July 13, 2019

Karen Gaidasz, Project Manager
Major Projects Management
NYSDEC - Division of Environmental Permits
625 Broadway, 4th Floor, Albany, NY 12233-1750

Re: Comments on the Water Quality Certification Application of the Northeast Supply Enhancement (NESE) Project, ID No. 2-9902-00109/00006 WQC

Dear Ms. Gaidasz:

Thank you for the opportunity to comment on the May 17, 2019 water quality certification application submitted by the Transcontinental Gas Pipe Line Company, LLC ("Transco")[1] for the Northeast Supply Enhancement Project ("NESE" or the "Project"). These comments are submitted on behalf of the Natural Resources Defense Council ("NRDC") and its 130,000 members and activists who live in New York State. In brief, NRDC writes to urge the New York State Department of Environmental Conservation ("DEC," or the "Department") to deny water quality certification to the NESE pipeline, as the pipeline has failed to demonstrate that it will satisfy New York state water quality standards as set forth in 6 NYCRR § 608.9.

As you are aware, on May 16, 2018, Transco submitted a water quality certification application for the NESE pipeline (the "2018 Application"), to which NRDC submitted comments. On May 15, 2019, the Department denied that application. Following the Department's denial, on May 17, 2019, Transco submitted a new water quality certification application (the "2019 Application"). This application included by reference the May 16, 2018 water quality certification application and provided supplemental information responding to the Department's May 15, 2019 Notice of Denial. NRDC now submits comments to the 2019 Application. NRDC's comments to the 2018 Application remain pertinent to DEC's evaluation of the 2019 Application, and are therefore incorporated and attached to this letter as Attachment A. Those still make up the bulk of NRDC's comments on the 2019 Application. This letter

[1] Transco is a subsidiary of Williams Companies, Inc. ("Williams").

focuses solely on the supplemental application materials provided by Transco as part of its 2019 Application.

Specifically, this letter adds three points to NRDC's original comment letter. First, the Department should still rely on modeling conducted in Transco's 2018 application, which predicts several violations of state water quality standards. Second, even if the Department were to rely only on Transco's supplemental modeling results, which it should not, Transco's updated modeling still predicts that pipeline construction could lead to violations of state standards for turbidity and sedimentation. Finally, Transco's analysis of greenhouse gas emissions associated with the pipeline is not reliable.

I. The Department's May 15, 2019 Denial

On May 15, 2019, the Department issued a Notice of Denial, denying without prejudice Transco's 2018 water quality certification application. In its letter, the Department lays out several bases for its denial. First, the pipeline would likely cause significant resuspension of sediments, causing turbidity and deposition in violation of 6 NYCRR § 703.2.[2] Second, construction of the pipeline would likely cause significant resuspension of toxic contaminants, in violation of 6 NYCRR § 703.5.[3] Finally, the pipeline would harm habitats due to the disturbance of shellfish beds and other benthic resources, impairing the waters for their best usages, in violation of 6 NYCRR § 701.1.[4]

Transco need only fail to demonstrate compliance with one water quality standard in order for the Department to properly deny water quality certification for the Project. In this case, Transco has failed to demonstrate compliance with all of the standards named by the Department in its Notice of Denial.

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[2] *Id.*

[3] *Id.*

[4] *Id.*

II. The Department should rely on modeling conducted in Transco's 2018 application to evaluate potential violations of state water quality standards

a. The Department should consider the most precautionary modeling results when attempting to evaluate future compliance with water quality standards

It is well-understood that it is appropriate and even necessary for the Department to rely on the most precautionary modeling scenarios to evaluate the environmental impact of a project, particularly when the project may affect the state's coastal ecosystems.[5] Under section 401 of the Clean Water Act, the state must determine whether or not "*any* such discharge [arising from the project] will comply" with applicable water quality requirements.[6] Moreover, in denying a water quality certification application, it is the applicant's burden to submit sufficient information to "assure" that the Project would comply with State water quality standards.[7] Absent this showing, a state may deny water quality certification to the applicant.

In its 2019 Application, Transco provides several limited alternative modeling results and attempts to discount the modeling results provided in its 2018 Application, which predict exceedances of New York State water quality standards. Derogating its own modeling, Transco claims that the earlier modeling results included in its 2018 Application were "conservatively modeled" and "would not definitively equate to actual exceedances in the field."[8] In other words, Transco claims that the Department should not rely on Transco's earlier modeling results because they predict outcomes that are not with 100% certainty going to occur.

The state has discretion as to which modeling results to use in deciding the water quality certification. But when evaluating activity that may affect the state's coastal ecosystems, the Department is expected to employ the precautionary principle.[9] Under this principle, preventative actions should be taken when there is the possibility of health or environmental concerns, even when scientific evidence of the threat is not immediately conclusive. Indeed, in keeping with the best practices of industry participants and other federal agencies, it would be

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[5] N.Y. Envtl. Conserv. Law § 14-0103(3) sets forth the guiding principles New York State should follow in the governance of coastal ecosystems. Among which is included a precautionary principle: "when risks are uncertain, caution is applied."

[6] 33 U.S.C. § 1341(a)(1).

[7] *See* 33 U.S.C. § 1341(a)(1); 6 N.Y.C.R.R. §§ 608.7(b), 608.9(a)(6), 621.3(a)(1).

[8] Letter from Joseph Dean, Manager, Environmental Health and Safety, Transcontinental Gas pipe Line Company, LLC, to Karen M. Gaidasz, Division of Environmental Permits and Pollution Prevention, New York State Department of Environmental Conservation 1 (May 16, 2019) [hereinafter "2019 Application"].

[9] N.Y. Envtl. Conserv. Law § 14-0103(3) sets forth the guiding principles New York State should follow in the governance of coastal ecosystems. Among which is included a precautionary principle: "when risks are uncertain, caution is applied."

appropriate for an agency to require not just a conservative, but a worst-case scenario analysis of potential environmental impacts.[10]

Moreover, by implying that modeling must "definitively" predict actual field outcomes, Transco also misstates the burden of proof—the state need not definitively demonstrate actual exceedances of water quality standards to properly deny the water quality certification application. Rather, it is the applicant's burden to provide "reasonable assurance" that construction and operation of the Project would meet all applicable water quality standards.[11] The modeling results from the 2018 Application undercut this goal.

Not only should the Department consider the most conservative modeling when evaluating future violations of water quality standards, but the Department should also look critically at the assumptions used in the new modeling. Under ECL § 3-0301(1)(b), DEC must "take into account the cumulative impact upon [water] resources in making any determination in connection with any license, order, permit certification or other similar action." It is unclear whether Transco's sediment models take into account cumulative effects; namely, disturbed sediment loads from adjacent sections. Even if the levels of sediment are lower in adjacent sections, those sections could cumulatively lead to exceedances of water quality standards in neighboring sections.

Because Transco has not provided a basis in law or fact to disregard the modeling from its 2018 Application, and because that modeling predicts numerous violations of state water quality standards,[12] Transco's 2019 Application should be denied.

III. Transco's updated modeling results predict that pipeline construction would lead to violations of state standards on turbidity and sedimentation

Even if the Department were only relying on Transco's updated modeling results, which it should not, Transco's updated modeling still predicts that pipeline construction could lead to violations of state standards on turbidity and sedimentation. For this reason, the Department should deny Transco's 2019 application.

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[10] *See, e.g.*, Canadian Ass'n of Petroleum Producers et al., *Pipeline Associated Watercourse Crossings* 4-26 (3d ed. 2005), http://goo.gl/aymwUG; J. M. Castro et al., *Risk-Based Approach to Designing and Reviewing Pipeline Stream Crossings to Minimize Impacts to Aquatic Habitats and Species*, 31 River Res. & Applications 767, 769 (2015) ("If land easements are not secured early in the route selection process, alternative development and risk analyses can be significantly impeded if site access is denied by property owners. In such cases, maps, aerial photos, lidar-based topography, and other remotely sensed data are employed, and a worst-case scenario for site conditions must be assumed for initial risk screening and analysis."); *see also Safeguarding the Historic Hanscom Area's Irreplaceable Res., Inc. v. Fed. Aviation Admin.,* 651 F.3d 202, 216 (1st Cir. 2011) (describing federal agency's use of worst case scenario as necessary to assessing adverse impacts).

[11] 33 U.S.C. § 1341(a)(4).

[12] *See* Letter from Daniel Whitehead, Director, Division of Environmental Permits, New York State Dep't of Env. Cons. to Joseph Dean, Manager, Environmental Health and Safety, Transcontinental Gas pipe Line Company, LLC 4 - 11 (May 15, 2019) [hereinafter "Denial Letter"].

In its 2019 Application, even with its updated, less conservative modeling, Transco still fails to establish that it will comply with limits on turbidity and deposition.[13] Indeed, Transco's application acknowledges that "[p]roject-related impacts on marine organisms and their offshore habitat will mainly occur due to the disturbance of the seabed and the resulting temporary turbidity plumes and sedimentation over the surrounding seafloor."[14]

Part 703 of DEC regulations prohibits any increase in turbidity "that will cause a substantial visible contrast to natural conditions."[15] It also prohibits any suspended, colloidal, or settleable solids from causing "deposition or impair[ing] the waters for their best usages."[16] According to Transco's own application, DEC's default value for total suspended solids (TSS) that may cause chronic toxicity to aquatic life is 50 mg/L.[17]

Assuming Transco's sediment modeling from the 2019 Application is accurate, turbidity and sedimentation will occur at unacceptable levels beyond the 500-foot mixing zone along the pipeline's path. In all three new scenarios modeled in the 2019 Application,[18] TSS plumes exceeding 50 mg/L would extend beyond a 500-ft mixing zone, and in Scenarios E-2 and E-3, TSS plumes exceeding 100 mg/L would extend beyond a 500-ft mixing zone. In Scenario E-2, where the backfill rate has been slowed to 7,500 ft^3/hr, TSS of 100 mg/L are predicted to extend as much as 919 feet from the source. And even under scenario E-3, where backfill rate was slowed to 4,250 ft^3/hr, concentrations of 100 mg/L are still predicted to extend 656 feet from the source, and sediment deposition at or above .4 inches (1 centimeter) is predicted to extend up to 728 feet from source, and cover 76.7 acres of seabed.[19]

Because even Transco's new modeling predicts an increase in turbidity that will cause a substantial visible contrast to natural conditions,[20] and an increase in suspended solids that will cause deposition and impair the waters for their best usages,[21] the Department should deny water quality certification to the 2019 Application.

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[13] *See* 2019 Application, *supra* note 8, app. 2 (Memorandum from Nathan Vinhateiro, RPS Group Plc., to Steven MacLeod, Ecology and Environment, Inc. (Feb. 15, 2019)).

[14] *Id.* at app. 3, 3.

[15] *Id.*

[16] *Id.*

[17] *Id.* at app. 1, 3, *see also* New York State Dep't of Env. Cons., Div. of Water, *Technical & Operational Guidance Series (TOGS) 5.1.9: In-Water and Riparian Management of Sediment and Dredged Material* 36 (2004), https://www.dec.ny.gov/docs/water_pdf/togs519.pdf.

[18] *See* 2019 Application, *supra* note 8, app. 2 (Memorandum from Nathan Vinhateiro, RPS Group Plc., to Steven MacLeod, Ecology and Environment, Inc. (Feb. 15, 2019)).

[19] *Id.* at app. 2, 8.

[20] *Id.*

[21] *Id.*

IV. Transco's analysis of the greenhouse gas emissions associated with the Project is unreliable

Finally, Transco's analysis of the net greenhouse gas emissions[22] associated with the Project make several flawed assumptions that overstate the emissions of alternatives to the pipeline and understate the pipeline's emissions impacts. When taken together, these flawed assumptions undermine Transco's claim that the NESE would lower New York City's greenhouse gas emissions. First, Transco's analysis rests on the unlikely prediction that, in the absence of new gas capacity, all new heating systems would be fired by oil. Second, Transco incorrectly assumes that the NESE would run at full capacity year-round. Third, Transco does not accurately calculate the relative emission rates of various energy sources, consequently overestimating the climate benefit of oil-to-gas conversions.

To review Transco's analysis of the greenhouse gas emissions associated with the NESE,[23] NRDC commissioned the Applied Economics Clinic at Tufts University ("AEC")[24] to provide a close review. AEC's full review is attached as Attachment B, and summarized below.

First, Transco incorrectly assumes that, without the NESE pipeline, all new heating systems would be powered by oil. Transco's analysis did not consider the possibility that a well-designed and adequately-funded portfolio consisting of a combination of energy efficiency, demand response/other demand side measures, and heat pumps could replace the need for the pipeline and result in minimal new oil furnaces being built out. There has been no sufficiently rigorous and transparent process to examine Transco and New York City's gas utility National Grid's claimed gas capacity shortage or assessed whether such a scenario is feasible. Due to the efficiency of heat pumps as compared to other heating options, and the proven track record of energy efficiency and demand response, the extent to which gas and oil furnaces can be replaced by heat pumps and demand side management is a critical input to a rigorous emissions analysis that is likely significantly understated by Transco.

Second, even if it were the case—which it is not—that every million British thermal units (MMBtu) of gas brought into New York City meant one less MMBtu of oil heating and an associated greenhouse gas savings of one-third (from the fuel switch), Transco's emission reduction claim would still be inaccurate, as it is based on the faulty assumption that the NESE would be used to its full capacity every day of the year such that the fullest possible potential of gas would displace a technical maximum of heating oil, providing greenhouse gas emission

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[22] *Id.* at app. 4. On June 11, 2019, Williams and National Grid released a separate greenhouse gas emissions analysis of the NESE pipeline. Because it was not submitted by Transco as part of its 2019 Application, we do not address it here, although NRDC expects to release an analysis of that report in August 2019. Like Transco's April 24, 2019 greenhouse gas emissions analysis, the Williams/National Grid analysis fails to demonstrate that the Project will result in net reductions in greenhouse gas emissions.

[23] *Id.*

[24] AEC is a clinic that provides technical expertise to public service organizations working on topics related to the environment, and the energy sector among other things. Tufts University, Applied Economics Clinic, http://www.ase.tufts.edu/gdae/policy_research/AppliedEconomicsClinic.html (last visited Jul. 13, 2019).

reductions that simply cannot be achieved. Pipelines are typically sized to address customers' need for gas on the "peak" day of the year with the greatest level of consumption, often a cold spell during the winter heating season. During the rest of the year, pipelines transport only a fraction of this capacity and displace—in Transco's expected future where gas and oil are the only heating choices—a fraction of the heating oil claimed. In 2010, for example, New York City's actual gas consumption was about one-half of full gas capacity.[25] This flawed assumption further serves to understate the emission impacts of the pipeline relative to a no-build scenario.

Finally, Transco fails to accurately estimate the true life-cycle emissions of both gas and fuel oil, undermining Transco's assumed climate-saving qualities of the oil-to-gas switch. Specifically, fracked gas pipelines are responsible for a significant volume of upstream greenhouse gas emissions in the form of methane leakage, amounting to more than 2 percent of U.S. gas production.[26] Methane emissions have an outsized impact on the heat trapped during their lifetime in the atmosphere: methane is 56 times more powerful in terms of heat-trapping, per ton, than CO_2, when measured on a 20-year timescale.[27] When including upstream greenhouse gas emissions, the difference in greenhouse gas emissions between heating oil and fracked gas is significantly reduced.

Conclusion

Despite the new modeling contained in its 2019 Application, Transco has still failed to provide reasonable assurance that construction and operation of the Project would meet all applicable water quality standards. For this reason, we request that New York takes a hard look at Transco's 2019 Application and denies the water quality certification application for the Northeast Supply Enhancement pipeline.

Sincerely,

Kimberly Ong
Senior Attorney

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[25] Where full capacity is peak usage times 365 days. ICF International, prepared for New York City Mayor's Office of Long-Term Planning and Sustainability, *Assessment of New York City Natural Gas Market Fundamentals and Life Cycle Fuel Emissions* (2011), http://www.nyc.gov/html/om/pdf/2012/icf_natural_gas_study.pdf.

[26] Ramón A. Alvarez, et al., *Assessment of Methane Emissions From the U.S. Oil and Gas Supply Chain*, 361 Science 186 (2018), *available at* https://science.sciencemag.org/content/361/6398/186.

[27] United Nations Framework Convention on Climate Change, *Climate Change 1995, The Science of Climate Change: Summary for Policymakers and Technical Summary of the Working Group I,* 22 (1995), *available at* https://unfccc.int/process/transparency-and-reporting/greenhouse-gas-data/greenhouse-gas-data-unfccc/global-warming-potentials.

ATTACHMENT A

March 15, 2019

Karen Gaidasz, Project Manager
Major Projects Management
NYSDEC - Division of Environmental Permits
625 Broadway, 4th Floor, Albany, NY 12233-1750

Re: Comments on the Water Quality Certification Application of the Northeast Supply Enhancement (NESE) Project, ID No. 2-9902-00109

Dear Ms Gaidasz:

Thank you for the opportunity to comment on the Water Quality Certification Application for the Northeast Supply Enhancement Project (NESE). These comments are submitted on behalf of the Natural Resources Defense Council ("NRDC") and its 130,000 members and activists who live in New York State. In brief, NRDC writes to urge the New York State Department of Environmental Conservation ("DEC" or the "Department") to deny water quality certification to the NESE pipeline, as the pipeline has failed to demonstrate that it will satisfy New York state water quality standards.

As you know, over seventeen miles of the Northeast Supply Enhancement pipeline is proposed to be built in New York State—in Raritan Bay, lower New York Bay, and the New York Bight. Collectively, these bodies of water are sources of recreation for millions of people, and support numerous aquatic animals, including the endangered North Atlantic right whale, the endangered fin whale, and the endangered Atlantic sturgeon. All three of these waterways are on a path of ecological recovery that could be disrupted by the construction of this pipeline.

As explained in the application submitted by the Transcontinental Gas Pipe Line Company, LLC ("Transco"), a subsidiary of Williams Partners, L.P. ("Williams"), the vast majority of the pipeline in New York will be built using a trenching method, causing the displacement of over 1 million cubic yards of sediment from the ocean floor. These activities will not only disturb the seabed, but also suspend sediments in the water, increasing turbidity, and, as a consequence, killing and injuring aquatic organisms.

In turn, these construction activities could violate New York State water quality standards. Specifically, construction of the pipeline would increase turbidity to an extent that

there would be a substantial visible contrast to natural conditions, in violation of 6 NYCRR § 703.2. The suspension of solids in the water column would also resuspend contaminants in the water, exceeding numerical standards for several contaminants, including mercury and copper, set forth in 6 NYCRR § 703.5. Additionally, the settling solids would cause deposition, in violation of 6 NYCRR § 703.2. Finally, construction would pollute the water so that their best usages, such as fishing, recreation, and wildlife propagation, were impaired, in violation of 6 NYCRR § 701.1.

In support of these points, our comments are divided into three parts. Part I describes the proposed pipeline and the important ecological area in which it would be built. Part II sets forth the statutory framework for New York State's water quality certification decision. Finally, Part III explains the many ways in which the Northeast Supply Enhancement Pipeline could violate New York State water quality standards.

I. Background

a. Natural Resources Defense Council

The Natural Resources Defense Council is an international, nonprofit environmental organization with more than three million members and online activists, including nearly 130,000 in New York State. For five decades, NRDC has been committed to the preservation, protection, and defense of the environment, public health, and natural resources.

NRDC has a long history of litigating and advocating for clean water at both the federal level and in New York State. In 1972, for example, it helped enact the Clean Water Act, America's bedrock water-protection law, and most recently, in 2015, NRDC was a principal advocate for the issuance of the Clean Water Rule, which returned guaranteed protections under the Clean Water Act to hundreds of thousands of miles of streams and tens of millions of acres of wetlands across the country. In New York, NRDC has for more than 25 years been a principal advocate for pollution prevention and watershed protection for the Catskill and Delaware watersheds, which provide drinking water to more than nine million residents, and the New York-New Jersey Harbor Estuary. In the 1990s NRDC brought federal Clean Water Act litigation that led to the establishment of total maximum daily load (TMDL) pollution standards in New York's upstate reservoirs and other state waterbodies. NRDC has also been a key advocate since the 1970s for full cleanup of toxic PCBs from the Hudson River.

b. The Northeast Supply Enhancement Project

The Northeast Supply Enhancement Project ("NESE" or the "Project") is an expansion of the Transco Pipeline, a natural gas pipeline which runs from Texas to New York City. The almost $1 billion project is owned by Williams, one of the largest natural gas pipeline companies in the United States. The proposed pipeline facilities are divided into three sections—one of which, the Raritan Bay Loop, would cross through New York State for 17.3 miles. The entire New York portion of the pipeline would be sited offshore in Queens and Richmond Counties, just south of Staten Island, Coney Island, and the Rockaways, in three connected waterbodies—

Raritan Bay, Lower New York Bay, and the New York Bight section of the Atlantic Ocean.[1] The NESE would then connect to an existing offshore pipeline, the Rockaway Delivery Lateral, at a location known as the Rockaway Transfer Point in Queens, New York.

When a pipeline is built through a waterbody, the crossing can be undertaken in two ways: either by cutting a trench along the bottom of the watercourse, a process known as "trenching," or by tunneling the pipeline under the waterbody, which is known as "Horizontal Directional Drilling" ("HDD"). When a pipeline is constructed through a waterbody via trenching, a trench is dug through the waterbody, either via clamshell dredge or jet trencher, and the pipeline is laid into it. With the HDD method, a tunnel would be drilled under the sea floor and the pipe then routed through it.

While each method has the potential to degrade water quality, trenching is generally understood to be more harmful to waterbodies.[2] Trenching can result in 100 percent loss of sea floor habitat within the right-of-way for the duration of construction. This process directly tears up part of the sea floor, destroying habitats, increasing turbidity and sedimentation (i.e. the depositing of soil and silt into water).[3] Sixteen of the seventeen miles of the pipeline would be installed in a trench created by either a clamshell dredge (approximately 2 miles) or jet trencher (approximately 13 miles), and less than 1 mile of the pipeline would be dug using the HDD Method.[4] The width of the construction right-of-way for the offshore segment of the Raritan Bay Loop would be 5,000 feet wide,[5] affecting over 14,523 acres of land.[6]

c. Raritan Bay, Lower New York Bay, and the New York Bight

As explained earlier, the NESE would cross three important waterbodies in New York—Raritan Bay, Lower New York Bay, and the New York Bight. Both Raritan Bay and the Lower New York Bay are part of the New York-New Jersey Harbor Estuary, which opens onto the New York Bight in the Atlantic Ocean to the southeast. Collectively, these bodies of water provide

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[1] Federal Energy Regulatory Commission, Northeast Supply Enhancement Project - Final Environmental Impact Statement, Docket No. CP17-101-000, at 4-50 (2019) [hereinafter "EIS"].

[2] *See* U.S. Army Corps of Engineers, *Sediment and Erosion Control Guidelines for Pipeline Projects* 2, *available at* https://goo.gl/V3T8Uv (last visited Mar. 15, 2019).

[3] Lucie Levesque & Monique Dube, *Review of the Effects of In-Stream Pipeline Crossing Construction on Aquatic Ecosystem*s, 132 Envtl. Monitoring & Assessment 395, 396–98 (2007), *available at* https://goo.gl/N2soGd [hereinafter "Levesque"]; Scott Reid & Paul Anderson, *Effects of Sediment Released During Open-Cut Pipeline Water Crossing,* 24 Can. Water Resources J. 235, 240 (1999), *available at* https://goo.gl/6NPnFV [hereinafter "Reid"].

[4] EIS, *supra* note 1, at 2-35, t. 2.3.3-1.

[5] *Id.* at 2-11.

[6] *Id.* at 2-9.

important ecological services, host endangered and threatened species, and support a wide variety of recreational activities.[7]

Fig. 1. The map of the New York Harbor region includes the five boroughs of New York City (Manhattan, Bronx, Queens, Brooklyn, Staten Island), Westchester County, New York, Nassau County on Long Island, New York and extensive regions of Northeast New Jersey. The complex waterways include the Hudson River and several New Jersey Rivers (Hackensack, Passaic, Rahway and Raritan Rivers), which all empty into New York Harbor. There are six bays that are contiguous with New York Harbor: Newark, Raritan, Sandy Hook, Lower New York, Upper New York and Jamaica Bays. There are two entrances into New York Harbor; Long Island Sound via the Western Narrows and East River, and the Atlantic Ocean via the Mid-Atlantic Bight and the entrance between Rockaway Point and Sandy Hook. Four parallel east–west transects were established to provide insights into the natural and man-made features of New York Harbor. From north to south, these transects were the following: T1-George Washington Bridge transect, T2-Mid-town Manhattan/Empire State Building transect, T3-Statue of Liberty transect, and T4-Verrazano Bridge transect. Each transect is described in following figures. *Source: O'Neil,* supra *note 7, at 275 fig. 1.*

Since the beginning of the nineteenth century, pollution, sewage, solid waste and, eventually, industrial chemical contamination increasingly debilitated the health of New York Harbor.[8] In the past 50 years, however, the health of the Harbor has improved tremendously as a

[7] Judith M. O'Neil et al., *New York Harbor: Resilience in the face of four centuries of development*, Regional Studies in Marine Science, *passim* (2016), https://par.nsf.gov/servlets/purl/10021363.

[8] *Id.* at 276.

result of significant investment from the City of New York, local non-profit organizations, and citizen involvement.[9] Thanks to these efforts, New York Harbor is the healthiest it has been in over a century.[10]

Although the overall abundance of fish has declined in the past 400 years due to historic contamination and commercial fishing depletion issues, New York Harbor is still home to a diverse collection of aquatic species.[11] Seasonal nutritional upwellings in the estuary support a high volume of algae, phytoplankton, and zooplankton, which in turn support a high variety of aquatic species, including the blue crab,[12] ribbed mussel,[13] Shortnose Sturgeon,[14] bottlenose dolphin,[15] and the harbor seal.[16] Because the Raritan Bay is home to such a diverse array of habitats that support regionally rare and important marine, estuarine, and anadromous species, the U.S. Fish and Wildlife Service designated parts of the Bay as the Raritan Bay-Sandy Hook Bay Significant Habitat Complex.[17] Eight miles of the pipeline would cross this ecologically significant area.[18]

According to a study by the NY-NJ Harbor & Estuary Program, the estuary now supports more than 200 fish species.[19] These species include diadromous (fish that migrate between fresh and salt water) and marine finfish species of ecological, commercial, and recreational importance.[20] The New York Bight also serves as spawning grounds for many economically important species and as nursery grounds for their early development stages.[21]

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[9] *Id.* at 278, 281, 283.

[10] New York City Office of the Mayor, *New York Harbor: Healthier Than It's Been in More Than a Century* (Dec. 7, 2017), https://www1.nyc.gov/office-of-the-mayor/news/753-17/new-york-harbor-healthier-it-s-been-more-century.

[11] O'Neil, *supra* note 7, at 282.

[12] National Oceanic and Atmospheric Administration, Significant Habitats and Habitat Complexes of the New York Bight Watershed – Lower Hudson River Estuary 4 (2011) *available at* https://www.nodc.noaa.gov/archive/arc0034/0071981/1.1/data/1-data/disc_contents/document/wp/low_hud.pdf.

[13] New York-New Jersey Harbor & Estuary Program, Hudson-Raritan Estuary Comprehensive Restoration Plan 37, 82 (2016), *available at* http://www.harborestuary.org/watersweshare/pdfs/CRP/FinalReport-0616.pdf.

[14] *Id.*

[15] D. F. Squires & J. S. Barclay, New York-New Jersey Harbor & Estuary Program, Nearshore Wildlife Habitats and Populations in the New York/New Jersey Estuary 92 (1990), *available at* http://www.harborestuary.org/pdf/NearshoreWildlife1990.pdf.

[16] *Id.*

[17] EIS, *supra* note 1, at 4-98.

[18] *Id.*

[19] New York-New Jersey Harbor & Estuary Program, The State of the Estuary 2018 3 (2018), *available at* https://www.hudsonriver.org/NYNJHEPStateoftheEstuary.pdf [hereinafter "*State of the Estuary*"].

[20] EIS, *supra* note 1, at 4-98 – 99

[21] *Id.*

Of these over 200 fish species, essential fish habitat ("EFH") is designated for 33 species in the Project area. Four fish species (Atlantic sturgeon, shortnose sturgeon, cusk, oceanic whitetip shark), are federally or state-listed as threatened or endangered,[22] and eight species (alewife, blueback herring, rainbow smelt, warsaw grouper, cusk, Atlantic bluefin tuna, dusky shark, and sand tiger shark) are listed as "species of concern" by the National Marine Fisheries Service. Three of these species of concern (Atlantic bluefin tuna, dusky shark, and sand tiger shark) have designated essential fish habitat within or in the vicinity of the Project Area.[23]

Sixteen species of marine mammals, consisting of 13 species of cetaceans (i.e., whales, dolphins, and porpoises), and 3 species of pinnipeds (i.e., seals) may also use the Project area during the year. Of these species, six (blue whale, sei whale, sperm whale, North Atlantic right whale, fin whale)[24] are federally or state-listed as threatened or endangered.[25]

In addition, five species of sea turtles have the potential to occur within Project area, all protected under the Endangered Species Act. These include the green, Kemp's ridley, leatherback, loggerhead, and hawksbill sea turtles.[26]

The New York Harbor Estuary also supports benthic species such as clams, oysters, and mollusks that provide important ecosystem services such as water filtration, three-dimensional habitats for other species like fish and anemones, stabilize shorelines from erosion, and absorb large waves.[27]

Improvements in water quality, increased diversity of marine life, and enhanced access to the shoreline have all contributed to a revitalization of recreational activities in the New York Harbor.[28] Between 2009 and 2014, over 500 acres of the waterfront were opened to the public in the form of parks or public spaces,[29] and by 2016, approximately 37 percent of the Harbor shoreline was estimated to serve as parks or public waterfront spaces, totaling 41,078 acres.[30] As demonstrated by Figure 2 below, along the southern shoreline of Staten Island, the southwestern shoreline of Brooklyn, and the western shoreline of the Rockaway neighborhood in Queens, a

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[22] *Id.* at 4-162.

[23] *Id.* at 4-103.

[24] *Id.* at 4-162.

[25] *Id.* at 4-104.

[26] *Id.* at 4-106.

[27] *State of the Estuary*, *supra* note 19, at 31.

[28] New York-New Jersey Harbor & Estuary Program, Connecting with Our Waterways: Public Access and its Stewardship in the New York-New Jersey Harbor Estuary ii (2016), *available at* https://www.nrs.fs.fed.us/pubs/50713 [hereinafter "*Connecting with Our Waterways*"]

[29] *Id.*

[30] O'Neil, *supra* note 7, at 10.

majority of shoreline is designated public space.[31] National Park sites in New York Harbor alone received 16,090,450 visitors who spent $559,169,600 in communities near the parks.[32]

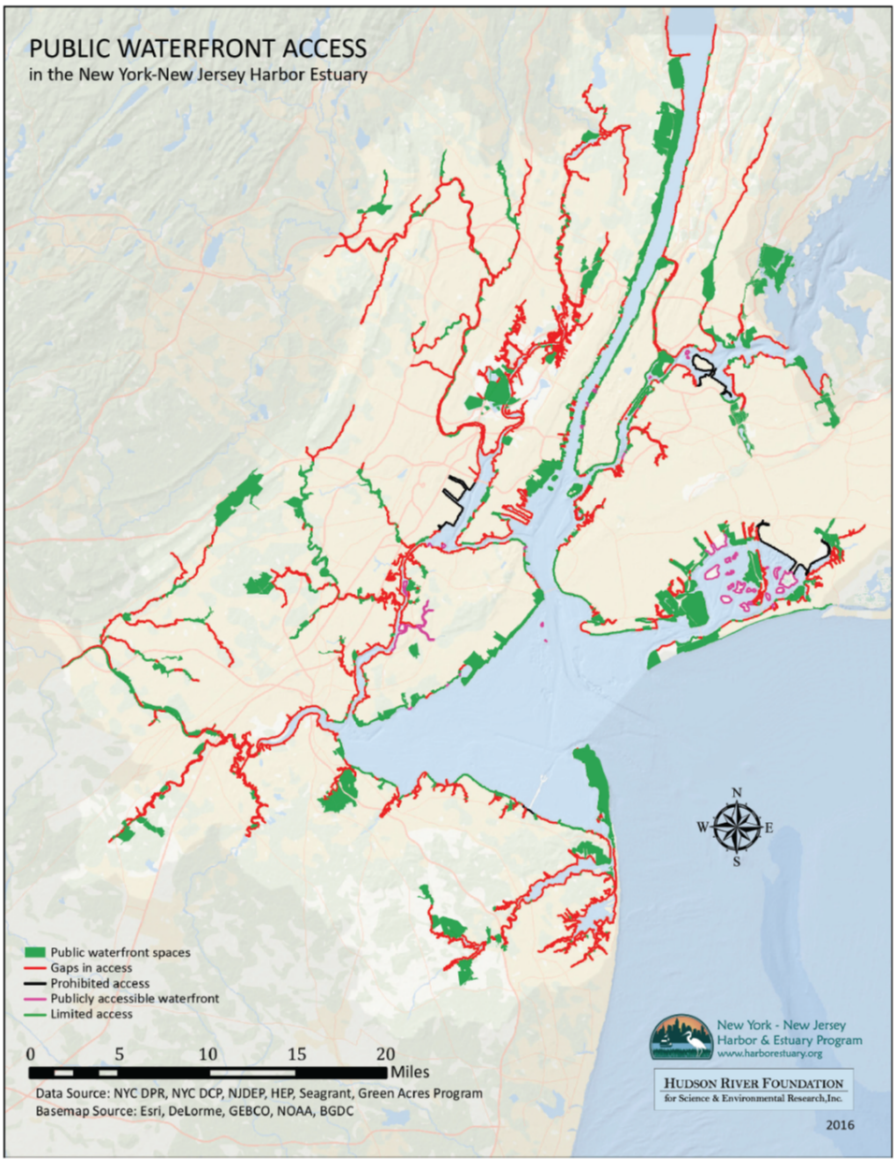

Figure 2: While large publicly-accessible waterfront spaces were found throughout the region, long stretches of gaps in access remain in many areas.

Source: Connecting with Our Waterways, supra *note 28, at 4.*

The Harbor itself also serves as a recreation area for public and private boating activities, such as rowing, kayaking, canoeing, and sailing.[33] Recreational and sport fishing are also

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[31] *Connecting with Our Waterways*, *supra* note 28, at ii.

[32] National Park Service, National Parks of New York Harbor, *Tourism to National Parks of New York Harbor creates $714,149200 in Economic Benefits*, April 29, 2016, https://www.nps.gov/npnh/learn/news/vis_spending_2015.htm.

popular recreational activities in the Project Area.[34] The pipeline's workspace would cross through three New Jersey Department of Environmental Protection-designated sport ocean fishing grounds in New York: the Gong Grounds, Tin Can Grounds, and Ambrose Channel Grounds.[35] In 2015, 3.2 million saltwater recreational angler trips took place off the shores of New York.[36] Whale watching and scuba diving also take place within the Project Area.[37]

II. Statutory Framework

a. Clean Water Act, Section 401

Under section 401 of the Clean Water Act, an applicant for a federal license or permit for activity that "may result in any discharge into the navigable waters"—such as an applicant for a section 404 dredge-and-fill permit or for a certificate of public convenience and necessity under the Natural Gas Act—must receive a water quality certification: state certification that "any such discharge will comply with the applicable provisions of sections [301–303 and 306–307 of the Clean Water Act]."[38] And as to water quality certification, EPA regulations specify that a water quality certification must include "[a] statement that there is a reasonable assurance that the activity [for which a water quality certification application has been submitted] will be conducted in a manner which will not violate applicable water quality standards."[39] Notably, states may generally regulate water quality more stringently than as required by the Clean Water Act.[40]

Section 401(d) provides additionally that states shall attach conditions to water quality certifications in the form of "effluent limitations and other limitations, and monitoring requirements" necessary to assure compliance with the applicable requirements of sections 301–303 and 306–307 of the Clean Water Act, "and with any other appropriate requirement of State

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[33] O'Neil, *supra* note 7, at 10.

[34] EIS, *supra* note 1, at 4-265.

[35] *Id.* at 4-100, 4-265 – 4-266.

[36] *Id.* at 4-265.

[37] *Id.*

[38] 33 U.S.C. § 1341(a)(1). These sections of the Clean Water Act include provisions relating to standards, limitations, and prohibitions for point source discharges, and also relating to state-promulgated water quality standards. 33 U.S.C. §§ 1311–13, 1316–17. The New York State regulations implementing section 401 similarly provide that "[a]ny applicant for a Federal license or permit to conduct any activity, including but not limited to the construction or operation of facilities that may result in any discharge into navigable waters . . . , must apply for and obtain a water quality certification from [DEC]. The applicant must demonstrate compliance with sections 301–303, 306 and 307 of the [Clean Water Act]." 6 NYCRR § 608.9(a).

[39] 40 C.F.R. § 121.2(a)(3).

[40] 33 U.S.C. § 1370. EPA regulations note that this non-preemption clause is applicable to water quality standards. 40 C.F.R. § 131.4(a) ("As recognized by section 510 of the Clean Water Act, States may develop water quality standards more stringent than required by [the EPA water quality standards] regulation.").

law set forth in [the water quality certification]."[41] The Second Circuit has since stated in dicta that section 401(d) should be understood as limiting water quality certification conditions "to those affecting water quality in one manner or another."[42]

b. New York State Water Quality Standards

The Department is responsible for evaluating the environmental impacts of a proposed pipeline on New York waterbodies in light of the State's water quality standards.[43] Water quality certification in New York is conditional on "demonstrat[ing] compliance" with sections 301–303 and 306–307 of the Clean Water Act, as implemented by specified New York water quality regulations. Most relevant to this project, an applicant must demonstrate compliance with "water quality standards and thermal discharge criteria set forth in Parts 701, 702, 703 and 704 of [the DEC regulations]," and "state statutes, regulations and criteria otherwise applicable to such activities."[44] Parts 701 and 703 of the regulations are the most relevant to the instant inquiry.

i. 6 NYCRR Part 701

In accordance with Part 701 of the DEC regulations, all waterbodies in New York State are assigned a letter classification that designates their best uses. Best uses include drinking water, swimming, and fish propagation, among other uses. They also establish the broad standard that waste discharges "shall not cause impairment of the best usages of the receiving water as specified by the water classifications" at affected locations.[45]

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[41] 33 U.S.C. § 1341(d). Although this provision does not mention section 303, the Supreme Court has held that the reference to section 301 incorporates section 303 by reference, making water quality standards a permissible consideration on setting conditions under section 401(d). PUD No. 1 of Jefferson Cty. v. Wash. Dep't of Ecology, 511 U.S. 700, 712–13 (1994).

[42] *Am. Rivers, Inc. v. FERC*, 129 F.3d 99, 107 (2d Cir. 1997). *Accord Arnold Irr. Dist. v. Dep't of Envtl. Quality*, 717 P.2d 1274, 1279 (Or. Ct. App. 1986) (stating in dicta that "only if a [water quality certification condition] has absolutely no relationship to water quality would it not be an 'other appropriate requirement of State law.'").

[43] *Constitution Pipeline Co., LLC v. New York State Dep't of Envtl. Conservation*, 868 F.3d 87, 103 (2d Cir. 2017), *cert. denied,* 138 S. Ct. 1697, 200 L. Ed. 2d 953 (2018).

[44] 6 NYCRR § 608.9(a). Subdivision (6) serves as a catch-all certification requirement of compliance with "state statutes, regulations and criteria otherwise applicable"—and also applies to the instant application.

[45] *Id.* § 701.1. "Wastes" to which these regulations apply are broadly defined, and include: "industrial waste," which is any "solid or waste substance, or a combination thereof, resulting from any process of industry, manufacturing, trade, or business or from the development or recovery of any natural resources, that may cause or might reasonably be expected to cause pollution of the waters of the State"; and "other wastes," which are "garbage, refuse, decayed wood, sawdust, shavings, bark, sand, lime, cinders, ashes, offal, oil, tar, dyestuffs, acids, chemicals, leachate, sludge, salt and all other discarded matter not sewage or industrial waste that may cause or might reasonably be expected to cause pollution of the waters of the State." *Id.* § 700.1(a)(26), (40).

The waterbodies that will be crossed by the offshore segment of the NESE (Raritan Bay, Lower New York Bay, and the New York Bight) are all designated as either Class SA and SB.[46] Under Part 701 of the DEC regulations, the best uses of Class SA waters are for shellfishing for market purposes, primary and secondary contact recreation, and fishing. These waters must also be suitable for fish, shellfish, and wildlife propagation and survival. The best uses of Class SB water are primary and secondary contact recreation and fishing. These waters must also be suitable for fish, shellfish, and wildlife propagation and survival.

ii. 6 NYCRR Part 703

The physical water quality standards that apply to SA and SB water classifications are established in Part 703 of the regulations.[47]

Part 703 includes numeric criteria by waterbody class for pH range, dissolved oxygen, dissolved solids, and coliforms.[48] Part 703 also sets forth numeric criteria for given best usages by specific substance, such as copper and mercury.[49]

Part 703 also sets forth narrative water quality criteria, generally in the form that *X substance/impairment shall not result in Y impact*.[50] The part contains narrative criteria by waterbody class for taste-, color-, and odor-producing toxic and other deleterious substances; turbidity; suspended, colloidal and settleable solids; oil and floating substances; phosphorus and nitrogen; flow impairment; and radioactivity.[51]

Of these narrative criteria, turbidity and solids, are those most relevant to the evaluation of NESE's water quality certification. Specifically, Part 703 prohibits any increase in turbidity "that will cause a substantial visible contrast to natural conditions.[52] Relatedly, it also prohibits any suspended, colloidal, or settleable solids from causing "deposition or impair[ing] the waters for their best usages."[53]

4. Otherwise Applicable Requirements

The Department's water quality certification provisions specify that a water quality certification approval for applicable federally permitted activity is conditional not just on

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[46] 6 NYCRR Part 980.

[47] *Id.* §§ 703.1–703.8. *See also* NYECL § 17-0301(4)–(6) (providing for DEC adoption of water quality standards).

[48] *Id.* §§ 703.3–703.4.

[49] *Id.* § 703.5, tbl. 1. These are mostly relevant to point source discharges and not to dredge-and-fill activity.

[50] *Id.* § 703.2.

[51] *Id.* This section also incorporates by reference the part 704 criteria for thermal discharges.

[52] *Id.*

[53] *Id.*

compliance with parts 701–704 of the DEC regulations, but also on compliance with New York "statutes, regulations and criteria otherwise applicable" to the permitted activity.[54] In making a water quality certification determination under section 608.9(a)(6) of its regulations, the Department might therefore consider state statutes, regulations, guidance documents, or even case-specific criteria, compliance with which bears upon the protection of water quality standards.

c. Regulatory Background

On June 27, 2017, Transco also filed an application to DEC for a water quality certification under Section 401 of the federal Clean Water Act. By letter dated April 20, 2018, DEC denied Transco's certification request without prejudice due to its determination that it lacked sufficient time to complete its review and conduct the necessary public process prior to Section 401(a)'s waiver deadline. On May 16, 2018, Transco re-submitted its certification request. This is the application upon which NRDC now comments.

III. New York State Should Deny Water Quality Certification to NESE

As demonstrated by Transco's water quality certification application, construction of the NESE could violate New York State water quality standards. In particular, construction of the pipeline would increase turbidity to an extent that there would be a substantial visible contrast to natural conditions, in violation of 6 NYCRR § 703.2. Construction would also resuspend contaminants in the water column, exceeding numerical standards for several contaminants, including mercury and copper, set forth in 6 NYCRR § 703.5. Additionally, construction would cause the deposition of solids, in violation of 6 NYCRR § 703.2. Finally, construction would pollute the water so that their best usages, such as fishing, recreation, and wildlife propogation, were impaired, in violation of 6 NYCRR § 701.1.

a. Turbidity

Turbidity is the measure of relative clarity of a liquid. High levels of turbidity in a waterbody indicate that there are high levels of particulate matter suspended in the water, making it cloudy or opaque. Under New York State water quality standards, a project cannot increase turbidity to an extent "that [it] will cause a substantial visible contrast to natural conditions.[55]

Altogether, pipeline construction activities would lead to increased turbidity along hundreds of acres across the sea floor. The act of dredging and filling, like the kind undertaken to construct an offshore pipeline, can temporarily suspend sediments in the water column, increasing turbidity there.[56]

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[54] *Id.* § 608.9(a)(6).

[55] *Id.*

[56] 40 CFR § 230.21(a).

According to the Project's water quality certification application, the majority of sediment-disturbance activities will occur during construction, which is expected to last up to 9 months.[57] Within that timeframe, construction activities may take place 24 hours a day, 7 days a week, and excavation along any particular section could last as long as a few weeks.[58] The environmental impact statement acknowledges that pipeline construction will increase turbidity in the surrounding waters—Indeed, an area larger than Central Park, about 945 acres of seafloor, would experience an increase in turbidity.[59]

Several activities required to construct the pipeline will lead to increased turbidity. Specifically, activities required to dig the pipeline trench, like clamshell dredging activities, jet trenching, and use of a hand jet and submersible pump, would create turbidity plumes. According to the environmental impact statement, clamshell dredging activities would generate sediment plumes exceeding ambient concentrations of total suspended solids ("TSS") by 100 parts per million (ppm) up to 3,150 feet from the source of the activity.[60] Jet trenching would generate sediment plumes with TSS concentrations exceeding the ambient conditions by 100 ppm that would extend between 262 feet to 1,345 feet from the source, and use of the hand jet and submersible pump would generate sediment plumes with TSS concentrations exceeding the ambient conditions by 100 ppm that would extend between 197 feet to 1,378 feet from the source.[61]

Activities required to bury the pipeline, such as backfill placement activities, would also increase turbidity. Backfill placement activities would generate sediment plumes with TSS concentrations exceeding the ambient conditions by 100 ppm would extend between 591 and 5,151 feet from the source.[62]

Accidental release of drilling fluid during HDD drilling could also lead to turbidity and sedimentation after drilling fluid becomes entrained in the water column and transported to other locations. [63]

Under Part 701 of the DEC regulations, increased turbidity also must not diminish the best usages of a waterbody.[64] Here, best usages such as shellfish harvesting; fishing; fish, shellfish, and wildlife propagation and survival; and recreation could all be impaired. While turbidity naturally occurs in the Project Area, artificially high levels of turbidity can impair uses

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[57] Transco, Joint Application to the New York State Department of Environmental Conservation Northeast Supply Enhancement Project 4-1 (2018) [hereinafter "Joint Application"].

[58] *Id.*

[59] EIS, *supra* note 1, at ES-11.

[60] *Id.* at 4-109.

[61] *Id.*

[62] *Id.*

[63] *Id.* at 4-96.

[64] 6 NYCRR § 701.1.

of the water—according to EPA, they can lower the rate of photosynthesis and the primary productivity of an aquatic area, damaging the surrounding ecosystem.[65] Increased turbidity can also harm aquatic animals: "Sight-dependent species may suffer reduced feeding ability leading to limited growth and lowered resistance to disease if high levels of suspended particulates persist."[66] It can also "disrupt the respiration and feeding of certain aquatic wildlife and food chain organisms"[67] by clogging fish gills and obscuring visual stimuli[68]. Increased turbidity can also make water too cloudy for mobile aquatic species to migrate.[69]

The destructive impacts of pipeline construction on fish and other aquatic species have been well-documented. Studies have demonstrated that pipeline construction can have significant and long-term effects on entire species within the construction area. A study of impacts of a natural gas pipeline crossing on the Little Miami River in Ohio, downstream catches of the dominant fish species, the silver shiner, dropped by 95 percent immediately after construction.[70] 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.[71] Such effects have been observed to last up to four years after construction.[72]

At least one study has observed that turbidity has adverse effects on hard clams, a species that dwells throughout the Project Area.[73] 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.[74] According to the environmental impact statement, pelagic species (fish that inhabit the water column, as opposed to dwelling near the bottom or the shore) are even more sensitive to turbidity,[75] as are fish eggs and larvae.[76]

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[65] 40 CFR § 230.21(b).

[66] *Id.*

[67] *Id.* at § 230.32(b).

[68] EIS, *supra* note 1, at 4-107

[69] Minnesota Pollution Control Agency, Turbidity: Description, Impact on Water Quality, Sources, Measures - A General Overview (2008), https://www.pca.state.mn.us/sites/default/files/wq-iw3-21.pdf.

[70] Reid, *supra* note 3, at 245.

[71] *Id*. at 244.

[72] Levesque, *supra* note 3, at 399.

[73] EIS, *supra* note 1, at 4-116.

[74] *Id*.

[75] *Id.*

[76] Kjelland, M.E. et al., *A Review of the Potential Effects of Suspended Sediment on Fishes: Potential Dredging-Related Physiological, Behavioral, and Transgenerational Implications*, 35 ENVNTL. SYS. DECISIONS 334 (2015), https://doi.org/10.1007/s10669-015-9557-2.

In predicting effects of pipeline construction on mobile species (i.e., fish, sea turtles, and marine mammals), the assumption is often that they can avoid impacts by moving to other available habitat for the duration of the activities of concern.[77] This habitat avoidance is generally considered to have no negative impact on the species in question. In our view, this is an unsupported assumption. A greater understanding of the extent to which animals vacate areas during loud activity is needed before assuming that the action will not result in harm.

b. Resuspension of toxic sediments and other contaminants

As explained in Part II, New York State water quality standards include numeric criteria for specific contaminants.[78] For example, copper, lead, mercury, nickel, and zinc all have numerical water quality standards applicable to SA and SB-designated bodies of water.[79] Transco acknowledges in its water quality certification application that resuspension of these substances in the water will exceed the numerical standards for at least two contaminants—mercury and copper. But there is reason to believe that other numerical criterial could also be exceeded.

The environmental impact statement confirms that it was likely that resuspension of certain contaminants into the water column would occur at concentrations in excess of New York State water quality standards. For example, in the majority of modeled scenarios, the maximum total mercury concentrations were predicted exceed the mercury concentration standard of 0.05 µg/L.[80] Copper concentrations would also be expected to exceed New York State water quality standards—in two of the modeled scenarios, the predicted maximum concentrations for copper exceeded the chronic toxicity standard of 3.4 µg/L.[81]

But standards for other contaminants may also be violated. The contamination of New York Harbor and the surrounding waterbodies by heavy metals, PCBs, dioxins, pesticides, and other contaminants is well-known.[82] Sediment from New York Harbor is so contaminated that most of the dredged material (66 percent) from New York/New Jersey Harbor was found to be unacceptable for ocean disposal.[83]

Transco acknowledges that there are dangerous levels of contaminants in the Project Area. According to the environmental impact statement, in every sample taken in the Project

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[77] EIS, *supra* note 1, at 4-116.

[78] 6 NYCRR § 703.5, tbl. 1.

[79] *Id.*

[80] EIS, *supra* note 1, at 4-122.

[81] *Id.*; *see also* 6 NYCRR § 703.5(f)

[82] Kirk Johnson, *The Problem Is Deep, and Its Name Is Mud; Before New York Harbor Is Dredged, Toxic Sediments Must Be Mapped*, N.Y. TIMES, Jun. 3, 2002, https://www.nytimes.com/2002/06/03/nyregion/problem-deep-its-name-mud-before-new-york-harbor-dredged-toxic-sediments-must-be.html.

[83] DEC, Contaminant Assessment and Reduction Project: NY/NJ Harbor Sediment Report 1998-2001 (2003), http://www.hudsonriver.org/CARP/Appendicies/A-1/NYNJ%20Harbor%20Sediment%20Report%20(NYSDEC).pdf.

Area, levels of at least one contaminant were so high that New York State would classify the sample as "Class C" sediment, meaning that "there is a high potential for the sediments to be toxic to aquatic life."[84]

In particular, about one third of sample sites contained concentrations of organic contaminants, like PCBs, at levels that exceeded Class C thresholds.[85] Approximately 83 percent of the sample sites contained concentrations of a metal at levels that exceeded Class C thresholds. Harmful levels of heavy metals (e.g., copper, lead, zinc, mercury), were detected at multiple locations—for mercury at one site; lead and mercury at one site; lead, zinc, and mercury at two sites; and copper, lead, and mercury at one site.[86]

The resuspension of these contaminants can significantly harm aquatic ecosystems, impeding the best usages of the waterbody. According to EPA, toxic metals, toxic organics, pathogens, and viruses can absorb or adsorb to fine-grained particulates, and through this process, become biologically available to organisms living in the water.[87] Furthermore, certain suspended material may react with the dissolved oxygen in the water, which can result in oxygen depletion,[88] which, in turn, can cause losses in biodiversity, ecosystem function, and services such as fisheries and aquaculture.

The environmental impact statement acknowledges that seafloor-disturbing construction activities such as the ones undertaken for the NESE could re-suspend contaminants into the water, potentially exposing biota to contaminants via ingestion with food, membrane-facilitated transport, or passive diffusion, making organisms sick and even killing them.[89] And once contaminants enter an organism, they could move up the food chain, potentially harming and killing organisms that were not directly exposed to the contaminant in the environment.[90] For example, PCBs have a "high potential for bio-uptake and bio-transfer within marine food chains."[91]

c. Settleable Solids

New York State water quality standards prohibit any suspended, colloidal, or settleable solids from causing "deposition" or "impair[ing] the waters for their best usages."[92] In total,

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[84] DEC, Screening and Assessment of Contaminated Sediment 11 (2014), https://www.dec.ny.gov/docs/fish_marine_pdf/screenasssedfin.pdf.

[85] EIS, *supra* note 1, at 4-121.

[86] *Id.*

[87] *Id.*

[88] 40 CFR § 230.21(b).

[89] EIS, *supra* note 1, at 4-121.

[90] *Id.*

[91] EIS, *supra* note 1, at 4-124.

[92] 6 NYCRR § 703.2.

over 1 million cubic yards of sediment would be excavated or otherwise disturbed during the offshore pipeline installation.[93] This is expected to cause deposition and impair the receiving waters for their best usages.

Transco acknowledges that deposition will occur throughout the Project Area. Sedimentation in excess of 1.2 inches is expected throughout the pipeline's path as a result of excavation and backfilling.[94] According to the environmental impact statement, sedimentation from clamshell dredging during excavation may exceed 1.2 inches of deposition up to 249 feet from the source and would cover up to 21.7 acres of sea floor.[95] Use of the hand jet and submersible pump/suction dredge, is predicted to lead to sedimentation exceeding 1.2 inches up to 328 feet from the source, covering up to 3.7 acres.[96] Backfilling is also expected to lead to sedimentation greater than 1.2 inches up to 574 feet from the source, covering up to 183.2 acres of seafloor.[97] Thinner deposits of sediments would extend even further from areas of seafloor disturbance. [98]

This sedimentation would impair the best usages of the waterbody, in violation of state water quality standards. In particular, shellfish harvesting; fishing; and fish, shellfish, and wildlife propagation and survival would all be diminished.

As explained in the environmental impact statement, the redistribution of sediments that fall out of suspension could bury benthic and demersal (bottom-dwelling) species, leaving benthic organisms, fish eggs, and larvae could at risk of smothering or other injury.[99] Recovery from such sedimentation 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.[100]

While benthic invertebrates and demersal fish species in or near the excavation area would be most directly harmed, pelagic fish, sea turtles, and marine mammals could also be affected. [101]

In particular, shellfish may be especially exposed to sedimentation as a consequence of the Project. According to the environmental impact statement, it is "possible" that the increased sediment load from Project construction activities would result in the mortality of some clams

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[93] EIS, *supra* note 1, at 4-106.

[94] *Id.* at 4-113.

[95] *Id.*

[96] *Id.*

[97] *Id.*

[98] *Id.*

[99] *Id.* at 4-107, 4-126.

[100] *Id.* at 4-117.

[101] *Id.* at 4-107.

and other benthic organisms.[102] Indeed, over 520 acres of shellfish lands would receive some level of additional sedimentation, with over 250 acres receiving more than 1.2 inches of sedimentation.[103]

While the environmental impact statement concludes that mobile species would likely temporarily vacate the area to avoid the disturbance,[104] for the reasons explained in Part III.b, we do not believe those assumptions are supported.

d. Best Usages

The effects of turbidity, resuspension of sediments, and sedimentation on best usages has already been discussed in Parts III.a – c; however, additional activity associated with pipeline construction could also impair the best usages of the waterbodies. Namely, aquatic organisms living in the direct path of the pipeline would be displaced, injured, or killed as a consequence of construction activity, impairing shellfish harvesting; fishing; fish, shellfish, and wildlife propagation and survival; and recreation.

As the environmental impact statement acknowledges, construction would directly harm or kill all aquatic organisms caught in the 87.8-acre path of the pipeline and in the 947.4 acres just outside of the path of the pipeline.[105]

The surf clam is just one example of how pipeline construction can have long-lasting effects on the survival of a species. The decline of the surf clam population after the construction of the Rockaway Delivery Lateral Project, the pipeline to which the NESE will tie-into offshore of Queens at the Rockaway Transfer Point, may be instructive. Before completion of the Rockaway Delivery Lateral, 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.[106] Notably and unfortunately, after construction of the Rockaway Delivery Lateral Project, post-construction surveys found that the concentration of surf clam in this area declined after construction.[107] A similar effect could befall other surf clam populations in the pipeline's path—Indeed, populations of surf clam were found at nearly every sampling station east of approximately milepost 25 of the pipeline,[108] and a

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[102] *Id.* at 4-116.

[103] *Id.* at 4-113, t. 4.5.2-6.

[104] *Id.* at 4-107.

[105] *Id.*

[106] *Id.* at 4-101.

[107] *Id.*

[108] *Id.*

portion of the pipeline would cross a Special Permit Area where the Department issues permits for the harvest of surf clam.[109]

Other clams, such as the hard clam, could be similarly affected. Populations of hard clam were observed at nearly every sampling station westward of milepost 25, and the pipeline would run through the most productive hard clam area for Raritan Bay in New York waters, near Staten Island,[110] an area in which the Department indicated it may reinitiate commercial clam harvesting.[111] Soft clam and blue mussel were also observed in the Project Area.[112]

Horseshoe crabs, also found in the Project Area, are also vulnerable. Horseshoe crabs are an ecologically and economically important species—They are harvested for use as bait in commercial American eel and conch fisheries, and for their blood, which is used in the biomedical industry. Additionally, horseshoe crab eggs and larvae are an important food source for migratory birds, other crab species, and several gastropods, and serve as common prey for the sea turtles and finfish, including striped bass, white perch, American eel, killifish, silver perch, weakfish, Atlantic silverside, summer flounder, and winter flounder.[113]

Unfortunately, the population of horseshoe crabs, once abundant in Raritan Bay and the New York-New Jersey Harbor, has declined substantially in recent decades—the population remains at about 25 percent of its carrying capacity and there is no sign of sustained recovery for the population.[114] Construction of the pipeline may further injure the already weakened population. Juvenile, adult, and larval life stages of the horseshoe crab may be present in the construction areas.[115] According to the environmental impact statement, horseshoe crabs in the Project area may be injured or killed by excavation through the temporary loss of foraging habitat.[116]

This decline has demonstrably affected animals who rely on the crab as a food source. For example, as a consequence of the horseshoe crab's dwindling population, the population of the East Coast red knot, a migratory shorebird, has plummeted, from more than 100,000 in the 1980s to only about 30,000 today.[117] Wildlife biologists in New Jersey have expressed concern

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[109] *Id.*

[110] *Id.*

[111] *Id.* at 4-10.

[112] *Id.* at 4-101.

[113] *Id.* at 4-103.

[114] *Id.*

[115] *Id.* at 4-118.

[116] *Id.*

[117] Lisa W. Foderaro, *A Bird, a Crab and a Shared Fight to Survive*, N.Y. TIMES, Jun. 5, 2012, https://www.nytimes.com/2012/06/06/nyregion/red-knots-horseshoe-crabs-and-fight-to-survive-in-delaware-bay.html; *see also* U.S. Fish and Wildlife Service, *Modeling a Future for Horseshoe Crabs and Red Knots*, Nov. 30,

that without stronger protections to the horseshoe crab, the East Cost Red knot could go extinct.[118] Similar cause-and-effect relationships between the health of prey and predator populations are likely present throughout the New York-New Jersey Harbor Estuary ecosystem.

Despite the expected injury to the horseshoe crab population, Transco has not proposed species-specific mitigation measures for horseshoe crabs.[119] While the environmental impact statement claims that potential impacts would be reduced by Transco's effort to "minimize seafloor disturbance to the extent practicable," the implementation of "best management practices during construction" (e.g., use of an environmental bucket during all clamshell dredging), and "backfilling with clean material where necessary," these mitigation measures would still not prevent turbidity blooms or suspended sediment from injuring these animals.

Harm to specific populations is not limited to the small illustrative sample described here. Notably, construction of the pipeline will interfere with important times of year for the following species:

- From June 1 – 30, against the recommendation of the NMFS, clamshell dredging would overlap with spawning migration of river herring.
- From June 1 – 30, clamshell dredging would overlap with spawning migration of Atlantic sturgeon, which is federally listed.[120]
- From June 15 – 30 or October 1 – November 10, hand jet/submersible pump activities near the Rockaway Transfer Point would disturb sediment during the Atlantic sturgeon's spring or fall migration.
- From October 1 – November 30, spool installation, hydrotesting and drying near the Rockaway Transfer Point would interfere with Atlantic Sturgeon fall migration.
- From December 15 – January 30, reinstatement of the channel crossing and backfilling would interfered with the spawning of winter flounder, a species that NMFS has identified as a sensitive resource.

Transco's water quality certification application acknowledges that this detrimental effect on aquatic species populations "could potentially impact recreational and commercial fishing in the Project area and, by extension, the seafood industry by either reducing the abundance of commercial fish communities or interfering with fishers' access to commercial fishing

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2016, https://www.fws.gov/news/blog/index.cfm/2016/11/30/Modeling-a-Future-for-Horseshoe-Crabs-and-Red-Knots.

[118] *Id.*

[119] EIS, *supra* note 1, at 4-118.

[120] The Atlantic sturgeon is a federally listed species with five DPSs, one of which is listed as threatened, and four of which are listed as endangered. Aggregations of the New York Bight DPS are closest to the Project area, with spawning populations found in the Hudson and Delaware Rivers, but the ranges of the other four DPS also overlap this area. *Id.* at 4-184.

grounds,"[121] impairing the use of the affected area for recreational, sports, and commercial fishing.

Conclusion

Transco has failed to make a compelling case for how, despite the acknowledged increase in turbidity and loss of aquatic life, the project would still be in compliance with state water quality standards. For this reason, we hope that New York takes a hard look at Transco's application and denies the water quality certification application for the Northeast Supply Enhancement pipeline.

Sincerely,

Kimberly Ong
Senior Attorney

[121] Joint Application, *supra* note 57, at 4-34.

ATTACHMENT B

Applied Economics Clinic
Economic and Policy Analysis of Energy, Environment and Equity

Comment on Williams' Assessment of Net Greenhouse Gas Emissions from NESE

Elizabeth A. Stanton, PhD
Senior Economist, Applied Economics Clinic
July 13, 2019

Williams' April 24, 2019 letter[1] to the Federal Energy Regulatory Commission provides an analysis of greenhouse gas emissions associated with the Northeast Supply Enhancement Project (NESE) expansion of the existing Transco interstate pipeline to bring additional gas capacity to New York City and Long Island. Williams claims that the NESE will serve to reduce emissions from fuel oil consumption, lowering New York City's net greenhouse gas emissions by 2.8 million metric tons (MMT) of carbon dioxide (CO_2) per year.

Critique of Williams' emission analysis: faulty assumptions, questionable conclusions

Williams' assessment rests on several assumptions that overstate the emissions of alternatives to the pipeline and understate the pipeline's emissions impacts. The evidence supplied by Williams does not support their claim that NESE would lower New York City's greenhouse gas emissions.

Electric heat pumps are the cleaner, modern heating choice

Heat pumps are highly efficient and can be used for both heating and cooling, obviating the need for (and expense of) additional window, wall, or rooftop air conditioners. Because heat pumps run on electricity, their widespread adoption would render new gas delivery infrastructure superfluous—an unnecessary expense that need not be borne by consumers. A recent assessment of the growth in heat pump adoption in New York found that two-thirds of heating systems added in 2030 could be heat pumps.[2]

Williams' calculation of emission savings from NESE rests on the unlikely prediction that in the absence of new gas capacity, all new heating systems (whether replacements for aging boilers or in new construction) would be fired by oil. In Williams' assessment, for reasons left unexplained, zero percent of New York City's space and water heating needs are met by new electric heat pumps (or even by less-efficient electric resistance heating). Williams' analysis did not sufficiently consider the possibility that a well-designed portfolio of rapidly scaled up (and sufficiently funded) energy efficiency, demand response/demand side management measures, and heat pumps could over time largely replace the need for the pipeline while minimizing the installation of new oil furnaces. To date, I am unaware of any sufficiently transparent process drilling down into National Grid's claimed gas capacity shortage, or assessed whether such a scenario is possible. Due to the superior efficiency of heat pumps as compared to other heating options, along with the proven track record of energy efficiency and demand response being able to deliver cleaner alternatives, any credible analysis should include a reasonable assumption on the penetration rates of

[1] Gebbia, Mark. April 24, 2019. Letter from Williams (Transcontinental Gas Pipe Line Company, LLC) to the Federal Energy Regulatory Commissions.
[2] VEIC. 2018. *Ramping Up Heat Pump Adoption in New York State.* Prepared for the National Resources Defense Council. Available at: https://www.veic.org/documents/default-source/resources/reports/veic-ramping-up-heat-pump-adoption-in-new-york-state.pdf

those cleaner alternatives over time. The Williams analysis does not incorporate reasonable assumptions in this respect.

Emissions from electric heating are lower than emissions from gas heating and the difference will increase over time

A gas furnace requires 11 therms of gas to generate 1 MMBtu of energy[3] and, by Williams' calculation, emit 53 kilogram (kg) of CO_2. Generating the same 1 MMBtu of heating energy using an electric heat pump requires roughly 90 kilowatt-hours (kWh) of electricity.[4] The emissions associated with that heating depend on assumptions used regarding the electricity used to charge the heat pump. To the extent that new electric heating demand drives the construction of new generation supply, much of that new supply is likely to be zero emissions given the state's aggressive clean energy and emissions goals.

If instead emissions are calculated using average grid mix as a proxy for the electricity used to charge the heat pumps, New York's electric average emission rate was 0.21 kg of CO_2 per kWh in 2016, and is expected to fall to 0.12 kg in 2030 under New York's previously adopted program to achieve 50 percent renewable electric supply by 2030.[5] That emissions rate will fall even faster under New York's new requirement to achieve 70 percent renewable electric supply by 2030 and 100 percent zero emissions electricity by 2040. That means that on average, using statewide emissions rates and existing technology, an MMBtu of heating provided by a heat pump results in less than 19 kg of CO_2 today, and that number will fall steadily to reach less than 10 kg of CO_2 in 2030. Heat pumps provide a greenhouse gas emission savings compared to gas heating, and that savings will grow every year as New York adds more renewable energy to its electric generation.

If gas is incorrectly assumed to displace only fuel oil: Williams' emissions reductions are still overstated

Even if it were the case—which it is not—that every million British thermal units (MMBtu) of gas brought into New York City meant one less MMBtu of oil heating and an associated greenhouse gas savings of one-third (from the fuel switch), Williams' emission reduction claim would still be overstated. Williams assumes that the NESE will be used to its full capacity every day of the year such that the fullest possible potential of gas would displace a technical maximum of heating oil, providing greenhouse gas emission reductions that simply cannot be achieved.

Pipelines are sized to address customers' need for gas on the "peak" day of the year with the greatest level of consumption, often a cold spell during the winter heating season. During the rest of the year, pipelines transport only a fraction of this capacity and displace—in Williams' expected future where gas and oil are the only heating choices—a fraction of the heating oil claimed. In 2010, for example, New York City's actual

[3] Assuming an Annual Fuel Utilization Efficiency (AFUE) of 95 percent.
[4] This assumes a heat pump with a Heating Seasonal Performance Factor (HSPF) of 11.
[5] VEIC. 2018. *Ramping Up Heat Pump Adoption in New York State.* Prepared for the Natural Resources Defense Council. Available at: https://www.veic.org/documents/default-source/resources/reports/veic-ramping-up-heat-pump-adoption-in-new-york-state.pdf

gas consumption was about one-half of full gas capacity.[6] In summary, the NESE would provide a much smaller greenhouse gas reduction than claimed even if it solely displaced fuel oil.

Williams does not consider upstream emissions

Williams' emission assessment also misses the upstream or life-cycle emissions of both gas and fuel oil. Strong evidence demonstrates that upstream methane leakage from gas transmission and distribution systems amounts to more than 2 percent of U.S. gas production.[7] Methane emissions have an outsized impact on the heat trapped during their lifetime in the atmosphere: methane is 56 times more powerful in terms of heat-trapping, per ton, than CO_2, when measured on a 20-year timescale.[8]

[6] Where full capacity is peak usage times 365 days. ICF International. 2011. *Assessment of New York City Natural Gas Market Fundamentals and Life Cycle Fuel Emissions.* Prepared for: New York City Mayor's Office of Long-Term Planning and Sustainability. Available at: http://www.nyc.gov/html/om/pdf/2012/icf_natural_gas_study.pdf

[7] Alvarez, R. et al. 2018. "Assessment of methane emissions from the U.S. oil and gas supply chain." Science 361(6398): 186-188. Available at: https://science.sciencemag.org/content/361/6398/186

[8] United Nations Framework Convention on Climate Change. 1995. *Climate Change 1995, The Science of Climate Change: Summary for Policymakers and Technical Summary of the Working Group I* Report. p.22. Available at: https://unfccc.int/process/transparency-and-reporting/greenhouse-gas-data/greenhouse-gas-data-unfccc/global-warming-potentials

March 15, 2019

Karen Gaidasz, Project Manager
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NYSDEC - Division of Environmental Permits
625 Broadway, 4th Floor, Albany, NY 12233-1750

Re: Comments on the Water Quality Certification Application of the Northeast Supply Enhancement (NESE) Project, ID No. 2-9902-00109

Dear Ms Gaidasz:

Thank you for the opportunity to comment on the Water Quality Certification Application for the Northeast Supply Enhancement Project (NESE). These comments are submitted on behalf of the Natural Resources Defense Council ("NRDC") and its 130,000 members and activists who live in New York State. In brief, NRDC writes to urge the New York State Department of Environmental Conservation ("DEC" or the "Department") to deny water quality certification to the NESE pipeline, as the pipeline has failed to demonstrate that it will satisfy New York state water quality standards.

As you know, over seventeen miles of the Northeast Supply Enhancement pipeline is proposed to be built in New York State—in Raritan Bay, lower New York Bay, and the New York Bight. Collectively, these bodies of water are sources of recreation for millions of people, and support numerous aquatic animals, including the endangered North Atlantic right whale, the endangered fin whale, and the endangered Atlantic sturgeon. All three of these waterways are on a path of ecological recovery that could be disrupted by the construction of this pipeline.

As explained in the application submitted by the Transcontinental Gas Pipe Line Company, LLC ("Transco"), a subsidiary of Williams Partners, L.P. ("Williams"), the vast majority of the pipeline in New York will be built using a trenching method, causing the displacement of over 1 million cubic yards of sediment from the ocean floor. These activities will not only disturb the seabed, but also suspend sediments in the water, increasing turbidity, and, as a consequence, killing and injuring aquatic organisms.

In turn, these construction activities could violate New York State water quality standards. Specifically, construction of the pipeline would increase turbidity to an extent that

there would be a substantial visible contrast to natural conditions, in violation of 6 NYCRR § 703.2. The suspension of solids in the water column would also resuspend contaminants in the water, exceeding numerical standards for several contaminants, including mercury and copper, set forth in 6 NYCRR § 703.5. Additionally, the settling solids would cause deposition, in violation of 6 NYCRR § 703.2. Finally, construction would pollute the water so that their best usages, such as fishing, recreation, and wildlife propagation, were impaired, in violation of 6 NYCRR § 701.1.

In support of these points, our comments are divided into three parts. Part I describes the proposed pipeline and the important ecological area in which it would be built. Part II sets forth the statutory framework for New York State's water quality certification decision. Finally, Part III explains the many ways in which the Northeast Supply Enhancement Pipeline could violate New York State water quality standards.

I. Background

a. Natural Resources Defense Council

The Natural Resources Defense Council is an international, nonprofit environmental organization with more than three million members and online activists, including nearly 130,000 in New York State. For five decades, NRDC has been committed to the preservation, protection, and defense of the environment, public health, and natural resources.

NRDC has a long history of litigating and advocating for clean water at both the federal level and in New York State. In 1972, for example, it helped enact the Clean Water Act, America's bedrock water-protection law, and most recently, in 2015, NRDC was a principal advocate for the issuance of the Clean Water Rule, which returned guaranteed protections under the Clean Water Act to hundreds of thousands of miles of streams and tens of millions of acres of wetlands across the country. In New York, NRDC has for more than 25 years been a principal advocate for pollution prevention and watershed protection for the Catskill and Delaware watersheds, which provide drinking water to more than nine million residents, and the New York-New Jersey Harbor Estuary. In the 1990s NRDC brought federal Clean Water Act litigation that led to the establishment of total maximum daily load (TMDL) pollution standards in New York's upstate reservoirs and other state waterbodies. NRDC has also been a key advocate since the 1970s for full cleanup of toxic PCBs from the Hudson River.

b. The Northeast Supply Enhancement Project

The Northeast Supply Enhancement Project ("NESE" or the "Project") is an expansion of the Transco Pipeline, a natural gas pipeline which runs from Texas to New York City. The almost $1 billion project is owned by Williams, one of the largest natural gas pipeline companies in the United States. The proposed pipeline facilities are divided into three sections—one of which, the Raritan Bay Loop, would cross through New York State for 17.3 miles. The entire New York portion of the pipeline would be sited offshore in Queens and Richmond Counties, just south of Staten Island, Coney Island, and the Rockaways, in three connected waterbodies—

Raritan Bay, Lower New York Bay, and the New York Bight section of the Atlantic Ocean.[1] The NESE would then connect to an existing offshore pipeline, the Rockaway Delivery Lateral, at a location known as the Rockaway Transfer Point in Queens, New York.

When a pipeline is built through a waterbody, the crossing can be undertaken in two ways: either by cutting a trench along the bottom of the watercourse, a process known as "trenching," or by tunneling the pipeline under the waterbody, which is known as "Horizontal Directional Drilling" ("HDD"). When a pipeline is constructed through a waterbody via trenching, a trench is dug through the waterbody, either via clamshell dredge or jet trencher, and the pipeline is laid into it. With the HDD method, a tunnel would be drilled under the sea floor and the pipe then routed through it.

While each method has the potential to degrade water quality, trenching is generally understood to be more harmful to waterbodies.[2] Trenching can result in 100 percent loss of sea floor habitat within the right-of-way for the duration of construction. This process directly tears up part of the sea floor, destroying habitats, increasing turbidity and sedimentation (i.e. the depositing of soil and silt into water).[3] Sixteen of the seventeen miles of the pipeline would be installed in a trench created by either a clamshell dredge (approximately 2 miles) or jet trencher (approximately 13 miles), and less than 1 mile of the pipeline would be dug using the HDD Method.[4] The width of the construction right-of-way for the offshore segment of the Raritan Bay Loop would be 5,000 feet wide,[5] affecting over 14,523 acres of land.[6]

c. Raritan Bay, Lower New York Bay, and the New York Bight

As explained earlier, the NESE would cross three important waterbodies in New York—Raritan Bay, Lower New York Bay, and the New York Bight. Both Raritan Bay and the Lower New York Bay are part of the New York-New Jersey Harbor Estuary, which opens onto the New York Bight in the Atlantic Ocean to the southeast. Collectively, these bodies of water provide

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[1] Federal Energy Regulatory Commission, Northeast Supply Enhancement Project - Final Environmental Impact Statement, Docket No. CP17-101-000, at 4-50 (2019) [hereinafter "EIS"].

[2] *See* U.S. Army Corps of Engineers, *Sediment and Erosion Control Guidelines for Pipeline Projects* 2, *available at* https://goo.gl/V3T8Uv (last visited Mar. 15, 2019).

[3] Lucie Levesque & Monique Dube, *Review of the Effects of In-Stream Pipeline Crossing Construction on Aquatic Ecosystem*s, 132 Envtl. Monitoring & Assessment 395, 396–98 (2007), *available at* https://goo.gl/N2soGd [hereinafter "Levesque"]; Scott Reid & Paul Anderson, *Effects of Sediment Released During Open-Cut Pipeline Water Crossing,* 24 Can. Water Resources J. 235, 240 (1999), *available at* https://goo.gl/6NPnFV [hereinafter "Reid"].

[4] EIS, *supra* note 1, at 2-35, t. 2.3.3-1.

[5] *Id.* at 2-11.

[6] *Id.* at 2-9.

important ecological services, host endangered and threatened species, and support a wide variety of recreational activities.[7]

Fig. 1. The map of the New York Harbor region includes the five boroughs of New York City (Manhattan, Bronx, Queens, Brooklyn, Staten Island), Westchester County, New York, Nassau County on Long Island, New York and extensive regions of Northeast New Jersey. The complex waterways include the Hudson River and several New Jersey Rivers (Hackensack, Passaic, Rahway and Raritan Rivers), which all empty into New York Harbor. There are six bays that are contiguous with New York Harbor: Newark, Raritan, Sandy Hook, Lower New York, Upper New York and Jamaica Bays. There are two entrances into New York Harbor; Long Island Sound via the Western Narrows and East River, and the Atlantic Ocean via the Mid-Atlantic Bight and the entrance between Rockaway Point and Sandy Hook. Four parallel east–west transects were established to provide insights into the natural and man-made features of New York Harbor. From north to south, these transects were the following: T1-George Washington Bridge transect, T2-Mid-town Manhattan/Empire State Building transect, T3-Statue of Liberty transect, and T4-Verrazano Bridge transect. Each transect is described in following figures. *Source: O'Neil,* supra *note 7, at 275 fig. 1.*

Since the beginning of the nineteenth century, pollution, sewage, solid waste and, eventually, industrial chemical contamination increasingly debilitated the health of New York Harbor.[8] In the past 50 years, however, the health of the Harbor has improved tremendously as a

[7] Judith M. O'Neil et al., *New York Harbor: Resilience in the face of four centuries of development*, Regional Studies in Marine Science, *passim* (2016), https://par.nsf.gov/servlets/purl/10021363.

[8] *Id.* at 276.

result of significant investment from the City of New York, local non-profit organizations, and citizen involvement.[9] Thanks to these efforts, New York Harbor is the healthiest it has been in over a century.[10]

Although the overall abundance of fish has declined in the past 400 years due to historic contamination and commercial fishing depletion issues, New York Harbor is still home to a diverse collection of aquatic species.[11] Seasonal nutritional upwellings in the estuary support a high volume of algae, phytoplankton, and zooplankton, which in turn support a high variety of aquatic species, including the blue crab,[12] ribbed mussel,[13] Shortnose Sturgeon,[14] bottlenose dolphin,[15] and the harbor seal.[16] Because the Raritan Bay is home to such a diverse array of habitats that support regionally rare and important marine, estuarine, and anadromous species, the U.S. Fish and Wildlife Service designated parts of the Bay as the Raritan Bay-Sandy Hook Bay Significant Habitat Complex.[17] Eight miles of the pipeline would cross this ecologically significant area.[18]

According to a study by the NY-NJ Harbor & Estuary Program, the estuary now supports more than 200 fish species.[19] These species include diadromous (fish that migrate between fresh and salt water) and marine finfish species of ecological, commercial, and recreational importance.[20] The New York Bight also serves as spawning grounds for many economically important species and as nursery grounds for their early development stages.[21]

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[9] *Id.* at 278, 281, 283.

[10] New York City Office of the Mayor, *New York Harbor: Healthier Than It's Been in More Than a Century* (Dec. 7, 2017), https://www1.nyc.gov/office-of-the-mayor/news/753-17/new-york-harbor-healthier-it-s-been-more-century.

[11] O'Neil, *supra* note 7, at 282.

[12] National Oceanic and Atmospheric Administration, Significant Habitats and Habitat Complexes of the New York Bight Watershed – Lower Hudson River Estuary 4 (2011) *available at* https://www.nodc.noaa.gov/archive/arc0034/0071981/1.1/data/1-data/disc_contents/document/wp/low_hud.pdf.

[13] New York-New Jersey Harbor & Estuary Program, Hudson-Raritan Estuary Comprehensive Restoration Plan 37, 82 (2016), *available at* http://www.harborestuary.org/watersweshare/pdfs/CRP/FinalReport-0616.pdf.

[14] *Id.*

[15] D. F. Squires & J. S. Barclay, New York-New Jersey Harbor & Estuary Program, Nearshore Wildlife Habitats and Populations in the New York/New Jersey Estuary 92 (1990), *available at* http://www.harborestuary.org/pdf/NearshoreWildlife1990.pdf.

[16] *Id.*

[17] EIS, *supra* note 1, at 4-98.

[18] *Id.*

[19] New York-New Jersey Harbor & Estuary Program, The State of the Estuary 2018 3 (2018), *available at* https://www.hudsonriver.org/NYNJHEPStateoftheEstuary.pdf [hereinafter "*State of the Estuary*"].

[20] EIS, *supra* note 1, at 4-98 – 99

[21] *Id.*

Of these over 200 fish species, essential fish habitat ("EFH") is designated for 33 species in the Project area. Four fish species (Atlantic sturgeon, shortnose sturgeon, cusk, oceanic whitetip shark), are federally or state-listed as threatened or endangered,[22] and eight species (alewife, blueback herring, rainbow smelt, warsaw grouper, cusk, Atlantic bluefin tuna, dusky shark, and sand tiger shark) are listed as "species of concern" by the National Marine Fisheries Service. Three of these species of concern (Atlantic bluefin tuna, dusky shark, and sand tiger shark) have designated essential fish habitat within or in the vicinity of the Project Area.[23]

Sixteen species of marine mammals, consisting of 13 species of cetaceans (i.e., whales, dolphins, and porpoises), and 3 species of pinnipeds (i.e., seals) may also use the Project area during the year. Of these species, six (blue whale, sei whale, sperm whale, North Atlantic right whale, fin whale)[24] are federally or state-listed as threatened or endangered.[25]

In addition, five species of sea turtles have the potential to occur within Project area, all protected under the Endangered Species Act. These include the green, Kemp's ridley, leatherback, loggerhead, and hawksbill sea turtles.[26]

The New York Harbor Estuary also supports benthic species such as clams, oysters, and mollusks that provide important ecosystem services such as water filtration, three-dimensional habitats for other species like fish and anemones, stabilize shorelines from erosion, and absorb large waves.[27]

Improvements in water quality, increased diversity of marine life, and enhanced access to the shoreline have all contributed to a revitalization of recreational activities in the New York Harbor.[28] Between 2009 and 2014, over 500 acres of the waterfront were opened to the public in the form of parks or public spaces,[29] and by 2016, approximately 37 percent of the Harbor shoreline was estimated to serve as parks or public waterfront spaces, totaling 41,078 acres.[30] As demonstrated by Figure 2 below, along the southern shoreline of Staten Island, the southwestern shoreline of Brooklyn, and the western shoreline of the Rockaway neighborhood in Queens, a

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[22] *Id.* at 4-162.

[23] *Id.* at 4-103.

[24] *Id.* at 4-162.

[25] *Id.* at 4-104.

[26] *Id.* at 4-106.

[27] *State of the Estuary*, *supra* note 19, at 31.

[28] New York-New Jersey Harbor & Estuary Program, Connecting with Our Waterways: Public Access and its Stewardship in the New York-New Jersey Harbor Estuary ii (2016), *available at* https://www.nrs.fs.fed.us/pubs/50713 [hereinafter "*Connecting with Our Waterways*"]

[29] *Id.*

[30] O'Neil, *supra* note 7, at 10.

majority of shoreline is designated public space.[31] National Park sites in New York Harbor alone received 16,090,450 visitors who spent $559,169,600 in communities near the parks.[32]

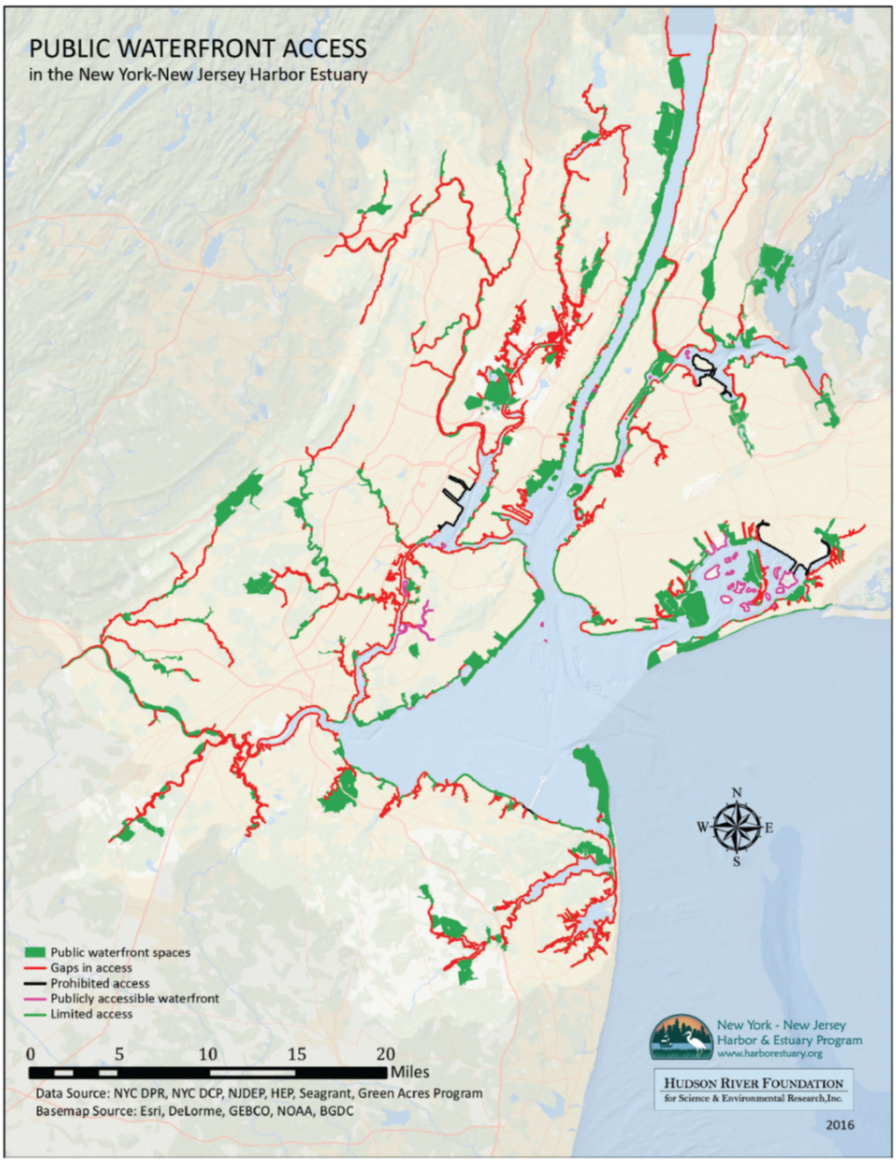

Figure 2: While large publicly-accessible waterfront spaces were found throughout the region, long stretches of gaps in access remain in many areas.

Source: Connecting with Our Waterways, supra *note 28, at 4.*

The Harbor itself also serves as a recreation area for public and private boating activities, such as rowing, kayaking, canoeing, and sailing.[33] Recreational and sport fishing are also

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[31] *Connecting with Our Waterways*, *supra* note 28, at ii.

[32] National Park Service, National Parks of New York Harbor, *Tourism to National Parks of New York Harbor creates $714,149200 in Economic Benefits*, April 29, 2016, https://www.nps.gov/npnh/learn/news/vis_spending_2015.htm.

popular recreational activities in the Project Area.[34] The pipeline's workspace would cross through three New Jersey Department of Environmental Protection-designated sport ocean fishing grounds in New York: the Gong Grounds, Tin Can Grounds, and Ambrose Channel Grounds.[35] In 2015, 3.2 million saltwater recreational angler trips took place off the shores of New York.[36] Whale watching and scuba diving also take place within the Project Area.[37]

II. Statutory Framework

a. Clean Water Act, Section 401

Under section 401 of the Clean Water Act, an applicant for a federal license or permit for activity that "may result in any discharge into the navigable waters"—such as an applicant for a section 404 dredge-and-fill permit or for a certificate of public convenience and necessity under the Natural Gas Act—must receive a water quality certification: state certification that "any such discharge will comply with the applicable provisions of sections [301–303 and 306–307 of the Clean Water Act]."[38] And as to water quality certification, EPA regulations specify that a water quality certification must include "[a] statement that there is a reasonable assurance that the activity [for which a water quality certification application has been submitted] will be conducted in a manner which will not violate applicable water quality standards."[39] Notably, states may generally regulate water quality more stringently than as required by the Clean Water Act.[40]

Section 401(d) provides additionally that states shall attach conditions to water quality certifications in the form of "effluent limitations and other limitations, and monitoring requirements" necessary to assure compliance with the applicable requirements of sections 301–303 and 306–307 of the Clean Water Act, "and with any other appropriate requirement of State

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[33] O'Neil, *supra* note 7, at 10.

[34] EIS, *supra* note 1, at 4-265.

[35] *Id.* at 4-100, 4-265 – 4-266.

[36] *Id.* at 4-265.

[37] *Id.*

[38] 33 U.S.C. § 1341(a)(1). These sections of the Clean Water Act include provisions relating to standards, limitations, and prohibitions for point source discharges, and also relating to state-promulgated water quality standards. 33 U.S.C. §§ 1311–13, 1316–17. The New York State regulations implementing section 401 similarly provide that "[a]ny applicant for a Federal license or permit to conduct any activity, including but not limited to the construction or operation of facilities that may result in any discharge into navigable waters . . . , must apply for and obtain a water quality certification from [DEC]. The applicant must demonstrate compliance with sections 301–303, 306 and 307 of the [Clean Water Act]." 6 NYCRR § 608.9(a).

[39] 40 C.F.R. § 121.2(a)(3).

[40] 33 U.S.C. § 1370. EPA regulations note that this non-preemption clause is applicable to water quality standards. 40 C.F.R. § 131.4(a) ("As recognized by section 510 of the Clean Water Act, States may develop water quality standards more stringent than required by [the EPA water quality standards] regulation.").

law set forth in [the water quality certification]."[41] The Second Circuit has since stated in dicta that section 401(d) should be understood as limiting water quality certification conditions "to those affecting water quality in one manner or another."[42]

b. New York State Water Quality Standards

The Department is responsible for evaluating the environmental impacts of a proposed pipeline on New York waterbodies in light of the State's water quality standards.[43] Water quality certification in New York is conditional on "demonstrat[ing] compliance" with sections 301–303 and 306–307 of the Clean Water Act, as implemented by specified New York water quality regulations. Most relevant to this project, an applicant must demonstrate compliance with "water quality standards and thermal discharge criteria set forth in Parts 701, 702, 703 and 704 of [the DEC regulations]," and "state statutes, regulations and criteria otherwise applicable to such activities."[44] Parts 701 and 703 of the regulations are the most relevant to the instant inquiry.

i. 6 NYCRR Part 701

In accordance with Part 701 of the DEC regulations, all waterbodies in New York State are assigned a letter classification that designates their best uses. Best uses include drinking water, swimming, and fish propagation, among other uses. They also establish the broad standard that waste discharges "shall not cause impairment of the best usages of the receiving water as specified by the water classifications" at affected locations.[45]

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[41] 33 U.S.C. § 1341(d). Although this provision does not mention section 303, the Supreme Court has held that the reference to section 301 incorporates section 303 by reference, making water quality standards a permissible consideration on setting conditions under section 401(d). PUD No. 1 of Jefferson Cty. v. Wash. Dep't of Ecology, 511 U.S. 700, 712–13 (1994).

[42] *Am. Rivers, Inc. v. FERC*, 129 F.3d 99, 107 (2d Cir. 1997). *Accord Arnold Irr. Dist. v. Dep't of Envtl. Quality*, 717 P.2d 1274, 1279 (Or. Ct. App. 1986) (stating in dicta that "only if a [water quality certification condition] has absolutely no relationship to water quality would it not be an 'other appropriate requirement of State law.'").

[43] *Constitution Pipeline Co., LLC v. New York State Dep't of Envtl. Conservation*, 868 F.3d 87, 103 (2d Cir. 2017), *cert. denied,* 138 S. Ct. 1697, 200 L. Ed. 2d 953 (2018).

[44] 6 NYCRR § 608.9(a). Subdivision (6) serves as a catch-all certification requirement of compliance with "state statutes, regulations and criteria otherwise applicable"—and also applies to the instant application.

[45] *Id.* § 701.1. "Wastes" to which these regulations apply are broadly defined, and include: "industrial waste," which is any "solid or waste substance, or a combination thereof, resulting from any process of industry, manufacturing, trade, or business or from the development or recovery of any natural resources, that may cause or might reasonably be expected to cause pollution of the waters of the State"; and "other wastes," which are "garbage, refuse, decayed wood, sawdust, shavings, bark, sand, lime, cinders, ashes, offal, oil, tar, dyestuffs, acids, chemicals, leachate, sludge, salt and all other discarded matter not sewage or industrial waste that may cause or might reasonably be expected to cause pollution of the waters of the State." *Id.* § 700.1(a)(26), (40).

The waterbodies that will be crossed by the offshore segment of the NESE (Raritan Bay, Lower New York Bay, and the New York Bight) are all designated as either Class SA and SB.[46] Under Part 701 of the DEC regulations, the best uses of Class SA waters are for shellfishing for market purposes, primary and secondary contact recreation, and fishing. These waters must also be suitable for fish, shellfish, and wildlife propagation and survival. The best uses of Class SB water are primary and secondary contact recreation and fishing. These waters must also be suitable for fish, shellfish, and wildlife propagation and survival.

ii. 6 NYCRR Part 703

The physical water quality standards that apply to SA and SB water classifications are established in Part 703 of the regulations.[47]

Part 703 includes numeric criteria by waterbody class for pH range, dissolved oxygen, dissolved solids, and coliforms.[48] Part 703 also sets forth numeric criteria for given best usages by specific substance, such as copper and mercury.[49]

Part 703 also sets forth narrative water quality criteria, generally in the form that *X substance/impairment shall not result in Y impact*.[50] The part contains narrative criteria by waterbody class for taste-, color-, and odor-producing toxic and other deleterious substances; turbidity; suspended, colloidal and settleable solids; oil and floating substances; phosphorus and nitrogen; flow impairment; and radioactivity.[51]

Of these narrative criteria, turbidity and solids, are those most relevant to the evaluation of NESE's water quality certification. Specifically, Part 703 prohibits any increase in turbidity "that will cause a substantial visible contrast to natural conditions.[52] Relatedly, it also prohibits any suspended, colloidal, or settleable solids from causing "deposition or impair[ing] the waters for their best usages."[53]

4. Otherwise Applicable Requirements

The Department's water quality certification provisions specify that a water quality certification approval for applicable federally permitted activity is conditional not just on

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[46] 6 NYCRR Part 980.

[47] *Id.* §§ 703.1–703.8. *See also* NYECL § 17-0301(4)–(6) (providing for DEC adoption of water quality standards).

[48] *Id.* §§ 703.3–703.4.

[49] *Id.* § 703.5, tbl. 1. These are mostly relevant to point source discharges and not to dredge-and-fill activity.

[50] *Id.* § 703.2.

[51] *Id.* This section also incorporates by reference the part 704 criteria for thermal discharges.

[52] *Id.*

[53] *Id.*

compliance with parts 701–704 of the DEC regulations, but also on compliance with New York "statutes, regulations and criteria otherwise applicable" to the permitted activity.[54] In making a water quality certification determination under section 608.9(a)(6) of its regulations, the Department might therefore consider state statutes, regulations, guidance documents, or even case-specific criteria, compliance with which bears upon the protection of water quality standards.

c. Regulatory Background

On June 27, 2017, Transco also filed an application to DEC for a water quality certification under Section 401 of the federal Clean Water Act. By letter dated April 20, 2018, DEC denied Transco's certification request without prejudice due to its determination that it lacked sufficient time to complete its review and conduct the necessary public process prior to Section 401(a)'s waiver deadline. On May 16, 2018, Transco re-submitted its certification request. This is the application upon which NRDC now comments.

III. New York State Should Deny Water Quality Certification to NESE

As demonstrated by Transco's water quality certification application, construction of the NESE could violate New York State water quality standards. In particular, construction of the pipeline would increase turbidity to an extent that there would be a substantial visible contrast to natural conditions, in violation of 6 NYCRR § 703.2. Construction would also resuspend contaminants in the water column, exceeding numerical standards for several contaminants, including mercury and copper, set forth in 6 NYCRR § 703.5. Additionally, construction would cause the deposition of solids, in violation of 6 NYCRR § 703.2. Finally, construction would pollute the water so that their best usages, such as fishing, recreation, and wildlife propogation, were impaired, in violation of 6 NYCRR § 701.1.

a. Turbidity

Turbidity is the measure of relative clarity of a liquid. High levels of turbidity in a waterbody indicate that there are high levels of particulate matter suspended in the water, making it cloudy or opaque. Under New York State water quality standards, a project cannot increase turbidity to an extent "that [it] will cause a substantial visible contrast to natural conditions.[55]

Altogether, pipeline construction activities would lead to increased turbidity along hundreds of acres across the sea floor. The act of dredging and filling, like the kind undertaken to construct an offshore pipeline, can temporarily suspend sediments in the water column, increasing turbidity there.[56]

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[54] *Id.* § 608.9(a)(6).

[55] *Id.*

[56] 40 CFR § 230.21(a).

According to the Project's water quality certification application, the majority of sediment-disturbance activities will occur during construction, which is expected to last up to 9 months.[57] Within that timeframe, construction activities may take place 24 hours a day, 7 days a week, and excavation along any particular section could last as long as a few weeks.[58] The environmental impact statement acknowledges that pipeline construction will increase turbidity in the surrounding waters—Indeed, an area larger than Central Park, about 945 acres of seafloor, would experience an increase in turbidity.[59]

Several activities required to construct the pipeline will lead to increased turbidity. Specifically, activities required to dig the pipeline trench, like clamshell dredging activities, jet trenching, and use of a hand jet and submersible pump, would create turbidity plumes. According to the environmental impact statement, clamshell dredging activities would generate sediment plumes exceeding ambient concentrations of total suspended solids ("TSS") by 100 parts per million (ppm) up to 3,150 feet from the source of the activity.[60] Jet trenching would generate sediment plumes with TSS concentrations exceeding the ambient conditions by 100 ppm that would extend between 262 feet to 1,345 feet from the source, and use of the hand jet and submersible pump would generate sediment plumes with TSS concentrations exceeding the ambient conditions by 100 ppm that would extend between 197 feet to 1,378 feet from the source.[61]

Activities required to bury the pipeline, such as backfill placement activities, would also increase turbidity. Backfill placement activities would generate sediment plumes with TSS concentrations exceeding the ambient conditions by 100 ppm would extend between 591 and 5,151 feet from the source.[62]

Accidental release of drilling fluid during HDD drilling could also lead to turbidity and sedimentation after drilling fluid becomes entrained in the water column and transported to other locations. [63]

Under Part 701 of the DEC regulations, increased turbidity also must not diminish the best usages of a waterbody.[64] Here, best usages such as shellfish harvesting; fishing; fish, shellfish, and wildlife propagation and survival; and recreation could all be impaired. While turbidity naturally occurs in the Project Area, artificially high levels of turbidity can impair uses

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[57] Transco, Joint Application to the New York State Department of Environmental Conservation Northeast Supply Enhancement Project 4-1 (2018) [hereinafter "Joint Application"].

[58] *Id.*

[59] EIS, *supra* note 1, at ES-11.

[60] *Id.* at 4-109.

[61] *Id.*

[62] *Id.*

[63] *Id.* at 4-96.

[64] 6 NYCRR § 701.1.

of the water—according to EPA, they can lower the rate of photosynthesis and the primary productivity of an aquatic area, damaging the surrounding ecosystem.[65] Increased turbidity can also harm aquatic animals: "Sight-dependent species may suffer reduced feeding ability leading to limited growth and lowered resistance to disease if high levels of suspended particulates persist."[66] It can also "disrupt the respiration and feeding of certain aquatic wildlife and food chain organisms"[67] by clogging fish gills and obscuring visual stimuli[68]. Increased turbidity can also make water too cloudy for mobile aquatic species to migrate.[69]

The destructive impacts of pipeline construction on fish and other aquatic species have been well-documented. Studies have demonstrated that pipeline construction can have significant and long-term effects on entire species within the construction area. A study of impacts of a natural gas pipeline crossing on the Little Miami River in Ohio, downstream catches of the dominant fish species, the silver shiner, dropped by 95 percent immediately after construction.[70] 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.[71] Such effects have been observed to last up to four years after construction.[72]

At least one study has observed that turbidity has adverse effects on hard clams, a species that dwells throughout the Project Area.[73] 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.[74] According to the environmental impact statement, pelagic species (fish that inhabit the water column, as opposed to dwelling near the bottom or the shore) are even more sensitive to turbidity,[75] as are fish eggs and larvae.[76]

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[65] 40 CFR § 230.21(b).

[66] *Id.*

[67] *Id.* at § 230.32(b).

[68] EIS, *supra* note 1, at 4-107

[69] Minnesota Pollution Control Agency, Turbidity: Description, Impact on Water Quality, Sources, Measures - A General Overview (2008), https://www.pca.state.mn.us/sites/default/files/wq-iw3-21.pdf.

[70] Reid, *supra* note 3, at 245.

[71] *Id*. at 244.

[72] Levesque, *supra* note 3, at 399.

[73] EIS, *supra* note 1, at 4-116.

[74] *Id*.

[75] *Id.*

[76] Kjelland, M.E. et al., *A Review of the Potential Effects of Suspended Sediment on Fishes: Potential Dredging-Related Physiological, Behavioral, and Transgenerational Implications*, 35 ENVNTL. SYS. DECISIONS 334 (2015), https://doi.org/10.1007/s10669-015-9557-2.

In predicting effects of pipeline construction on mobile species (i.e., fish, sea turtles, and marine mammals), the assumption is often that they can avoid impacts by moving to other available habitat for the duration of the activities of concern.[77] This habitat avoidance is generally considered to have no negative impact on the species in question. In our view, this is an unsupported assumption. A greater understanding of the extent to which animals vacate areas during loud activity is needed before assuming that the action will not result in harm.

b. Resuspension of toxic sediments and other contaminants

As explained in Part II, New York State water quality standards include numeric criteria for specific contaminants.[78] For example, copper, lead, mercury, nickel, and zinc all have numerical water quality standards applicable to SA and SB-designated bodies of water.[79] Transco acknowledges in its water quality certification application that resuspension of these substances in the water will exceed the numerical standards for at least two contaminants—mercury and copper. But there is reason to believe that other numerical criterial could also be exceeded.

The environmental impact statement confirms that it was likely that resuspension of certain contaminants into the water column would occur at concentrations in excess of New York State water quality standards. For example, in the majority of modeled scenarios, the maximum total mercury concentrations were predicted exceed the mercury concentration standard of 0.05 µg/L.[80] Copper concentrations would also be expected to exceed New York State water quality standards—in two of the modeled scenarios, the predicted maximum concentrations for copper exceeded the chronic toxicity standard of 3.4 µg/L.[81]

But standards for other contaminants may also be violated. The contamination of New York Harbor and the surrounding waterbodies by heavy metals, PCBs, dioxins, pesticides, and other contaminants is well-known.[82] Sediment from New York Harbor is so contaminated that most of the dredged material (66 percent) from New York/New Jersey Harbor was found to be unacceptable for ocean disposal.[83]

Transco acknowledges that there are dangerous levels of contaminants in the Project Area. According to the environmental impact statement, in every sample taken in the Project

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[77] EIS, *supra* note 1, at 4-116.

[78] 6 NYCRR § 703.5, tbl. 1.

[79] *Id.*

[80] EIS, *supra* note 1, at 4-122.

[81] *Id.*; *see also* 6 NYCRR § 703.5(f)

[82] Kirk Johnson, *The Problem Is Deep, and Its Name Is Mud; Before New York Harbor Is Dredged, Toxic Sediments Must Be Mapped*, N.Y. TIMES, Jun. 3, 2002, https://www.nytimes.com/2002/06/03/nyregion/problem-deep-its-name-mud-before-new-york-harbor-dredged-toxic-sediments-must-be.html.

[83] DEC, Contaminant Assessment and Reduction Project: NY/NJ Harbor Sediment Report 1998-2001 (2003), http://www.hudsonriver.org/CARP/Appendicies/A-1/NYNJ%20Harbor%20Sediment%20Report%20(NYSDEC).pdf.

Area, levels of at least one contaminant were so high that New York State would classify the sample as "Class C" sediment, meaning that "there is a high potential for the sediments to be toxic to aquatic life."[84]

In particular, about one third of sample sites contained concentrations of organic contaminants, like PCBs, at levels that exceeded Class C thresholds.[85] Approximately 83 percent of the sample sites contained concentrations of a metal at levels that exceeded Class C thresholds. Harmful levels of heavy metals (e.g., copper, lead, zinc, mercury), were detected at multiple locations—for mercury at one site; lead and mercury at one site; lead, zinc, and mercury at two sites; and copper, lead, and mercury at one site.[86]

The resuspension of these contaminants can significantly harm aquatic ecosystems, impeding the best usages of the waterbody. According to EPA, toxic metals, toxic organics, pathogens, and viruses can absorb or adsorb to fine-grained particulates, and through this process, become biologically available to organisms living in the water.[87] Furthermore, certain suspended material may react with the dissolved oxygen in the water, which can result in oxygen depletion,[88] which, in turn, can cause losses in biodiversity, ecosystem function, and services such as fisheries and aquaculture.

The environmental impact statement acknowledges that seafloor-disturbing construction activities such as the ones undertaken for the NESE could re-suspend contaminants into the water, potentially exposing biota to contaminants via ingestion with food, membrane-facilitated transport, or passive diffusion, making organisms sick and even killing them.[89] And once contaminants enter an organism, they could move up the food chain, potentially harming and killing organisms that were not directly exposed to the contaminant in the environment.[90] For example, PCBs have a "high potential for bio-uptake and bio-transfer within marine food chains."[91]

c. Settleable Solids

New York State water quality standards prohibit any suspended, colloidal, or settleable solids from causing "deposition" or "impair[ing] the waters for their best usages."[92] In total,

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[84] DEC, Screening and Assessment of Contaminated Sediment 11 (2014), https://www.dec.ny.gov/docs/fish_marine_pdf/screenasssedfin.pdf.

[85] EIS, *supra* note 1, at 4-121.

[86] *Id.*

[87] *Id.*

[88] 40 CFR § 230.21(b).

[89] EIS, *supra* note 1, at 4-121.

[90] *Id.*

[91] EIS, *supra* note 1, at 4-124.

[92] 6 NYCRR § 703.2.

over 1 million cubic yards of sediment would be excavated or otherwise disturbed during the offshore pipeline installation.[93] This is expected to cause deposition and impair the receiving waters for their best usages.

Transco acknowledges that deposition will occur throughout the Project Area. Sedimentation in excess of 1.2 inches is expected throughout the pipeline's path as a result of excavation and backfilling.[94] According to the environmental impact statement, sedimentation from clamshell dredging during excavation may exceed 1.2 inches of deposition up to 249 feet from the source and would cover up to 21.7 acres of sea floor.[95] Use of the hand jet and submersible pump/suction dredge, is predicted to lead to sedimentation exceeding 1.2 inches up to 328 feet from the source, covering up to 3.7 acres.[96] Backfilling is also expected to lead to sedimentation greater than 1.2 inches up to 574 feet from the source, covering up to 183.2 acres of seafloor.[97] Thinner deposits of sediments would extend even further from areas of seafloor disturbance. [98]

This sedimentation would impair the best usages of the waterbody, in violation of state water quality standards. In particular, shellfish harvesting; fishing; and fish, shellfish, and wildlife propagation and survival would all be diminished.

As explained in the environmental impact statement, the redistribution of sediments that fall out of suspension could bury benthic and demersal (bottom-dwelling) species, leaving benthic organisms, fish eggs, and larvae could at risk of smothering or other injury.[99] Recovery from such sedimentation 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.[100]

While benthic invertebrates and demersal fish species in or near the excavation area would be most directly harmed, pelagic fish, sea turtles, and marine mammals could also be affected. [101]

In particular, shellfish may be especially exposed to sedimentation as a consequence of the Project. According to the environmental impact statement, it is "possible" that the increased sediment load from Project construction activities would result in the mortality of some clams

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[93] EIS, *supra* note 1, at 4-106.

[94] *Id.* at 4-113.

[95] *Id.*

[96] *Id.*

[97] *Id.*

[98] *Id.*

[99] *Id.* at 4-107, 4-126.

[100] *Id.* at 4-117.

[101] *Id.* at 4-107.

and other benthic organisms.[102] Indeed, over 520 acres of shellfish lands would receive some level of additional sedimentation, with over 250 acres receiving more than 1.2 inches of sedimentation.[103]

While the environmental impact statement concludes that mobile species would likely temporarily vacate the area to avoid the disturbance,[104] for the reasons explained in Part III.b, we do not believe those assumptions are supported.

d. Best Usages

The effects of turbidity, resuspension of sediments, and sedimentation on best usages has already been discussed in Parts III.a – c; however, additional activity associated with pipeline construction could also impair the best usages of the waterbodies. Namely, aquatic organisms living in the direct path of the pipeline would be displaced, injured, or killed as a consequence of construction activity, impairing shellfish harvesting; fishing; fish, shellfish, and wildlife propagation and survival; and recreation.

As the environmental impact statement acknowledges, construction would directly harm or kill all aquatic organisms caught in the 87.8-acre path of the pipeline and in the 947.4 acres just outside of the path of the pipeline.[105]

The surf clam is just one example of how pipeline construction can have long-lasting effects on the survival of a species. The decline of the surf clam population after the construction of the Rockaway Delivery Lateral Project, the pipeline to which the NESE will tie-into offshore of Queens at the Rockaway Transfer Point, may be instructive. Before completion of the Rockaway Delivery Lateral, 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.[106] Notably and unfortunately, after construction of the Rockaway Delivery Lateral Project, post-construction surveys found that the concentration of surf clam in this area declined after construction.[107] A similar effect could befall other surf clam populations in the pipeline's path—Indeed, populations of surf clam were found at nearly every sampling station east of approximately milepost 25 of the pipeline,[108] and a

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[102] *Id.* at 4-116.

[103] *Id.* at 4-113, t. 4.5.2-6.

[104] *Id.* at 4-107.

[105] *Id.*

[106] *Id.* at 4-101.

[107] *Id.*

[108] *Id.*

portion of the pipeline would cross a Special Permit Area where the Department issues permits for the harvest of surf clam.[109]

Other clams, such as the hard clam, could be similarly affected. Populations of hard clam were observed at nearly every sampling station westward of milepost 25, and the pipeline would run through the most productive hard clam area for Raritan Bay in New York waters, near Staten Island,[110] an area in which the Department indicated it may reinitiate commercial clam harvesting.[111] Soft clam and blue mussel were also observed in the Project Area.[112]

Horseshoe crabs, also found in the Project Area, are also vulnerable. Horseshoe crabs are an ecologically and economically important species—They are harvested for use as bait in commercial American eel and conch fisheries, and for their blood, which is used in the biomedical industry. Additionally, horseshoe crab eggs and larvae are an important food source for migratory birds, other crab species, and several gastropods, and serve as common prey for the sea turtles and finfish, including striped bass, white perch, American eel, killifish, silver perch, weakfish, Atlantic silverside, summer flounder, and winter flounder.[113]

Unfortunately, the population of horseshoe crabs, once abundant in Raritan Bay and the New York-New Jersey Harbor, has declined substantially in recent decades—the population remains at about 25 percent of its carrying capacity and there is no sign of sustained recovery for the population.[114] Construction of the pipeline may further injure the already weakened population. Juvenile, adult, and larval life stages of the horseshoe crab may be present in the construction areas.[115] According to the environmental impact statement, horseshoe crabs in the Project area may be injured or killed by excavation through the temporary loss of foraging habitat.[116]

This decline has demonstrably affected animals who rely on the crab as a food source. For example, as a consequence of the horseshoe crab's dwindling population, the population of the East Coast red knot, a migratory shorebird, has plummeted, from more than 100,000 in the 1980s to only about 30,000 today.[117] Wildlife biologists in New Jersey have expressed concern

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[109] *Id.*

[110] *Id.*

[111] *Id.* at 4-10.

[112] *Id.* at 4-101.

[113] *Id.* at 4-103.

[114] *Id.*

[115] *Id.* at 4-118.

[116] *Id.*

[117] Lisa W. Foderaro, *A Bird, a Crab and a Shared Fight to Survive*, N.Y. TIMES, Jun. 5, 2012, https://www.nytimes.com/2012/06/06/nyregion/red-knots-horseshoe-crabs-and-fight-to-survive-in-delaware-bay.html; *see also* U.S. Fish and Wildlife Service, *Modeling a Future for Horseshoe Crabs and Red Knots*, Nov. 30,

that without stronger protections to the horseshoe crab, the East Cost Red knot could go extinct.[118] Similar cause-and-effect relationships between the health of prey and predator populations are likely present throughout the New York-New Jersey Harbor Estuary ecosystem.

Despite the expected injury to the horseshoe crab population, Transco has not proposed species-specific mitigation measures for horseshoe crabs.[119] While the environmental impact statement claims that potential impacts would be reduced by Transco's effort to "minimize seafloor disturbance to the extent practicable," the implementation of "best management practices during construction" (e.g., use of an environmental bucket during all clamshell dredging), and "backfilling with clean material where necessary," these mitigation measures would still not prevent turbidity blooms or suspended sediment from injuring these animals.

Harm to specific populations is not limited to the small illustrative sample described here. Notably, construction of the pipeline will interfere with important times of year for the following species:

- From June 1 – 30, against the recommendation of the NMFS, clamshell dredging would overlap with spawning migration of river herring.
- From June 1 – 30, clamshell dredging would overlap with spawning migration of Atlantic sturgeon, which is federally listed.[120]
- From June 15 – 30 or October 1 – November 10, hand jet/submersible pump activities near the Rockaway Transfer Point would disturb sediment during the Atlantic sturgeon's spring or fall migration.
- From October 1 – November 30, spool installation, hydrotesting and drying near the Rockaway Transfer Point would interfere with Atlantic Sturgeon fall migration.
- From December 15 – January 30, reinstatement of the channel crossing and backfilling would interfered with the spawning of winter flounder, a species that NMFS has identified as a sensitive resource.

Transco's water quality certification application acknowledges that this detrimental effect on aquatic species populations "could potentially impact recreational and commercial fishing in the Project area and, by extension, the seafood industry by either reducing the abundance of commercial fish communities or interfering with fishers' access to commercial fishing

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2016, https://www.fws.gov/news/blog/index.cfm/2016/11/30/Modeling-a-Future-for-Horseshoe-Crabs-and-Red-Knots.

[118] *Id.*

[119] EIS, *supra* note 1, at 4-118.

[120] The Atlantic sturgeon is a federally listed species with five DPSs, one of which is listed as threatened, and four of which are listed as endangered. Aggregations of the New York Bight DPS are closest to the Project area, with spawning populations found in the Hudson and Delaware Rivers, but the ranges of the other four DPS also overlap this area. *Id.* at 4-184.

grounds,"[121] impairing the use of the affected area for recreational, sports, and commercial fishing.

Conclusion

Transco has failed to make a compelling case for how, despite the acknowledged increase in turbidity and loss of aquatic life, the project would still be in compliance with state water quality standards. For this reason, we hope that New York takes a hard look at Transco's application and denies the water quality certification application for the Northeast Supply Enhancement pipeline.

Sincerely,

Kimberly Ong
Senior Attorney

[121] Joint Application, *supra* note 57, at 4-34.