Such disturbances interfere with the ability of fish to feed, spawn, and migrate. Marine mammals and sea turtles are similarly affected.
- More vessels also mean more traffic, and vessel traffic threatens marine mammals. Whales, seals, and dolphins have returned to these waters in significant numbers in recent years. For example, 212 distinct individual whales were spotted swimming and feeding in these waters in 2018. Indeed, on May 27, 2019, a group of New Jersey boaters caught two humpback whales on video in Raritan Bay. All marine mammals are protected from harm by the Federal Marine Mammal Protection Act.
- Williams/Transco has proposed protecting marine mammals by training vessel operators and crews to recognize them in the water and then take avoidance measures like slowing a vessel down or maneuvering it away. But this won't work at night or in bad weather. Moreover, whales in

particular swim for long distances underwater, and the kinds of vessels used to construct a pipeline are not agile or easy to maneuver.

- In addition to fish and marine mammals, the increased density of vessels threatens sea turtles. Four species of sea turtle are found in the region where the pipeline would be built: Loggerhead, Green, Leatherback, and Kemp's ridley sea turtle. In July 2018, a Kemp's ridley sea turtle - the world's most endangered species of sea turtle- laid her eggs on a beach on the western end of the Rockaway Peninsula, which is within close proximity to this proposed pipeline's path.
- All of these species are listed as endangered or threatened. The intense, low frequency noise generated by vessel motors threatens sea turtles, as does the risk of vessel strikes. Turtles enter and circulate through the waters through which the proposed NESE pipeline would pass between early May and mid-November, the period in which most of the construction would occur.

Whales: Williams/Transco's construction schedule calls for trench work below the seafloor in the fall and early winter months, a period when whales are particularly active in the area.

Additionally, the survival of these whales in our waters depends on menhaden, a filter feeder, which will not be able to filter the plankton they feed on because they will be covered with sediment during and after construction.

Sea Turtles: Sea turtles depend on vision to locate prey, and construction's increase in turbidity and suspended sediments could impede their search for food. Additionally, mortality to benthic prey may force them away from their preferred foraging areas, and observers might not see them in waters with increased turbidity. Thus, risks to them from vessel strikes and other impacts would be increased by the NESE Project, and the plan for using observers is not adequate to avoid this.

E. Noise Impacts from Pile Drivings - It is not clear if the construction schedule for these activities has changed with the compressed construction schedule for the Raritan Bay Loop, but the requests for harassment have increased.

Impacts of Noise from Pile Drivings:

Vibratory and diesel hammers are planned for installation and removal of 163 piles as part of the offshore Raritan Bay Loop construction. These pieces of equipment are proposed to be used for 116 to 118 hours:

- In a 7/9/18 E & E memo, labeled INT-1 in the 7/25/18 supplement - Accession No. 20180725-5235(33027058), it was noted: "Transco conservatively estimates a total of 42.5 days (70.25 hours) for pile installation beginning June 6th, 2019 through August 9th, 2019, and a total of 23 days (46.25 hours) for pile removal beginning July 25th, 2019 through August 27th, 2019, to complete the in-water construction activities for 163 steel piles."
- According to the 10/26/18 Acoustic Analysis for Incidental Harassment Authorization memo [FERC Accession No. 20181026-5125(33216020)], it was noted: Duration - "The Project would include the installation and removal of 163 piles. . . . Transco conservatively estimates a total of 4,321 minutes (72 hours) for pile installation, of which 1,875 minutes (31 hours) are impact pile driving and 2,445 minutes (41 hours) are vibratory pile driving. For vibratory pile removal, Transco estimates 2,755 minutes (46 hours)." It was also noted that "Pile installation and removal activities are currently planned for June-September 2020." Of note, now, Williams/Transco anticipates that pile installation and removal will take place during these months but in 2021.

installation for each pile was noted to be 15 minutes for the vibratory hammer (all 163 piles) and an additional 38 to 62 minutes for each installation that would also use a diesel impact hammer (for 34 of the piles), and removal via the vibratory hammer ranging from 5 (?) to 30 minutes for each pile. With the compressed construction schedule, it is not known if this plan has been changed.

Harassment & Injury of Marine Mammals:

Williams/Transco applied for permission to cause disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering [**Level B harassment**] for marine mammals that would be caused by pipeline construction sound in the water as well as **Level A**

harassment which has the potential to injure a marine mammal (permanent hearing loss in a portion of the underwater sound frequency spectrum).

Below are the requests from Williams/Transco in their 6/6/17 and 6/5/19 Draft Incidental Harassment Authorization documents as well as the takes that were allowed in the 3/5/20 Incidental Harassment Authorization that was issued by NOAA's National Marine Fisheries Services - Protected Resources Division.

Level A Harassment	6/6/17 Draft Request	6/5/19 Draft Request	3/5/20 Authorization
Gray seals	0	7	399
Harbor seals	0	16	1,107
Humpback whales - endangered (NJ & NY)	0	0	14

Level B Harassment	6/6/17 Draft Request	6/5/19 Draft Request	3/5/20 Authorization
Gray seals	15	826	1,934
Harbor seals	32	1,780	5,371
Harp seals	4	4	4
Fin whales - endangered (Federal, NJ & NY)	0	5	5
Humpback whales - endangered (NJ & NY)	0	30	35
Minke whales	0	1	1
North Atlantic right whales - endangered (Federal, NJ & NY)	0	2	2
Bottlenose dolphins	46	6,331	6,331
Common dolphins	20	95	95
Harbor porpoises - species of concern in NY & NJ waters	4	11	11

F. Dredging up toxics has not been avoided by construction of the Raritan Bay Loop, and this will likely cause long-term harm that was not accounted for in the applications.

For decades, industrial pollution nearly choked the life out of Raritan Bay and the New York Harbor, but because of strong environmental protections, all that is changing. Once a dumping ground for 275 million gallons of industrial waste per day, these areas have made a miraculous recovery over the last 50 years. Whale and dolphin sightings have skyrocketed - 272 whales were spotted in New York Harbor last year - and water quality has improved tremendously, largely because of the presence of shellfish.

Dredging and vessel traffic to construct the NESE pipeline in waters off our shore will have major impacts to habitats due to the disturbance of shellfish beds and other benthic resources as well as unearthing, suspending and redistributing toxins currently buried beneath the seabed.

As stated in NESE's 1/25/19 FEIS by FERC (page ES-11), "Sediments within Raritan and Lower New York Bays contain contaminants from historical and ongoing anthropogenic sources. Seafloor-disturbing construction could resuspend sediment-bound contaminants into the water column, which could expose biota to contaminants and result in adverse effects. Transco's sediment chemical analysis found that most of the sample sites had at least one contaminant that exceeded upper-level effects thresholds. Concentrations of organic contaminants were greater than upper-level effects thresholds at

approximately 33 percent of the sample sites. Approximately 83 percent of the sample sites had at least one exceedance of an inorganic (metal) threshold.”

Seabed disturbance from construction of this project would have direct impacts that include mortality, injury, or temporary displacement of the organisms living on, in, or near the 87.8 acres of seafloor directly affected by the Project and indirect impacts that include redistribution of sediments that fall out of suspension, which would bury benthic and demersal (bottom dwelling) species, resulting in mortality of eggs and other life stages. Williams/Transco assumes that 947.4 acres of the seabed will be smothered with unearthed and redistributed toxic sediments at a depth of at least 0.12 inches.

The **sediment modeling** does not address the effects of the different toxins in the contaminated sediments to any of the marine species (benthic or pelagic, migratory or otherwise) that may be exposed to those chemicals (including sediment used in backfill), and there is minimal evaluation of the effects otherwise. Such an oversight underscores Williams/Transco’s intentional focus on sediment transport and misdirection away from what is actually in the sediment.

There was no analysis provided to document anticipated **synergistic effects of exposure to a combination of toxins** to any marine species (benthic or pelagic, migratory or otherwise).

The area off the south coast of Staten Island, for example, has unsafe levels of DDT, dioxins, furans, and PCB compounds, while directly south of the beaches of Jacob Riis State Park in the Rockaways, Williams/Transco found toxic metals like arsenic, lead, and mercury. The links between these post-industrial contaminants and both human and animal health are well known.

Furthermore, 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 complex currents, eroded slag particles, and dissolved metals from the jetty have not been adequately accounted for in avoidance plans by Williams/Transco. **EPA recommended continued consultation about construction here.**

The **impact on human health** of these substances is well known. Arsenic, for example, causes a variety of cancers in humans. Lead causes neurologic impairment, especially in children. PCBs enter the food chain. More than 90% of human exposure to PCBs is through food, including fish and shellfish.

Additionally, Williams/Transco plans to release water used in testing the pipeline into the bay. Their plan involves releasing 3.2 million gallons of seawater that was treated with the **toxic chemical CORRTREAT 15316**. According to the Environmental Protection Agency, CORRTREAT 15316 is a highly toxic substance harmful to humans.

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.

While the environmental impacts related to pipelines begin at the construction phase (i.e., removal of seafloor, increases in turbidity and sedimentation), they can persist for years after its completion with detrimental consequences on the stability of aquatic habitats. (Henley et al., 2000; Doyle and Smart, 2001; Kjelland et al., 2015)

Sources:

For historic contamination:

David Stradling (2010). The Nature of New York: An Environmental History of the Empire State. pp. 123-128, 181-184, 217-223.

For improved water quality:

NYC Department of Environmental Protection, 2016 Harbor Water Quality Report.” <http://www.nyc.gov/html/dep/pdf/hwqs2016.pdf>

Henley, W.F., Patterson, M.A., Neves, R.J. and Lemly, A.D. (2000). Effects of sedimentation and turbidity on lotic food webs: a concise review for natural resource managers. *Reviews in Fisheries Science*, 8(2), pp.125-139.

Doyle, R.D. and Smart, R.M. (2001). Impacts of water column turbidity on the survival and growth of *Vallisneria americana* winterbuds and seedlings. *Lake and Reservoir Management*, 17(1), pp.17-28.

Kjelland, M.E., Woodley, C.M., Swannack, T.M. and Smith, D.L. (2015). 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.

G. To reach a conclusion that the impacts on water quality would be short-lived, temporary and localized neglects to consider the unusual tidal flows in Raritan Bay, the chain-reactions from destroyed habitat and food sources for marine life, and the contamination of food sources for marine life and people.

The NY Bight is the healthiest that it has been in decades.

Thanks to legislation like the Clean Water Act and the Endangered Species Act, the water quality of the NY Bight is the healthiest that it has been in decades. A sign of that health is the wide variety of marine animals currently residing in the Harbor.

The waters in Raritan Bay were once referred to as a “dead sea”. After decades of efforts to clean up the waters in the bay, marine life that had once vanished has begun to return. Whales are seen with increased frequency in Raritan Bay, and communities of seals live on Sandy Hook and an island by the Verrazano Bridge.

Source: Brown, D.M., Robbins, J., Sieswerda, P.L., Schoelkopf, R., & Parsons, E.C.M. (2018 January). Humpback whale (*Megaptera novaeangliae*) sightings in the New York-New Jersey Harbor Estuary. *Marine Mammal Science*, 34(1): 250-257.

Currently, Raritan Bay supports a healthy abundance of diverse resident and migratory marine species. These species - many of which are endangered - include, but are not limited to:

- humpback whales, endangered fin whales, and endangered right whales;
 - gray seals, harp seals, and harbor seals;
 - endangered Loggerhead turtle, endangered Green turtle, endangered Leatherback turtle, endangered Atlantic hawksbill turtle, and endangered Kemp’s ridley turtle;
 - endangered Atlantic sturgeon, winter flounder, which is listed as a “high priority” species by the DEC, and the American shad, also listed as a “high priority” by the NYSDEC in addition to being a Federal Trust fish, which means that the Federal government has some responsibility over restoring them; and
 - Shellfish, such as oysters and clams.
- A total of 272 whales were spotted in these waterways last year compared with just five seen in 2011.
 - In July 2018, a Kemp’s ridley sea turtle - the world’s most endangered species of sea turtle - laid her eggs on a beach on the western end of the Rockaway Peninsula, which is within close proximity to NESE’s pipeline path.
 - Dolphins can be seen from the beaches of Rockaways, and boat goers recently reported on pods of dolphins swimming alongside them off the coast of Sandy Hook and Staten Island in Raritan Bay.

We’re seeing a vibrant return of sea life to the waters of the NY Bight that includes Raritan Bay, and that starts all the way down at the bottom with the seafloor. Benthic organisms (a.k.a. the little guys that live on the seafloor) are making a comeback and are a crucial part of the overall health of the harbor.

Oyster reefs, for example, provide habitat for thousands of marine species, can help shield shorelines from storm damage, and filter water - one oyster can filter 50 gallons a day.

In the early 1900s, the combination of overharvesting, toxic pollutants, shellfish diseases, and sediment dredging in the Harbor destroyed the oyster reefs. Oysters and other benthic populations have rebounded due to the Clean Water Act of 1972. This NESE Project would contribute to undoing this progress.

But the construction of the Raritan Bay Loop Pipeline would harm the recovery of these important creatures that are an essential part of the food chain. Dredging causes a major physical disturbance that destabilizes the sediment surface with detrimental impacts for benthonic communities.

Williams/Transco claims they'll fix the contaminated sediment problem by dredging more slowly, but there's no evidence that this would actually solve the problem and not create a whole new set of problems.

At the same time as Williams/Transco is saying they'll dredge significantly slower, they are also proposing to shorten their construction schedule to seven months to avoid work during the window of time-- January through April--in which key threatened and endangered species are protected.

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.

Furthermore, **the economic and social viability of the bayshore community**, previously harmed by toxic dumping and Superstorm Sandy, would be adversely impacted by NESE. The risks from NESE do not support goals of NJDEP's regulations to preserve and protect our environment for the benefit and enjoyment of future generations. Though construction of the in-water Raritan Bay Loop of the NESE Project would last for seven to eight months, the impact from limiting access to the bay and its shore for navigation, commerce, and fishing and recreational activities like swimming, surfing, sport diving, bird watching, walking, boating and whale watching, was not assessed. Additionally, the negative impacts to the Bayshore economy could be felt for many years as a result of unearthed, suspended and redistributed toxins from the seafloor that would harm habitats and enter the food chain. Long-term impacts were not assessed or modeled, and effects on marinelife and the environment from exposure to multiple toxins at the same time was not assessed or modeled. To approve a Project without this information would not protect, conserve and manage the natural resources of the State, and it would not protect the health of residents or ensure that our natural resources are free from interference by pollution and contamination.

Sources:

For fish species in Raritan Bay/New York Lower Harbor: US Army Corps of Engineers, et al, "Hudson-Raritan Estuary Ecosystem Restoration Feasibility Study," February 2017, p. 2-62.

For 2018 whale numbers: Oliver Millman, Oliver. (3 June 2019). 'They are amazed': New York City sees extraordinary leap in whale sightings. *The Guardian*. available at <https://www.theguardian.com/us-news/2019/jun/03/new-york-city-whale-sightings-increase?fbclid=IwAR31nOOF0wXMYIIdAljSDPD0k50tRZ4gHi8loXFMbuMW8UXLngsMk6cGX6g>

For Memorial Day 2019 sighting: Michael Sol Warren, "A pair of humpbacked whales thrilled New Jersey boaters on Memorial Day," May 29, 2019, NJ.com, <https://www.nj.com/news/2019/05/a-pair-of-humpback-whales-thrilled-nj-boaters-on-memorial-day-see-the-video.html>

Kemp's ridley sea turtle sighting: NPS.gov (National Parks Service), October 1, 2018, available at <https://www.nps.gov/gate/learn/news/rarest-sea-turtle-nests-on-queens-beach.htm>

Dolphins seen in Raritan Bay: SI Live (Staten Island), June 11, 2019, available at <https://www.silive.com/entertainment/2019/06/watch-pod-of-dolphins-spotted-swimming-off-staten-island.html>

For endangered/threatened: USACE, "Hudson-Raritan," p. 2-64

For Rockaway Transfer Lateral's cost and schedule overruns: Scott Turkington (Williams) letter to the Federal Energy Regulatory Commission dated April 8, 2015. FERC Accession No. for CP13-38: 20150408-5185(30471014)

H. NESE's Raritan Bay Loop's Undisputed, Devastating Impact on Shellfish Beds and Benthic Communities

For NJ waters, there is no apparent requirement for mitigation of damages to benthic communities caused by construction of the Raritan Bay Loop. It should be noted that the livelihood of those from New Jersey who harvest clams would be sacrificed. Clean Water Clam, which has been harvesting clams in Raritan Bay for four generations, has said that construction on the pipeline would irreparably harm its business.

Additionally, in NY waters, there are many benthic communities that would be harmed or destroyed by construction of the in-water pipeline, and the marine life in NJ waters certainly would be impacted by NESE's construction. Rather than avoid these areas, Williams/Transco assumed "100% mortality of all benthic organisms within the area that would be directly disturbed by the Project activities (trenching and anchoring)," and Williams/Transco is offering to pay a total of \$3,400,000 to the Long Island Shellfish Restoration Project in order to "compensate for Project-related impacts on benthic resources in New York." Williams' price per clam (\$.25) divided into its proposed contribution to the Shellfish Restoration Project (\$3.4 million) amounts to **13.6 million clams killed as a result of this project**. No amount of money could ever make up for the harm that such a loss will inflict on our harbor.

- *Surf Clams*. Populations of surf clam were found at nearly every sampling station east of approximately milepost 25 of the pipeline, and a portion of the pipeline would cross a Special Permit Area where the NYSDEC issues permits for the harvest of surf clams.
- *Hard Clams*. The project route between MP14.00 and MP20.00 near Staten Island will cross an area that the NYSDEC has stated is the most productive hard clam area in Raritan Bay in New York waters.
- *Oysters*. The Lemon Creek Nursery, an oyster nursery installed by Billion Oyster Project in 2017, is in Raritan Bay, off the south shore of Staten Island in close proximity to the pipeline's path. The Governor's Office of Storm Recovery's upcoming Living Breakwaters Project in Raritan Bay off of the south shore of Staten Island - a \$74 million project designed to reduce or reverse erosion and damage from storm waves as well as improve the ecosystem health of Raritan Bay - would also be in close proximity to the pipeline.

Specific Impacts on Benthic Communities

According to the Coastal Zone Management Rules in N.J.A.C. 7:7-9.39(b), "Development of endangered or threatened wildlife or plant species habitat is prohibited unless it can be demonstrated, through an endangered or threatened wildlife or plant species impact assessment as described at N.J.A.C. 7:7-11, that endangered or threatened wildlife or plant species habitat would not directly or through secondary impacts on the relevant site or in the surrounding area be adversely affected."

The project will unavoidably impact soft-bottom benthic habitats. Impacts to benthic resources, including shellfish, need to be fully assessed and mitigated for.

- There was no comprehensive, scientific assessment of the short- and long-term impacts to benthic organism (horseshoe crabs, surf clams) habitat.

Marine life that lives and feeds on the seafloor - clams, oysters and other mollusks, crabs and horseshoe crabs - are particularly vulnerable to the disruptions that the construction of the Williams/Transco NESE pipeline would entail. These species have both ecological and commercial value.

Malin Pinsky, a professor of ecology and evolution at Rutgers University and the author of a recent study about how climate change has reshuffled fisheries, noted that: Shellfish, which are sensitive to both the warming and the higher acidification of seawater as it stores more carbon dioxide, move relatively slowly to escape the threats. Surf clams along the East Coast die when it becomes too hot.

Source: Fialka, John. (2018 April 3). *Fish forced to 'move, die or evolve'* accessed at: <https://www.eenews.net/climatewire/2018/04/03/stories/1060077965>,

FERC estimates it would take these bottom-dwelling species, like clams and crustaceans, 1 to 3 years to recover after construction of the Raritan Bay Loop, but it could be longer factoring in weather, currents and the overall disruption caused by trenching the pipeline.

As stated in NESE's 1/25/19 FEIS (page ES-11), "Direct impacts on offshore resources due to seafloor disturbance would include mortality, injury, or temporary displacement of the organisms living on, in, or near the 87.8 acres of seafloor directly affected by the Project. Indirect impacts would include suspension of sediments in the water column, which could clog fish gills and obscure visual stimuli, and the redistribution of sediments that fall out of suspension, which could bury benthic and demersal species, resulting in mortality of eggs and other life stages. Benthic invertebrates and demersal (bottom-dwelling) fish species in or near areas directly impacted by construction would be most affected. Pelagic fish, sea turtles, and marine mammals could also be affected but would likely temporarily vacate the area to avoid the disturbance." These particular impacts would severely affect not only fish that are present but also impact recruitment and future fisheries either directly (by destroying eggs and spawning habitat) or indirectly (by completely deterring fish from inhabiting and spawning in the area).

Although shellfish (clams and oysters) are capable of filtering sediments and commonly occur in naturally turbid habitats, high sediment loads can negatively affect natural populations and different life-stages (Wilber & Clarke, 2010).

- For example, larval oysters require a clean hard bottom for attachment; therefore, sediment deposited on oyster reefs in layers as little as 1 or 2 mm thick may inhibit its settlement.
- Juvenile and adult oysters and clams experience physiological impacts such as reductions in respiration and feeding rates when growing in areas of high sediment loads.
- Heavy sedimentation on oyster reefs can cause mortality of oysters as well as the loss of the foraging and shelter functions of this habitat for associated fish and crustacean species.
- 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).

Sources:

Coen, L.D. (12 January 1995). 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. (23 July 2015). 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.

Wilber, D.H. and Clarke, D.G. (2010). Dredging activities and the potential impacts of sediment resuspension and sedimentation on oyster reefs. In *Proceedings of the Western Dredging Association Thirtieth Technical Conference*, San Juan, Puerto Rico (Vol. 6169)

Actual Data Shows Long-Lasting Declines in Benthic Communities

- The surf clam population declined after Williams/Transco’s construction of the Rockaway Delivery Lateral Project and has not recovered. Before completion of the Rockaway Delivery Lateral, Williams/Transco found that the Atlantic surf clam was one of the most prevalent species near the Rockaway Transfer Point, and a survey by the New York State Department of State confirmed the persistence of a relatively dense patch of surf clam in New York waters seaward of the Rockaway Peninsula. Notably, post-construction surveys for the Rockaway Delivery Lateral Project found that the concentration of surf clam in this area had declined. A similar fate could befall the many surf clam populations in the path of NESE’s Raritan Bay Loop.

Source: For damage to surf clam population from Williams/Transco’s construction of the Rockaway Lateral Delivery pipeline: letter, Kimberly Ong, NDRC, to Robert Hudgens, NJDEP, May 3, 2019, p. 20.

- Destructive and long-term impacts on benthic communities within a pipeline construction area are well-documented. Shortly after the installation of a natural gas pipeline across a creek in British Columbia, turbidity levels in the creek increased dramatically, and benthic invertebrate abundance decreased by 74 percent. Such effects have been observed to last up to four years after construction.
- At least one study included in the FEIS observed that turbidity has adverse effects on hard clams, a species that dwells throughout this project area. In this study, hard clam adults experienced reduced growth after 2 days of exposure to suspended sediment concentrations of 100 ppm. Hard clam larvae experienced 10 percent mortality after 10 days of exposure to suspended sediment concentrations of 750 ppm.
- 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.
- Depressions left by anchor strikes and cable sweep would likely make it too difficult for harvesting equipment to operate in these areas. In the related case *Islander East vs. Gina McCarthy*, a fisherman observed that this detrimental anchor strike scarring persisted over a period of four years. The U.S. Second Circuit Court of Appeals remarked that this alone was grounds for ruling against the pipeline.

I. Williams/Transco has not sufficiently identified permanent, temporary, and secondary/indirect impacts from onland construction, and they have not shown plans to avoid and/or mitigate these impacts.

Both the Compressor Station 206 and Madison Loop are considered to be “major developments” under the Stormwater Management rules, and the entire NESE Project needs to be in compliance with the Stormwater Management rules.

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.

- With planned trenching and HDD construction of parts of the Madison Loop through or near toxic sites, the applications for 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)(6) - Prevent, to the greatest extent feasible, an increase in nonpoint pollution.
- 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)

i. Acid Producing Soils:

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.

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.

- 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 the following were not noted in their Applications to FERC or NJDEP for the NESE Project.

In their Application for CP15-527, Williams/Transco wrote the following in Section 7.4.6 Acid Producing Soils -

The geologic units in the New Jersey Coastal Plain province which are capable of producing acid conditions in the soil included the Raritan, Magothy, Merchantville, Woodbury, Englishtown, Marshalltown, Navesink, Red Bank and Kirkwood Formations. The Project area for Station 207, the Morgan M&R Station, and the LNYB Replacements are located on the Magothy formation, an acid producing soil (NJGS, 2009).

Prior to ground breaking in the Project areas, pH testing will be needed to determine if acid producing soils are present and if so, to define the limits of acid soils in the excavation areas. Because of the ability of acid producing soils to impact water quality and alter natural communities, additional mitigation measures may be required, including topsoil dressing and extensive liming. In addition, a 150-foot riparian zone is required on any segment of water flowing through an area that contains acid producing soils. Should pre-construction testing confirm the presence of acid-producing soils this state regulated buffer will be implemented; however, if not present, Transco will coordinate with the New Jersey Department of Environmental Protection (NJDEP) to determine if the standard 50-foot buffer can be implemented at the one stream crossing and the adjacent intermittent drainages situated onsite.

In the Environmental Assessment for CP15-527, FERC wrote in 2.2 Acid-Producing Soils (pg.

15) -

The Project area for Compressor Station 207, the Morgan M&R Station, and the LNYB Replacements are located on the Magothy formation, an acid-producing soil (NJGS, 2009). Prior to construction in the Project area, Transco would conduct pH testing to determine the location of acid-producing soils. Because of the ability of acid producing soils to impact water quality, alter natural communities, and impact the facilities, if acid-producing conditions are encountered Transco may employ mitigations measures including topsoil dressing and extensive liming.

In a review of documents for the CP15-527 Project on the FERC docket, nothing indicates that Williams/Transco actually completed pH testing before replacing the pipeline in Old Bridge/Sayreville for the New York Bay Expansion Project.

ii. Data about and from borings along the Madison Loop raise concerns that complete information about impacts to/from wetlands, watercourses, and acid producing soils was not provided to NJDEP.

In their application, AECOM noted that borings were not completed along all sections of the Madison and Raritan Bay Loops. Most borings were completed to provide information to Laney about possible HDD construction.

AECOM noted that they did not complete hydrometer testing or permeability testing as part of their study of borings, and they relied solely on soil classifications for calculations. This was done even though they also acknowledged that the aquifer thickness contributing to the flow is generally unknown, and the anticipated soil conditions in the area are heterogeneous. Even recognizing this, they used average permeability coefficients from the separate soil classifications.

- No borings or reports from borings done for this Project or from prior projects in the area of the Madison Loop were provided as part of the NESE applications to NJDEP from MP 8.57-8.9, 9.11-9.27, and 9.29-9.59 where it was documented that construction would encounter wetlands and watercourses. Additionally, concerns about contamination from the Road Depot Garage Area 3-1 at MP 9.5 and from the E.I. DuPont DeNemours & Co. site at MP 9.21 and 9.32 were not addressed with analyses of borings in these areas.
- No borings or reports from borings done for this Project or from prior projects in the area of the Madison Loop were provided as part of the NESE applications to NJDEP from MP 10.07-11.17, 11.29-11.79, and 11.81-12.00. Again, these areas cover wetlands and watercourses, and the pipeline construction would cross areas of identified contamination such as from the Global Sanitary Landfill (MP 10.13-10.38), E.I. DuPont DeNemours & Co. site (MP10.05-10.31) and the identified Historic Landfills at Mileposts 10.17, 10.65-10.68 and 10.77.

iii. Construction of the Madison Loop is planned to go through or near other toxic sites -

- a. Road Department Garage Area 3-1 near MP 9.5;
 - b. Global Sanitary Landfill Superfund Site which is less than 0.1-mile south of MP 10.13 to 10.38 of the Madison Loop which is an NJDEP Classification Exception Area (CEA) which also acts as a Well Restriction Area (WRA);
 - c. E.I. DuPont DeNemours & Co. site with groundwater known to contain VOCs and metals that is currently being remediated in areas of the Madison Loop at MP 9.20-10.31;
 - d. Morgan Ordnance Depot north of MP 11.10 of the Madison Loop that may have contaminated soil and unexploded munitions;
 - e. Morgan Fire House at MP12.0 which, though listed as inactive, is <0.1 mile south of the proposed pipeline route;
 - f. 1788 Route 35 in Sayreville at MP12.0;
 - g. Historic Fill areas (known ones are listed at MP 10.24-10.34, 11.17-11.25 & 11.62-11.78); and
 - h. Reclamation Technologies which is less than 0.1 miles from the Madison Loop at 3200 Bordentown Ave. in Old Bridge
- Given that both the E.I. DuPont DeNemours and the Global Sanitary Landfill sites are Classification Exemption Areas and Well Restricted Areas, and given the likelihood of encountering contaminated soil and/or water, there is the possibility that construction in these areas would exacerbate contamination. This did not seem to have been adequately addressed in the permit applications.
 - In their applications, there was no documentation about the actual known contaminated plumes (spread and depth) for the identified toxic sites within ¼ mile of the Madison Loop (except for a verbal assertion that the DuPont site's contamination is 150' bgs), and there was no investigation to determine if there were more Historic Fill areas beyond those identified by NJDEP maps.

- The **NJDEP's Statewide PFAS Directive, Information Request and Notice to Insurers** (3/25/19) includes the Parlin E.I. DuPont DeNemours site, and it was noted that a recent sampling there had GenX in several monitoring wells. This is a site where they produced nonstick Teflon, camera film, car paint and blended fluoropolymers, and PFAS were/are found in the surrounding soil, water and air. As noted in the NJDEP's Directive, PFAS compounds are extremely resistant to metabolic and environmental degradation (persist indefinitely in the environment), and they bioaccumulate (resulting in buildup of these toxins in living tissue). The Directive also notes that some PFAS are classified as likely carcinogens, and studies indicate that exposure may cause cancer (testicular, kidney & liver), autoimmune and endocrine disorders in adult, developmental effects during pregnancy in fetuses or to breastfed infants, and other associated human health effects including reduced vaccine response and increased cholesterol and liver enzymes. Thus, more careful review of information from EPA for this site seems to be warranted before rendering a decision on the permit applications, and NJDEP should consider all information received in response to the Directive for this site as part of the permit review process as well as post their review and decision-making inquiry about it.
- When Williams/Transco did pipeline work as part of their NY Bay Expansion Project in this area, they actually encountered contaminated groundwater from the Global Sanitary Landfill between Mileposts 10.0 and 10.4. They did not address this in their current NESE Application to NJDEP or to FERC, and FERC told them to update their Materials & Waste Management Plan to anticipate encountering contaminated groundwater along the Madison Loop because they did before. Their update was noted to have been published in the May 11, 2018 supplemental information provided to FERC.
- At the Global Sanitary Landfill area, Williams/Transco noted in their 6/1/17 report to FERC for NESE that they did not anticipate encountering contaminated groundwater. The water table here was reported to be 4' bgs, and trenching is anticipated to be 8' bgs. The depth to contaminated groundwater at this area was not reported from a current report from those who continue with remediation activity here. It was also noted that Global's contaminated area was less than 100-feet south of the Madison Loop.
- The HDD planned for the Parkwood Village area was reported by Williams/Transco to FERC to have a maximum depth of 60' to 80' bgs, and Williams/Transco acknowledged that they would likely encounter groundwater here from the Road Department Garage Area 3-1 site.
- The HDD crossings at Cheesequake Road and Parkwood Village are in the area of known contamination from E.I. DuPont DeNemours and the Global Sanitary Landfill, and this would be approximately 75-feet bgs. The depth for the Madison Loop's new pipeline, where it would cross the existing 42-inch Lower Bay Loop C pipeline in two places in Old Bridge and two places in Sayreville, wasn't clear from publically-available information, but it was noted that there would be a vertical separation from the existing pipeline that is 4-feet bgs of 40-feet at Cheesequake Road and 50-feet at Parkwood Village. HDD construction for Cheesequake Road is proposed from MP 8.92 to MP 9.28, and HDD construction for Parkwood Village is proposed from MP 9.42 to MP 9.86.
- The spread of toxic soil and groundwater from the DuPont site is a concern here since, near Milepost 9.60, groundwater is 42' to 45' bgs, and near Milepost 9.74, groundwater was found at 55' to 71' bgs. In their 6/1/17 report to FERC, Williams/Transco acknowledged that groundwater contamination could be present in construction areas going through the DuPont site, but in their application to the NJDEP, they noted that groundwater contamination at the DuPont site is 150' bgs without providing supporting documentation. HDD construction for Parkwood Village is proposed from MP 9.43 to MP 9.86.
- Historic Fill areas, mapped by NJDEP for areas over 5 acres, were identified as potential sources for groundwater contamination, but no details about exploratory testing were provided, and Williams/Transco noted that there could be more sites like this along the pipeline route that were not mapped by the NJDEP. In their supplemental submission to FERC (5/11/18), Williams/Transco noted

that Historic Fill areas were at Milepost 10.24 to 10.34 in Old Bridge and at Mileposts 11.17 to 11.25 and 11.62 to 11.78 in Sayreville. They did not know the direction (upgradient or downgradient) from the proposed Madison Loop. HDD construction for the Lockwood Marina is proposed from MP 11.49 to MP 11.84.

iv. Incomplete Information about Spread and Depth of Contaminants from the E.I. DuPont DeNemours & Co. Site, Road Depot Area 3-1, and Identified Historic Fill Areas

1. For the applications for permits from the NJDEP, there was no assessment by Williams/Transco of the groundwater contamination at and from the 230-acre E.I. DuPont DeNemours & Co. site in Parlin. Found in the description of this site provided in the suit, *NJDEP v. E.I. DuPont DeNemours & Company* (3/27/19), the Parlin Site was comprised of approximately 350 acres until 2008, when the DuPont Defendants donated approximately 120 acres located along the eastern edge of the Site to the Borough of Sayreville for use as greenspace. Today, the Parlin Site is comprised of approximately 230 acres.

According to EPA website information, “photographic films, automotive paints, pigments, adhesives, thinners, finishes and related specialty products” were manufactured at this chemical manufacturing plant since 1904 and, since 1991, the facility modified its operations to manufacture “Cyrel flexographic printing plates used for the printing industry, Teflon nonstick coatings for cookware and electronic resins for the computer industry. DuPont used to store hazardous waste in containers, but the containers were removed and the area was clean closed.” ... “The groundwater at the DuPont facility is contaminated with volatile organic compounds (VOCs) such as benzene, trichloroethene, 1, 2-dichloroethane and vinyl chloride. The VOCs have been detected in the shallow and deeper groundwater beneath the site, as well as at off-site deeper groundwater locations.” In FERC’s 3/23/18 DEIS (page 4-233) and in their 1/25/19 FEIS (page 4-250), it is clarified that “the E.I. Dupont Denemours and Company property is located about 1.2 miles northwest of the Madison Loop. Although the site is located greater than 0.25 mile from the Project, **this site contains an active NJDEP CEA and WRA due to VOC and metal contamination in groundwater that overlaps the Madison Loop between approximate MPs 9.2 and 10.3** (NJDEP, 2016d) and was identified by Transco as a potential site for further investigation (NJDEP Site Remediation Program ID Number 008222) (NJDEP, 2016c). Transco identified three groundwater monitoring wells associated with the E.I. Dupont Denemours and Company site near MP 10.2, and one groundwater monitoring well near MP 9.9 along the Madison Loop.” (bold & underlining added)

Cited references:

New Jersey Department of Environmental Protection. 2016d. NJ-Geo Web. <http://www.nj.gov/dep/gis/geoweb splash.htm>.

New Jersey Department of Environmental Protection. 2016c. Open Public Records Act, Data Miner. http://datamine2.state.nj.us/dep/DEP_OPRA/.

Concerns about contamination from the Road Depot Garage Area 3-1 at MP 9.5, identified Historic Landfill at Milepost 10.17 and from MP 10.11 to 10.44, and from the E.I. DuPont DeNemours & Co. site from MP 9.21 to 10.31 were not addressed with analyses of borings in these areas for soil and/or groundwater contamination.

- No borings or reports from borings done for this Project or from prior projects in the area of the Madison Loop were provided as part of the NESE applications to NJDEP from Mileposts 9.11 to 9.25, 9.27 to 9.45, 9.84 to 10.04, and 10.08 to 11.15 where it was documented that construction would encounter some wetlands and watercourses.
- The plans of Williams/Transco are to use HDD at Cheesequake Road from MP 8.92 to MP 9.28, and this segment crosses wetlands and watercourses.
- The plans of Williams/Transco are to use HDD at Parkwood Village from MP 9.42 to 9.86. In their Responses to FERC’s 5/11/17 Data Request, Williams/Transco wrote that “the Parkwood Village HDD is proposed to a maximum depth of approximately 60 to 80 feet bgs, which is likely to encounter groundwater, based on the geotechnical boring results.”

Source: FERC Accession No. 20170601-5277(32193497) - answer to item #15 in Resource Report 2: Water Use and Quality - Groundwater.

- Cheesequake Road’s HDD depth of construction is anticipated to cross an existing pipeline that is 4’ bgs with a separation of 40’, and a separation of 50’ between the proposed Madison Loop and the existing pipeline is anticipated for the Parkwood Village’s HDD crossing.
- Borings completed to establish feasibility of using HDD in this area revealed groundwater depths that are provided below. The purpose of the borings was to identify soil types and groundwater levels. It was not to identify contaminants in the soil or groundwater.

Boring	Milepost	Estimated Groundwater Depth (feet below ground surface) BGS	Estimated Groundwater Elevation (feet)
CB-3	8.97	44.0	22.3
CB-2	9.08	12.9	56.2
CB-1	9.26	NM (after drilling 113.4’ down) & see NOTE	See NOTE
AB-1	9.46	4.5	80.4
AB-2	9.60	45.0	60.2
AB-3	9.74	55.0	63.9
AB-4	9.83	9.6	110.6
B-1	10.05	10.8	not reported
B-2	10.07	5.0	not reported

Source: Table 2.2.2 in Williams/Transco’s 5/11/18 supplemental filing to FERC - Accession No. 20180511-5170(32881776) & (32881807) and in Table 1 of applications to NJDEP for Dewatering permits (3/15/18) where there’s a NOTE for Boring CB-1: “Groundwater level could not be measured due to the drilling method, and groundwater was not encountered until the depth of 31 feet during the drilling (i.e., groundwater level is deeper than 31 feet BGS).

- It is also noteworthy that, in Table 4 - Summary of Geotechnical Testing and Estimated Permeability - from the Dewatering permit applications submitted to NJDEP on March 15, 2018, Borings CB-2, CB-3, AB-1, AB-2, AB-3 and AB-4 were in the Magothy geological formation (i.e., acid producing soil possibility).
2. For the applications for permits from the NJDEP, there was no acknowledgement or assessment of the presence of PFAS in the area of the proposed Madison Loop that would overlap the NJDEP Classification Exemption Areas (CEA) and Well Restricted Areas (WRA) of the E.I. DuPont DeNemours & Co. site.
- Contamination and continuing remediation efforts at the Parlin E.I. DuPont DeNemours site were highlighted in the **NJDEP’s Statewide PFAS Directive, Information Request and Notice to Insurers** (3/25/19). Here, it was noted that a recent sampling there had GenX in several monitoring wells. As noted in the NJDEP’s Directive, PFAS compounds are extremely resistant to metabolic and environmental degradation (persist indefinitely in the environment), and they bioaccumulate (resulting in buildup of these toxins in living tissue). The Directive also notes that some PFAS are classified as likely carcinogens, and studies indicate that exposure may cause cancer (testicular, kidney & liver), autoimmune and endocrine disorders in adult, developmental effects during pregnancy in fetuses or to breastfed infants, and other associated human health effects including reduced vaccine response and increased cholesterol and liver enzymes.

Accessed Directive at: <https://www.nj.gov/dep/docs/statewide-pfas-directive-20190325.pdf>

- In the suit, **NJDEP v. E.I. DuPont DeNemours & Company** (MID-L-002448-19 03/27/2019 9:15:36 AM Trans ID: LCV2019540723), the history and contamination at this site and in surrounding areas was clearly noted. Additionally, the following are only a few of the presented facts from that filing that are relevant to considering permit applications for NESE:
 - October 2018 groundwater sampling within the CEA established at the Site, described in further detail, infra, as well as outside the CEA, demonstrated elevated PFOA concentrations along the Parlin Site southern boundary (wells ranging from 40-400 or 400-4,000 ppt) and wells east of the Site boundary inside and south of the CEA, with PFOA concentrations ranging from 40-400 ppt. Testing at nine wells on-Site also showed detectable concentrations of GenX. (#153, page 41)
 - Presently, the remedial action taken for off-Site groundwater is proposed to be monitored natural attenuation (“MNA”), which allows natural biological, chemical, and physical processes to treat groundwater contaminants, and involves ongoing monitoring to verify that these processes are effective. However, testing is showing that the MNA is not proving to be effective, and will likely not be effective in the future, as concentrations of VOCs are not declining in all wells and, in some cases, concentrations of certain constituents, such as TCE, are actually increasing. Furthermore, as PFAS compounds do not breakdown naturally, MNA would not be an effective treatment for that contamination. (#158, pages 42-43)

Accessed from: https://www.nj.gov/oag/newsreleases19/Parlin_Filed-Complaint_and_Jury-Demand.pdf

v. Incomplete Information about Spread and Depth of Contaminants from the EPA National Priorities List (NPL) Global Sanitary Landfill Site

The EPA National Priorities List (NPL) database indicates that the Global Sanitary Landfill, located along Ernston Road in Old Bridge Township, New Jersey, is less than 0.1 mile south of MP 10.13 to MP 10.38 of the Madison Loop (EPA 2016a).

Source: Application to FERC on 3/27/17 - page 7-30 in Resource Report 7 - Soils - FERC Accession No. 20170327-5102(32053898)

Cited Source: U.S. Environmental Protection Agency (EPA) 2016a. Superfund National Priorities List Sites-by State. <https://www.epa.gov/superfund/national-priorities-list-npl-sites-state>. Accessed January 3, 2017.

On page 4-249 in FERC’s 1/25/19 FEIS for the NESE Project, it was noted: “The CEA and WRA for the Global Sanitary Landfill site are now located less than 100 feet south of the Madison Loop (NJDEP, 2016d).”

Cited Source: New Jersey Department of Environmental Protection. 2016d. NJ-Geo Web. <http://www.nj.gov/dep/gis/geoweb splash.htm>.

In their 3/27/17 application to FERC, Williams/Transco wrote the following about the Global Sanitary Landfill in Resource Report 2 - Water Use and Quality (pages 2-27 to 2-28): “The CEA has a groundwater restriction depth from the ground surface to 25 feet bgs in the upper water-bearing zone and from the ground surface to 150 feet bgs, depending on contamination depth, which is in the lower water bearing zone (NJDEP 2016b).”

Source: FERC Accession No. 20170327-5102(32053885)

Cited Source: New Jersey Department of Environmental Protection (NJDEP). 2016b. NJ-Geo Web. <http://www.nj.gov/dep/gis/geoweb splash.htm>. Accessed January 3, 2017.

vi. Potential encounter of contaminated soil and/or groundwater near the Global Sanitary Landfill, along with accurate measures of depth to groundwater in this area, was not studied in applications to NJDEP for the Madison Loop, and reports of depth to contaminated groundwater were not consistent.

- No borings or reports from borings done for this Project or from prior projects in the area of the Madison Loop were provided as part of the NESE applications to NJDEP from MP 10.08 to 10.38. These areas cover wetlands and watercourses, and the pipeline construction could cross areas of identified contamination from the Global Sanitary Landfill between Mileposts 10.13 and 10.38, and at the identified Historic Landfills at Milepost 10.17 and from MP 10.11 to 10.44.
- Borings were completed to establish feasibility of using HDD and to identify soil types and groundwater levels. They were not to identify contaminants in the soil or groundwater.
- Trenching in the area by the Global Sanitary Landfill is expected to be approximately **8 feet bgs**.
- In their 3/15/18 applications to NJDEP for Dewatering permits, Williams/Transco's contracted group, AECOM, wrote that Global said the depth to contaminated groundwater was **150 feet bgs** from a personal conversation. There was no evidence provided to validate this assertion.
- According to Williams/Transco, the "water table along the Madison Loop near the Global Sanitary Landfill site was initially expected to be greater than 8 feet deep due to depth to water measurements collected from groundwater monitoring wells MW-8D, MW-8S, and MW-13S along the northern property boundary of the Global Sanitary Landfill site in 2015 and 2016. However, based on site conditions from recent construction and dewatering activities of the New York Bay Expansion Project, the **water table is actually higher, at a depth of 4 feet**. Transco is currently evaluating potential dewatering solutions and will provide additional details regarding how dewatering will be conducted in the Materials Management Plan."
Source: FERC Accession No. 20170601-5277(32193497) - answer to item #15 in Resource Report 2: Water Use and Quality - Groundwater. (bold added)
- Of note, only the groundwater monitoring well MW-13S, a Low Water Bearing Zone well, is near the existing Williams/Transco pipeline which runs along the northwest area between the Global site and a former sand borrow pit in this area where Global's CEA and WRA are located less than 100 feet south of the Madison Loop (NJDEP 2016b). The other wells (MW-8D and MW-8S) are on the northeast side of the Global site. Data from the only 5-year review of the Global Sanitary Landfill, completed in 2015 after the cap was in place, found VOCs, benzene, chlorobenzene, aluminum, arsenic, lead, iron, manganese and sodium at or above Ground Water Quality Standards (GWQS) in all UWZ wells (in organic-rich meadow mat areas). Exceedance of GWQS levels was found for 1,4 dioxane in all wells except MW-3S&R, MW-6S and MW-7S. The wells near the proposed Madison Loop are MS-7S, MW-7D and ME-13S.
Source: First Five-Year Review Report - Global Sanitary Landfill Superfund Site - Old Bridge Township, Middlesex County, New Jersey (7/20/15) Prepared by U.S. Environmental Protection Agency Region 2 New York, New York. Accessed at: <https://semspub.epa.gov/work/02/334104.pdf>

The NJDEP certainly should have access to reports of monitoring at this site, and the NJDEP certainly has a duty to validate any claims before determining whether or not avoidance or other actions would be required to safely excavate and dewater in the area near the Global Sanitary Landfill.

vii. Re-Grading Steep Slopes

In their answer to FERC's Request #10 (7/25/18), Williams/Transco noted that they would re-grade the area between MP 9.37 and MP 9.45 due to steep slopes, and they would spread approximately 3,700 cubic yards of excess fill across the downslope of the right-of-way (ROW) over their existing Lower New York Bay Loop C in this area.

Source: FERC Accession No. 20180725-5235(33027056).

- Of note, this is within the NJDEP CEA and WRA area of the Parlin E.I. DuPont DeNemours site's anticipated contaminated groundwater that would overlap the proposed Madison Loop according the DEIS, and the beginning of the Parkwood Village HDD is said to be at MP 9.43.

- Boring AB-1 at MP 9.46 is the closest boring to this slope re-grading area, and groundwater was encountered here at 4.5 ft bgs. Additionally, the geological formation for this boring was listed as Magothy (acid producing).
- Diagrams for other borings listed below all indicate that drilling and trenching would be through Magothy formations: Borings CB-1, CB-2, CB-3, AB-1, AB-2, AB-3, AB-4, and MDB-1.

viii. Other Considerations:

- In New Jersey, the year 2018 had more precipitation than in any other year since record-keeping began in 1895.
- In New Jersey, efforts have slowly improved water quality of our rivers, lakes and other bodies of water since the 1972 Clean Water Act, but current reports indicate that 65% of these waters cannot support drinking water supplies, 75% can't be used for recreation, and 85% can't support aquatic life.

Source: *Surface Water Quality- Rivers and Streams: Chemical and Physical Measurements - Updated 8/2017 Environmental Trends Report NJDEP, Division of Science, Research, and Environmental Health.* Retrieved from <https://www.nj.gov/dep/dsr/trends/surfacewater-physical.pdf>

- Though it is not a definite plan, Trap Rock Quarry (adjacent to the proposed Compressor Station 206 site) is a potential future reservoir (after 2040) in the State's Master Water Plan. Airborne toxic emissions could hinder the feasibility of using water for drinking from that.

ix. HDD is not a perfect technology:

- The NJDEP well knows from Williams/Transco's other failures in our state that HDD is not infallible and HDD failure and "inadvertent discharges" of drilling mud are a risk. In addition, pipeline disasters in other states underscore the need for NJDEP to be concerned. For example, the Rover pipeline had a spill of over 5 million gallons of drilling fluid - suffocating and permanently destroying wetlands. In Pennsylvania, the Mariner East pipeline received a \$12.6 million penalty and a permit suspension as a result of dozens of violations.
- Until such time as New Jersey can update its regulations to address HDD failure, the NJDEP can, in accordance with N.J.A.C. 7:7A-13.2, establish permit conditions that require a contingency plan to assure compliance with "all applicable requirements of the Federal Act, the Freshwater Wetlands Protection Act, the Water Pollution Control Act, this chapter and other applicable rules or regulations." Simply put, Williams/Transco must have an emergency HDD failure plan in place that meets all NJDEP standards.