RIVERKEEPER.
NY's clean water advocate

February 19, 2013

John J. Ferguson, Chief Permit Administrator
NYS Department of Environmental Conservation
Division of Environmental Permits
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Re: New York State Thruway Authority Draft ECL Article 25 Tidal Wetlands Permit (NYS DEC # 3-9903-00043/00012), Clean Water Act Section 401 Water Quality Certification (NYS DEC # 3-9903-00043/00013), ECL Article 11 Incidental Take Permit (NYS DEC # 3-9903-00043/00014).

Dear Mr. Ferguson,

Riverkeeper, Inc. ("Riverkeeper") respectfully submits the following comments on the combined New York State Thruway Authority ("NYSTA") Draft ECL Article 25 Tidal Wetlands Permit (NYS DEC # 3-9903-00043/00012), Clean Water Act Section 401 Water Quality Certification (NYS DEC # 3-9903-00043/00013), and ECL Article 11 Incidental Take Permit (NYS DEC # 3-9903-00043/00014) noticed by the Department of Environmental Conservation ("NYSDEC") in the Environmental Notice Bulletin ("ENB") on January 16, 2013 ("draft permit"). These written comments supplement the oral comments given by Riverkeeper representatives during the NYSDEC legislative public hearings held before Administrative Law Judge Molly McBride February 6, 2013 in Nanuet, NY and February 7, 2013 in Tarrytown, NY as well as the written summary of Riverkeeper's oral comments submitted to the court reporter at

the conclusion of these hearings. In addition Riverkeeper supports and incorporates by reference the oral and written comments submitted by Scenic Hudson, Inc. on the draft permit.

Riverkeeper is a member-supported, not-for-profit organization, dedicated to protecting the Hudson River and its tributaries, and to safeguarding the drinking water supply for New York City. Since 1966, Riverkeeper has used litigation, science, advocacy, and public education to end pollution, restore ecological health, and revitalize waterfront use and access.[1]

Riverkeeper has been involved in the Tappan Zee Bridge replacement process since the scoping on the initial 30-mile corridor revitalization plan in the early 2000s, and has been an active participant in the permitting proceedings for the New NY Bridge Project (previously known as: Tappan Zee Hudson River Crossing Project), raising significant concerns as to the Project's impact to the Hudson River throughout the National Environmental Policy Act ("NEPA") and State Environmental Quality Review Act ("SEQRA") review process.[2]

I. Introduction

As the Hudson River's leading clean water advocate, Riverkeeper is extremely concerned about the water quality related impacts of this project, the potential for habitat loss, and impact to endangered species, particularly the recently listed Atlantic Sturgeon.[3]

As set forth in greater detail below, the combined draft permit should be revised to reduce impacts to the Hudson River and ensure compliance with the Clean Water Act and New York State Environmental Conservation Law ("ECL"). NYSDEC must also address the fact that it does not currently have the legal authority to authorize the use of a mixing zone to allow exceedances of water quality standards during construction. The combined permit must contain

[1] For additional information on Riverkeeper's mission and work, go to www.riverkeeper.org.
[2] *See generally* www.newnybridge.com; www.riverkeeper.org/news-events/news/preserve-river-ecology/riverkeeper-comments-on-tappan-zee-replacement-final-environmental-study/
[3] 77 Fed. Reg. 5880 (February 6, 2012).

clear, enforceable requirements and prohibitions that protect water quality and ensure timely public access to information and transparency regarding the Applicant's compliance with the permit terms. In addition, the permit must require additional mitigation projects or the establishment of additional mitigation funding in order to achieve the Net Conservation Benefit required.

In addition, Riverkeeper has significant procedural concerns regarding the lack of adequate time for NYSDEC to issue a decision on the 401 certification following the agency's review of public comments and determination as to whether substantive and significant issues have been raised within the one year statutory timeframe.

II. NYSDEC Does Not Have the Legal Authority to Authorize the Use of a Mixing Zone

The draft 401 certification is premised upon the Permittee meeting water quality standards at the edge of a 500 foot mixing zone.[4] For the reasons set forth below Riverkeeper is greatly concerned about the water quality impacts to the Hudson River within and outside this 500 foot zone, and assert that the NYSDEC does not have the legal (statutory or regulatory) authority authorize the utilization of a mixing zone to allow for violations of water quality standards.

The primary water quality impacts associated with the construction of the new Tappan Zee Bridge are the resuspension of river sediments during construction and removal of the existing bridge foundations, and the transport and eventual deposition of this resuspended sediment.[5]

In-water construction activities including the dredging and armoring of the construction access channel, construction of temporary and permanent construction platforms and other

[4] *See* Draft Permit, pg. 10, 11, 13, 15.
[5] FEIS 18-9. Construction activities expected to contribute to sediment resuspension include dredging, vessel movements, cofferdam construction, pile driving and demolition of the existing bridge. FEIS 18-96.

structures will result in temporary and permanent habitat loss, habitat modification, and increases in suspended sediment.[6] Resuspended sediments will impact water quality and aquatic biota (including benthic macroinvertebrates).[7]

Project area sediments, which are highly susceptible to resuspension,[8] will remain suspended and will be transported away to be deposited elsewhere in the estuary (or leave the estuary altogether).[9] Resuspension of sediments during dredging also affects water quality through the release of contaminants dissolved in the sediment pore water (i.e., the water occupying the spaces between sediment particles).[10] Sediment in the project area is contaminated with total PCBs, Total PAH, mercury, dioxin/furan TEQ, Total DDT, DDD and DDE, arsenic, copper, and cadmium—each of which occurs at moderate ("Class B" chronically toxic) to high ("Class C" acutely toxic) concentrations.[11]

A. Background on Mixing Zones

Water quality standards may include policies such as mixing zones,[12] but in order to be allowed and utilized, a mixing zone policy must be submitted to and approved by EPA as part of a state's water quality standards.[13] A mixing zone is an area of dispersal in the receiving waters where the pollutants in the effluent are not sufficiently diluted to meet water quality standards. Mixing zones, if explicitly authorized, are sometimes permissible as a practical necessity since dischargers may be unable to meet all water quality criteria at the point of discharge using

[6] FEIS 18-95.
[7] FEIS 18-92.
[8] FEIS 18-72. Hydrodynamic modeling was used to project the plume of resuspended sediment that would result from sediment disturbing construction activities and the fate and transport of this plume within the Hudson River estuary. FEIS 18-73.
[9] FEIS 18-71.
[10] FEIS 18-77.
[11] FEIS 18-7a7, citing NYSDEC Technical Operations Guidance Series, *In-Water and Riparian Management of Sediment and Dredged Material* (2004).
[12] 40 CFR § 131.13.
[13] *Northwest Envtl. Advocates v. United States EPA*, 268 F. Supp. 2d 1255, 1272 (D. Or. 2003).

current technology, thus it may be appropriate to allow for ambient concentrations above the criteria in small areas near outfalls.[14] The edge or outer circumference of the mixing zone is defined as the boundary at which water quality standards are first met.[15] The size and configuration of the mixing zone is a crucial variable in determining whether or not a given effluent can be discharged.[16]

B. There is No Authority for the Project's Mixing Zone Since New York's Mixing Zone Policy Is Not Explicitly Authorized in New York's Water Quality Standards

Since a mixing zone has the effect of relaxing the State's water quality standards in a designated area, EPA will not include a mixing zone in a Clean Water Act NPDES permit issued by EPA unless mixing zones are explicitly authorized by the State's water quality standards.[17] The fact that a state may have adopted a mixing zone policy outside of its EPA-approved water quality standards does not vary this result.[18] Accordingly, EPA recommends that States have a definitive statement in their standards on whether or not mixing zones are allowed.[19] Where mixing zone provisions are part of the State standards, the State should describe the procedures for defining mixing zones.[20] State water quality standards should describe the State's methodology for determining the location, size, shape, outfall design, and in-zone quality of mixing zones.[21]

Currently NYSDEC criteria for mixing zones for in water management of sediment and dredged material are contained in Division of Water Technical & Operational Guidance Series

[14] *Am. Wildlands v. Browner*, 260 F.3d 1192, 1195 (10th Cir. Colo. 2001).
[15] *Id.* at 1198.
[16] *Marathon Oil Co. v. EPA*, 830 F.2d 1346, 1349 (5th Cir. 1987).
[17] *See In re: Ketchikan Pulp Company*, 1996 EPA App. Lexis 22; 26 6 E.A.D. 675 (1996).
[18] *See In The Matter Of Sierra Pacific Power Company*, 1976 EPA App. Lexis 8, 2-3, 1 E.A.D. 182 (1976).
[19] *EPA Technical Support Document For Water quality Based Toxics Control* (1991) at 33.
[20] *Id.*
[21] *EPA Water quality Standards Handbook* (2d Ed. 2012) at 5.1.1.

(TOGS) 5.1.9[22] However, the criteria contained in TOGS 5.1.9 are only guidance and are not a substitute for explicit regulatory authorization in New York State's water quality standards.

The only water quality standard which contains an explicit mixing zone authorization is contained in 6 NYCRR § 704.3, which provides criteria for mixing zones of thermal discharges into waters of the State. [23] Other New York State water quality standards contain no similar or equivalent authorization.[24]

Permissible mixing zone characteristics should be established and be incorporated as an explicit authorization in the State's water quality standards to ensure that mixing zones do not impair the integrity of the water body as a whole; there is no lethality to organisms passing through the mixing zone; and there are no significant health risks, considering likely pathways of exposure.[25]

Unless and until the NYSDEC promulgates new water quality standards with explicit mixing zone authorization, NYSDEC may not issue a 401 certification predicating the Project's compliance with water quality standards on the use of a mixing zone. Riverkeeper is committed to working with NYSDEC to ensure that New York's water quality standards are updated via the pending triennial review with respect to mixing zones and other essential elements of the standards.

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[22] NYSDEC Division of Water Technical & Operational Guidance Series 5.1.9 In-Water and Riparian Management of Sediment and Dredged Material (November 2004), at 35.

[23] *See* 6 NYCRR § 704.3 (" The following criteria shall apply to all waters of the State receiving thermal discharges, except as provided in section 704.6 of this Part.").
(a) The department shall specify definable, numerical limits for all mixing zones (*e.g.*, linear distances from the point of discharge, surface area involvement, or volume of receiving water entrained in the thermal plume).
(b) Conditions in the mixing zone shall not be lethal in contravention of water quality standards to aquatic biota which may enter the zone.
(c) The location of mixing zones for thermal discharges shall not interfere with spawning areas, nursery areas and fish migration routes."

[24] *See, e.g.*, 6 NYCRR §§ 700.2 and 702.16..

[25] *American Wildlands v. Browner*, 94 F. Supp. 2d 1150, 1162 (D. Colo. 2000), citing EPA Water Quality Standards Handbook.SPDES permits must ensure that discharges will conform to and meet the requirements of the Clean Water Act (CWA) and as well as all rules, regulations and guidelines adopted pursuant thereto. ECL § 17-0801.

C. A Mixing Zone Cannot Be Authorized in an Impaired Waterbody for a Toxic Pollutant Which Is a Source of the Impairment

Even where a mixing zone is authorized, its use may not be appropriate for all effluents. It is the national policy "that the discharge of toxic pollutants in toxic amounts be prohibited."[26] Certain toxic chemicals which are bioaccumulatory and persistent in the environment, such as PCBs as well as other toxic chemicals which pose threats to human health by being carcinogenic, mutagenic, or teratogenic should not be assigned mixing zones.[27] Additionally, mixing zones for pollutants of concern may not be appropriate in waters which are impaired for those pollutants. The Hudson River is on the State's 303(d) List as impaired for fish consumption by PCBs and other contributing contaminants such as mercury, dioxins/furans, PAHs, pesticides and other heavy metals.[28] NYSDEC has identified the source of the impairment as contaminated sediment.[29]

As EPA has observed, "[w]hen background levels of the pollutant for which a mixing zone is sought already exceed the applicable criterion in the receiving water, there may be no available dilution, despite the availability of a mixing zone."[30] Where unsafe fish tissue levels or other evidence indicates a lack of assimilative capacity in a particular water body for a bioaccumulative pollutant, care should be taken in calculating discharge limits for this pollutant

[26] 33 U.S.C. § 1251(a)(3).
[27] *Hercules, Inc. v. EPA*, 598 F.2d 91, 116 n.49 (D.C. Cir. 1978), citing EPA Memorandum on Water quality Standards Guidelines Chapter 5, at 16 (1976).
[28] *See* NYSDEC 303(d) List (2012) at 24.
[29] *Id.*
[30] *Revisions to the Methodology for Deriving Ambient Water quality Criteria for the Protection of Human Health* 65 Fed. Reg. 66444, 66451 (November 3, 2000).

or the additivity of multiple pollutants. In such instances, the ecological or human health effects may be so adverse that a mixing zone is not appropriate.[31]

D. NYSDEC Cannot Authorize Discharges That Cause or Contribute to Violations of Water Quality Standards or Violate Antidegradation.

The NYSDEC is required to use all known available and reasonable methods to prevent and control the pollution of the waters of the state. The ECL broadly prohibits any person from, directly or indirectly, throwing, draining, running or otherwise discharging to waters organic or inorganic matter that shall cause or contribute to a condition in contravention of water quality standards.[32] Discharges which could cause or contribute to a violation of water quality standards require water quality based effluent limitations.[33] The Hudson River is on the State's 303(d) List as impaired for fish consumption by PCBs and other contributing contaminants such as mercury, dioxins/furans, PAHs, pesticides and other heavy metals.[34] NYSDEC has identified the source of the impairment as contaminated sediment.[35]

Discharges of pollutants of concern to impaired waters which cause or contribute to the impairment cannot be authorized.[36] NYSDEC must ensure that the level of water quality to be achieved is derived from and complies with water quality standards, and is consistent with the assumptions and requirements of any available TMDL waste load allocation for the discharge pursuant to 40 C.F.R. § 130.7.[37] ECL § 17-0811[5] similarly requires more stringent water

[31] EPA Water quality Standards Handbook (2d Ed. 2012) at 5.1.4.
[32] ECL § 17-0101. ECL § 17-0501
[33] 33 U.S.C. § 1311(b)(1)(C); ECL § 17-0811(5).
[34] *See* NYSDEC 303(d) List (2012) at 24.
[35] *Id.*
[36] 40 C.F.R. § 122.4; *see also Friends of Pinto Creek v. United States EPA*, 504 F.3d 1007, 1012 (9th Cir. 2007), *cert. denied sub nom Carlota Copper Co. v. Friends of Pinto Creek*, 555 U.S. 1097 (2009).
[37] 40 C.F.R. § 122.44(d)(1)(vii)(A), (B).

quality-based effluent limitations (WQBELs) in order to ensure compliance with water quality standards.[38]

The Clean Water Act's antidegradation policy requires that "existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected."[39] As noted above, the Project will cause or contribute to the impairment of Hudson River fish consumption uses (which are already impaired) by authorizing the discharge of PCBs. In addition, the Project will eliminate roughly 13 acres of oyster habitat without adequate mitigation.[40] Proper implementation of Tier One antidegradation protections would prohibit additional degradation of water bodies which are listed as impaired under section 303[d] of the CWA.[41] Tier One antidegradation protections establish the minimum water quality standard for all of a State's waters by requiring that that "[e]xisting in stream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected.[42]" Tier One antidegradation protections for existing uses apply to all waters.[43]Antidegradation policies are implemented for Tier One protection by reviewing and determining whether a discharge would impair an existing use. [44] No activity which could partially or completely eliminate an existing use may be authorized consistent with the antidegradation policy.[45] The existing (as well as the designated) use of the Hudson River for fish consumption is not being met under present conditions, which will only worsen if the project proceeds as planned. Existing Hudson River shellfishing uses will also be eliminated.

[38] *See also* 6 NYCRR § 750-1.11(a)(5).
[39] *PUD No. I v. Wash. Dep't of Ecology*, 511 U.S. 700, 705 (1994), quoting 40 C.F.R § 131.12.
[40] Mitigated at 1.6:1, the mitigation ratio must be higher as discussed in section X, below.
[41] EPA Final Rule: Water Quality Standards for Puerto Rico, 72 Fed. Reg. 70517, 70520 [Dec. 12, 2007]).
[42] *Id.*, quoting 40 C.F.R. § 131.12[a][1].
[43]*Ohio Valley Envtl. Coalition v. Horinko*, 279 F. Supp. 2d 732, 740 [S.D. W. Va. 2003], *citing* 40 C.F.R. § 131.12[a][1]; *see also* NYSDEC TOGS 1.3.9 at 1-2.
[44] EPA Proposed NPDES and Antidegradation Policy Revisions, 64 Fed. Reg. 46058, 46063 [Aug. 23, 1999])
[45] *PUD No. 1 v. Washington Dep't of Ecology*, 511 U.S. 700, 718 [1994] *citing* 40 CFR § 131.12[a][1].

Tier Two antidegradation protections preserve existing water quality which is sufficient to support designated uses.[46] As New York's Court of Appeals has explained,

> water quality standards are provisions of State and Federal law, which define the quality goals of a water body or some portion of it, by designating the use or uses to be made of the water, by setting criteria necessary to protect the uses, and by incorporating an antidegradation policy designed to prevent the gradual deterioration of the quality of the water body.[47]

Tier Two of antidegradation protection provides that water quality can only be lowered where the "highest statutory and regulatory requirements" are required for all new and existing point sources . . ."[48] Accordingly, each pollutant for which the Hudson River is *not* impaired requires the highest statutory and regulatory requirements. As is set forth herein, however, the discharge of TSS and other contaminants would result in water quality violations outside what NYSDEC has identified as a mixing zone.

According to NYSDEC's *Consolidated Assessment and Listing Methodology*, waters which are impaired for fish consumption such as the Hudson "in many cases are the result of either historic/legacy pollutants (PCBs, dioxins, mirex, etc.) in bottom sediments, the continuing discharge of which has effectively been regulated. . ."[49] But an in-river construction project of the scale and duration (and with the contaminant concentrations) of the TZB unquestionably

[46] 40 C.F.R. § 131.12[a][2]; NYSDEC TOGS 1.3.9 at 2.
[47] *Niagara Mohawk Power Corp. v. State Dep't of Envtl. Conservation*, 82 N.Y.2d 191, 194 [1993]; *see also Islander E. Pipeline Co., LLC v. Conn. Dep't of Envtl. Prot.*, 482 F.3d 79, 120-21 [2d Cir. 2006]. ECL § 17-0501 similarly prohibits activities which cause or contribute to a violation of water quality standards, and is "broadly written and any activity which, in fact, results in or contributes to a violation of water quality standards is within its ambit."(*In the Matter of Niagara Mohawk Power Corp*., Decision of the Commissioner [May 1, 1991], 1991 N.Y. ENV LEXIS 36 at *3-4).
[48] 40 C.F.R. § 131.12[a][2]; TOGS 1.3.9 at 2.
[49] NYSDEC's *Consolidated Assessment and Listing Methodology* (2009) at 7.

"continues" the discharge of PCBs and other bioaccumulative contaminants of concern by reintroducing the additional toxic legacy pollutants into water column and the food chain.

III. NYSDEC Cannot Allow Violations of Water Quality Standards at the Edge of the Mixing Zone

As stated above, existing New York State water quality standards do not authorize the use of a mixing zone to meet water quality standards. Moreover, even if NYSDEC regulations allowed for the use of a mixing zone for this project, NYSDEC cannot allow any exceedances of water quality standards outside the mixing zone.

The general prohibition against pollution contained in ECL § 17-0501 provides that it "shall be unlawful for any person, directly or indirectly, to throw, drain, run or otherwise discharge into such waters organic or inorganic matter that shall cause or contribute[50] to a condition in contravention of the standards adopted by the department pursuant to section 17-0301." The discharge of industrial waste or other wastes into waters of the state is prohibited "unless such use is in compliance with all standards, criteria, limitations, rules and regulations promulgated or applied by the department pursuant to this article." ECL § 17-0511.

The Project is located within a segment of the Hudson River classified as SB.[51] Pursuant to 6 NYCRR § 701.11, "[t]he best usages of Class SB waters are primary and secondary contact recreation and fishing. These waters shall be suitable for fish, shellfish and wildlife propagation and survival." 6 NYCRR § 703.2 sets narrative standards for Class SB waters and prohibits the discharge of deleterious substances in amounts that will impair the waters for their best usages.

[50] See also 40 CFR §§ 122.4(a) and (d) 122.44.
[51] *See* 6 NYCRR §864.

6 NYCRR § 703.2 also prohibits any increase in turbidity[52] which will cause a substantial visible contrast to natural conditions.[53] In the absence of a specific standard for PCBs in Class SB waters, NYSDEC requested that Applicant analyze the most stringent Class SB standards (i.e., other than the acute criterion).[54] The results of this analysis showed that predicted dissolved total PCB concentration exceed the Class SB fish consumption water quality criteria *outside* the mixing zone.[55] Estimated dissolved PAH concentrations for four of fifteen PAHs tested would also exceed the Class SB standard for the PAH compounds *outside*[56] the mixing zone.

The draft permit also allows for violations of water quality standards outside of the mixing zone where background concentrations of a given contaminant exceed the water quality standard. The draft permit allows for discharges at 30% above background concentrations for these constituents at the edge of the mixing zone.[57]

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[52] Turbidity can impact the level of dissolved oxygen in water in multiple ways. Increased light absorbency by turbid water can lead to increased water temperatures and decreased oxygen levels. The contents of the particles causing turbidity can also lead to a decrease in dissolved oxygen levels.

[53] Turbidity is measured as NTU which is an abbreviation for nephelometric turbidity units. *See*, Standard Methods for the Examination of Water and Wastewater, 20th edition (1998), p. 2-9. NTU is a measurement of light scattering - a beam of light is shone on a sample and the equipment measures the degree of light scattering. Simply measuring an increase "above ambient conditions" is not an appropriate way to justify an exceedance of water quality standards, since the turbidity standard for Class SB waters is expressed in a narrative standard of "no substantial visible contrast" standard. 6 NYCRR 703.2.

Turbid waters can clog the gills of fish. Migrating fish will avoid such waters if they can. Turbid waters are also expected to have lower levels of dissolved oxygen than clear waters since they are usually warmer (turbidity being absorptive of sunlight's energy).

[54] NYSDEC submitted comments to the NYS Department of Transportation dated May 31, 2012 noting an incorrect application of the water quality criteria for aquatic exposure used to compare the results of the modeled dissolved constituent concentrations in the April 24, 2012 memorandum from Dr. Hayes (Attachment 7). NYSDEC indicated that rather than applying an Aquatic Acute water-quality standard from Class B when a standard for Class SB waters was not specified, the most stringent Class SB standards (i.e., other than the acute criterion) should be used in the analysis. NYSDEC also stated that the water-quality criteria that should be used to compare the dissolved water column concentrations predicted by the DREDGE model for arsenic, cadmium, copper, lead, PCBs, PAHs, and mercury should be as follows:

- Class SB aquatic chronic) (A(C)) for arsenic, cadmium, copper, and lead;
- Class SB health fish consumption (H(FC)) for PCBs;
- Class SB criteria for individual PAHs rather than total PAHs; and
- 0.05 µg/L for mercury.

FEIS Appendix E-9.

[55] FEIS Appendix E-9.

[56] FEIS Appendix E-10.

[57] Draft Permit, condition 58, at pg. 15.

The permit should be revised to include a clear prohibition against the violation of water quality standards outside of the mixing zone for the PCB and PAHs modeled to exceed standards. The permit must also contain a requirement that, in areas where background/ambient water quality concentrations already exceed the applicable water quality criteria, discharges that would result in additional exceedances of water quality standards are prohibited at the edge of the mixing zone.

IV: The Draft Permit Must Contain a General Prohibition Against Violations of Water Quality Standards

The certification required by Section 401 of the Clean Water Act is designed ensure protection of New York's water quality. The CWA § 401 provides in pertinent part that a water quality certification (WQC) shall set forth any effluent limitations and other limitations, and monitoring requirements necessary to assure an applicant will comply with any applicable CWA limitations and standards, as well as any other appropriate requirement of State law.[58] New York State's regulations that implement the CWA requirement[59] in turn provide that an applicant must "demonstrate compliance" with the CWA and other applicable provisions of State law.

The current draft permit does not adequately enumerate the requirement that the project must comply broadly with all water quality [60] standards. The permit should include a broad commitment that the project will comply with all water quality standards and should ensure that all monitoring and reporting requirements for the project are clearly spelled out as enforceable terms of the 401 certificate (*see section VII infra).*

[58] CWA § 401(d), 33 U.S.C. §1341(d).

[59] 6 NYCRR § 608.9

[60] CWA § 401(d), 33 U.S.C. §1341(d).

V. The NYSDEC Must Include Additional Detail in the Permit on Best Practices for a Comprehensive Water Quality Monitoring Program.

Information on the plan for water quality monitoring during construction is largely absent from the draft permit. The draft indicates that the monitoring program will be developed by the contractor, and implemented subject to approval by NYSDEC. The draft permit requires daily sampling at the onset of construction, with a reduction in frequency to weekly if no water quality exceedances occur during the first two weeks[61]. The sole permit reference to methodology appears in the criterion that the plume of sediment induced by the dredge should not be "visible" beyond the outer limits of the mixing zone.

In order to ensure that operational protocols are developed and adhered to during the construction, the final permit must include additional detail describing the best practices required to conduct a comprehensive water quality monitoring program.

Riverkeeper retained W. Frank Bohlen, PhD to review the permit protocols and develop recommendations to ensure protection of water quality during construction. These recommendations include 1) the permit include additional detail regarding monitoring best practices; 2) employ moored and mobile instruments in combination with some amount of direct drawn water sampling; 3) employ small boat sampling equipped with a high frequency Acoustic Doppler Current Profiler (ADCP); 4) conduct small boat surveying along a series of defined East-West across-river transects extend upstream and down for a minimum distance of 2500 meters to insure coverage of the entire plume; and 4) provide the ADCP data to the Oversight Environmental Compliance Monitor in as close to real time as possible in order to modify operational protocols. Dr. Bohlen's full recommendations are attached at *Attachment A.*

[61] Draft Permit condition 61, at pg. 16.

VI. The 401 Certification Must Require Compliance with Water Quality Standards for Any Decant Water at the Point of Discharge.

Draft permit Condition 27[62] sets forth the requirements for the discharge of any decant water associated with dredging or other construction operations. The current draft condition "precludes adding substantial suspended solids, turbidity or sheens to the receiving water body[,][63][and requires] no increase in turbidity that causes a substantial visible contrast."[64]

This section does not currently contain any specific numerical discharge limitations nor does it specify where the monitoring of the contaminant levels in the discharge would occur. In the absence of specifics regarding the point of monitoring it is assumed that monitoring would occur at the edge of the same 500 foot mixing zone authorized for the project.

Decant water from dredging will concentrate the contaminants from the dredge material and will likely result in discharge water with far higher levels of contamination than what is resuspended during construction. For this reason strict limitations on discharge should be required along with a plan implemented to treat or dispose of any decant water where contaminant levels exceed water quality standards at the point of discharge.

The NYSDEC permit must require compliance with water quality standards for "decant water" that is discharged from barges at the point where the discharge occurs, not in a larger mixing zone. At a minimum, the discharges should not contain higher levels of contamination than background concentrations in the River.

[62] Draft Permit, condition 27, at pg. 10.
[63] Draft Permit,condition 27(B),at pg.10.
[64] Draft Permit,condition 27(D), at pg.10.

As previously stated, in order to ensure that operational protocols are developed and adhered to during the construction, the final permit must include additional detail describing the best practices required to conduct a comprehensive water quality monitoring program.[65]

VII: The Draft Permit Must be Revised to Ensure Compliance with All Applicable Statutes and Regulations.

The Draft Permit must be revised in the following ways to ensure compliance with all applicable statutes and regulations, including but not limited to the New York State ECL and implementing regulations, the federal Endangered Species Act and the Clean Water Act.

A. Net Conservation Benefit

Section F requires the Permittee to submit a Progress Report to NYSDEC "on a schedule to be developed…"[66] Permittee should be required to submit Progress Reports on a quarterly basis. At a minimum, reports should be submitted annually.

B. Mitigation

1. The Permittee is required to submit a Compensatory Mitigation Plan to NYSDEC within ninety days of the effective date of the permit, in order to address "dredging related impacts to the benthic community, tidal wetlands and open water community, and plant and animal species utilizing these resources."[67] The permit must specify that the final, approved Compensatory Mitigation Plan will fully mitigate the impacts of construction, not only from dredging but also from pile driving during construction. If monitoring conducted during and after construction indicates that construction related impacts, including impacts from dredging and pile driving, are greater than anticipated, or

[65] *See* Appendix A.
[66] Draft Permit at pg. 4.
[67] *Id.*

previously unforeseen impacts occur, the Permittee and NYSDEC must re-evaluate the effectiveness of the Compensatory Mitigation Plan, and revise it as necessary to ensure adequate mitigation for all construction related impacts in the Hudson River.

2. The Mitigation requirements in the Draft Permit are inconsistent regarding the need to determine whether a project is cost effective before it is required to be implemented. While the secondary channel restoration project at Gay's Point must be implemented in a "cost effective manner" in order to proceed, the Wetlands Enhancement at Piermont Marsh project contains no such restriction. The Draft Permit fails to include language explaining why one mitigation project requires a finding that it be done within certain cost parameters, while the other does not. The Permit should either include a description of how cost effectiveness is determined and require that the standard be applied to all proposed Mitigation projects, or removed entirely. The Draft Permit should also contain preliminary cost estimates for each Mitigation project proposed.
3. Section B(v) should be revised to require not less than four years of post-construction monitoring, as initially proposed in the March 2012 Draft Permit. Section C (iv) requires the design and implementation of a "green infrastructure project intended to improve the quality of stormwater entering Sparkill Creek…"[68] However, the Permit fails to contain any timeframe for implementing the project, or the projected reduction in stormwater to be achieved by it. The Permit must be revised to require that the green infrastructure project be designed and implemented within three years, and designed to either reduce stormwater flow into the Creek by a specific percentage, or capture a specific amount of rainfall within a certain area. Post implementation monitoring should be conducted for a minimum of three years following completion of the project. Without this additional

[68] Draft Permit at pg. 6.

specificity, it is impossible to determine whether this Mitigation project will result in any actual improvement of water quality in Sparkill Creek. In addition, NYSDEC should require Permittee to make every effort to solicit public input and participation in the design and implementation of this project, particularly from nearby communities in Rockland County.

4. Section C(v) only requires the Permittee to "assess the feasibility" of restoring historic wetlands in Piermont Marsh, apparently based on the levels of contamination and the cost of removal and disposal of contaminated landfill sediment. The Permit should require the restoration of a specific estimated number of acres, subject to a determination of feasibility that is explained more fully in the permit. If cost is a consideration, this project should be subject to the same "cost effective" standard as the Gay's Point restoration. All mitigation projects proposed in the Draft Permit must either be subject to a consistent cost/feasibility analysis, or this requirement should be removed from the permit. As it currently stands, the Draft Permit contains inconsistent, arbitrary restrictions on implementation of mitigation projects that make it difficult if not impossible to reasonably assess whether they will be implemented at all.

C. Permit Conditions

1. Environmental Compliance Monitor
    - The Environmental Compliance Plan (Plan) required in Section 4(C) must be specifically incorporated into or formally appended to the Final Permit, in order to memorialize that the Plan contains enforceable conditions of the Permit itself. The Plan should also be publicly disclosed as soon as it is approved by NYSDEC.
2. Pile Driving

- Condition 8 only requires an underwater sound attenuation system that "minimizes to the maximum extent practicable the effects of underwater sound upon fishes in the Hudson River."[69] The March 2012 Draft Permit required use of the "Best Available Control Technology" to ensure that sound does not exceed levels harmful to fish.[70] In order to protect Hudson River fish in the vicinity of construction, the current Draft Permit must be revised to require that the sound attenuation utilized will minimize the effects of underwater sound on fishes, and will ensure that underwater sound does not exceed levels harmful to fish. The results of the 2013 PIDP 2 Study and the final design of the sound attenuation system should be publicly disclosed prior to the commencement of pile driving in the Hudson River.
- Condition 13 should be revised to state that "Vibratory pile drivers shall be used to the maximum extent *practicable.* The Draft Permit uses the term "practical."
- Condition 16 only requires that water from pile and cofferdam dewatering installations may not violate narrative water quality standards ("substantial visible contrast") in the Hudson River outside the piling or cofferdam.[71] The Permit must clearly state that water from pile and cofferdam dewatering discharged into the Hudson River is prohibited from causing or contributing to violations of water quality standards, in order to comply with the ECL.

3. Dredging

[69] Draft Permit at pg. 8.
[70] NYS DEC June 2012 Draft Permit at pg. 8, *available at* www.newnybridge.com/documents/dec-permit/draft-permit.pdf
[71] Draft Permit at pg. 9.

- Condition 25 states that "Dredging operations may not cause turbidity that results in substantial visible contrast to the Hudson River outside of the 500 foot mixing zone."[72] Riverkeeper hereby reserves its rights regarding our position on the NYSDEC's lack of authority to grant a mixing zone. However, in the event a 500 foot mixing zone is allowed, the Permit must be modified to state that "Dredging operations are prohibited from causing or contributing to violations of water quality standards outside of the 500 foot mixing zone, in order to comply with the ECL."
- Condition 27 does not currently contain any specific numerical effluent limitations for the discharge of dredge decant water from nor does it specify where the monitoring of the contaminant levels in the discharge would occur. The final permit must include additional detail describing the best practices required to conduct a comprehensive water quality monitoring program

4. In-water Concrete Production, Delivery, and Placement

- Permit condition 18[73] requires the submission of plans and descriptions of the means of concrete production, delivery and placement. According to the draft permit the plans must prevent to the maximum extent practicable discharges of cement into the River. This language weakens the language contained in the draft permit notice by the Department on July 25, 2012.[74] The permit must be revised to clearly prohibit the discharge of concrete leachate and fresh concrete into the Hudson as was required by the original draft permit.[75]

[72] Draft Permit at pg. 10.
[73] Draft Permit, condition 18, at pg. 9.
[74] NYS DEC June 2012 Draft Permit , *available at* www.newnybridge.com/documents/dec-permit/draft-permit.pdf
[75] *Id.* at 8-9.

5. Fish Monitoring

- In order to provide the greatest protection to Atlantic and shortnose sturgeon, as well as other fish species that may be affected by the Authorized Activity, the Draft Permit must specifically require that all receivers must be emplaced and operational prior to commencement of any in –water Authorized Activity. As currently written, Condition 40 of the Draft Permit only requires that the Permittee submit a plan for monitoring fish movement prior to commencing in-river activities.[76] There is currently no required timeframe for implementing the monitoring plan, once it's approved by NYSDEC. As a result, the current Draft Permit fails to provide the protection required by state and federal law, and must be revised accordingly.
- Condition 41 requires that an SOP be prepared that describes the procedures for conducting daily surveys of the project area during pile driving and dredging to check for stunned or dead fish.[77] At a minimum, the SOP must require that weekly summaries of the daily surveys be submitted to NYSDEC and disclosed to the public at the same time. The SOP should be publicly disclosed as soon as it is approved by NYSDEC.

6. Bridge Demolition

- Condition 46 only prohibits violations of the "substantial visible contrast" standard beyond the 500 foot mixing zone during demolition activities. In order to comply with the ECl and Clean Water Act, the Draft Permit must be revised to state that "Bridge demolition must be conducted in a manner that minimizes the

[76] Draft Permit at pg. 11-12.
[77] Draft Permit at pg. 12.

resuspension of sediment, and does not cause or contribute to a violation of water quality standards outside a mixing zone with a 500 foot radius of the immediate work area." As stated previously, Riverkeeper expressly reserves its rights concerning the lack of NYSDEC authority to grant a mixing zone for this project.

- Condition 51 states that a sound attenuation system must be approved by the NYSDEC before blasting starts. The Final EIS for the bridge states that no blasting will be used to demolish the existing bridge. The draft permit is inconsistent with the Final EIS and should be revised to prohibit the use of blasting during demolition.

7. General comment re: numbering of Draft Permit sections
    - The Final Permit must correct duplicative numbering of sections that occurs in the Draft Permit on pgs. 13-14. Both the Bridge Demolition and Post Construction sections have conditions numbered 49-51. In order for the numbering to follow previous sections, the Post-Construction section should begin with Condition 52.
8. Post-Construction Surveys
    - All surveys required pursuant to Conditions 49-51 of this Section should be disclosed to the public after they are received and considered final by the NYSDEC.

VIII. Clean Water Act Section 401 certification waiver

Section 401 of the Clean Water Act contains a statutory mandate that the State must act upon a request for certification within a "reasonable period of time (which shall not exceed one year."[78] If the state fails or refuses to act on a certification request the certification requirements

[78] CWA Section 401(a)(1)

of Section 401 are deemed waived. Section 401 also makes clear that "[n]o license or permit shall be granted until the certification…has been obtained or has been waived….[79]"

The New York State Thruway Authority submitted its joint application for an ECL Article 25 Tidal Wetlands Permit, Clean Water Act Section 401 water quality Certification , ECL Article 11 Incidental Take Permit, Army Corps of Engineers Nationwide Permit 15, New York State Office of General Services State Owned Lands Underwater Docks, Moorings, or Platforms, and New York State Department of State Coastal Consistency Concurrence in March of 2012.[80]

Assuming the application was complete for purposes of the one year timeframe described in the Clean Water Act, the NYSDEC must make a decision on the section 401 Certification prior to April 2013 or the request will be deemed waived. With comments to the Department due by February 18th, 2013 the NYSDEC has very limited time to revise and finalize the draft permit and prepare a Responsiveness Summary in this timeframe.

Riverkeeper has serious concerns regarding the timing of the NYSDEC's acceptance and review of comments from the public and interested parties and the potential for the Department to be unable to complete the required, meaningful review of these comments prior to the Clean Water Act's statutory waiver deadline.

As stated in the NYSDEC public notice published in the ENB on January 16, 2013 all comments on the project application will be considered by the NYSDEC to determine if they "raise substantive and significant issues relating to any findings or determinations required of the Department under the Environmental Conservation Law.[81]"

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[79] *Id.*

[80] The Joint Application materials, made available at www.newnybridge.com/documents/NYSDEC-permit/index.html, were signed by the applicant on March 22, 2012. The date application was made to the NYSDEC is not listed, but would presumably be sometime shortly following March 22, 2012.

[81] New York State Department of Environmental Conservation Notice of Application and Public Hearing, New York State Thruway Authority Draft ECL Article 25 Tidal Wetlands Permit (NYS NYSDEC # 3-9903-00043/00012), Clean Water Act Section 401 water quality Certification (NYS NYSDEC # 3-9903-00043/00013),

The Environmental Conservation Law ("ECL") states that an adjudicatory hearing is necessary when comments received from the public or other interested party "raise substantive and significant issues," the resolution of which "may result in denial [i.e., rejection] of the permit."[82] Riverkeeper asserts that the comments submitted herein raise substantive and significant issues and request an adjudicatory hearing on such issues.

Given the due process concerns that arise under the current timeframe, Riverkeeper hereby requests that NYSDEC deny the current Application without prejudice, in order to restart the review period, or request that the Thruway Authority withdraw and resubmit the Application in order to restart the statutory Section 401 clock.[83]

IX. The Proposed Mitigation is Insufficient Given the Scale and Environmental Impacts of the Project.

As discussed above[84] Riverkeeper has significant concerns regarding the mitigation required by the draft permit. As discussed further below the mitigation proposed in the draft permit is insufficient given the scale and environmental impacts of the project.

A. The Scope of Mitigation and Mitigation Funding Required by the Draft Permit is Significantly Less than What Should be Required for a Project of this Size and Scope.

The permit as currently drafted requires a series of mitigation projects including restoration of oyster beds, secondary channel restoration at Gay's Point, and wetlands

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ECL Article 11 Incidental Take Permit (NYS NYSDEC # 3-9903-00043/00014) *available at* www.newnybridge.com/documents/NYSDEC-permit/noca-hearing-2013.pdf.

[82] See 6 NYCRR §621.8 (b) (stating that NYSDEC "shall hold an adjudicatory public hearing" "where any comments received from members of the public or other interested parties raise substantive and significant issues. . .") (emphasis added).

[83] U.S. EPA Office of Wetlands, Oceans, and Watershed, "Clean Water Act Section 401 Water Quality Certification: a Water Quality Protection Tool for States and Tribes at 13 (April 2010), available at http://water.epa.gov/lawsregs/guidance/cwa/upload/CWA_401_Handbook_2010 _Interim.pdf

[84] *Infra* section VII(A), (B).

enhancement at Piermont Marsh.[85]The total funding required for mitigation is approximately $8 million.

In comparison, the Woodrow Wilson Bridge Project spanning the Potomac River between Maryland and Virginia, completed in 2009, included a $50 million environmental mitigation program to restore aquatic habitat in the mid-Potomac River watershed.[86]

Mitigation projects for the Woodrow Wilson Bridge included restoration of migratory river herring, removal of migratory fish blockages, and a larval river herring stocking program. Additionally, $8 million went to establish 23 acres of tidal wetlands, the Anacostia East project, near the border of Maryland and Washington D.C on a former landfill.[87]

In comparison to the New NY Bridge Project the Woodrow Wilson Bridge is shorter in length (16,013' long compared to 6,736' long) and was less expensive (approximately $3.9 Billion compared to $2.5 Billion).

Both the Potomac and Hudson Rivers are designated as impaired water bodies, and are home to endangered species (including shortnose sturgeon[88]). The New NY Bridge Project has a significantly larger footprint and capital budget, yet the current draft NYSDEC permit mandates significantly less mitigation in terms of acreage and funding. The NYSDEC must increase the amount of mitigation for this project to a level commensurate with the size and impacts of the New NY Bridge Project. Based on the comparison between the Woodrow Wilson Bridge and the Tappan Zee replacement, it is clear that the mitigation for the Tappan Zee replacement must

[85] Draft Permit at pg. 4-6.
[86] U.S. Dep't of Transportation, Federal Highway Administration, Water Wetlands and Wildlife, *Woodrow Wilson Bridge Project in Maryland, Virginia, and the District of Columbia: Environmental Stewardship at its Best, available at:* www.environment.fhwa.dot.gov/ecosystems/eei/dc07.asp
[87] *See* Woodrow Wilson Bridge Project, *Anacostia Wetland Site* (2009), http://www.wilsonbridge.com/index.php/about-us/environmental-updates/189
[88] *See* US Fish and Wildlife Service "Status of Shortnose Sturgeon in the Potomac River", *available at* www.fws.gov/northeast/marylandfisheries/reports/FINAL%20REPORT%20SNSPotomac.pdf

be substantially increased, and at a minimum should exceed the $50 million fund mandated for the construction of the Woodrow Wilson Bridge.

B. The Ratio of Mitigation to Harm is Insufficient

The mitigation measures proposed in the draft permit are insufficient, given the scale and impacts of the new bridge. In determining the size of a mitigation area the replacement ratio should be based on an analysis of the risk of failure of the mitigation project, the expected time delay and the quality of the impact site as compared to the mitigation site.[89]

The draft permit mitigation plan only requires restoring 13 acres of oyster beds after 8 acres will be destroyed. Oysters serve a significant function in the estuary including water filtration and shoreline stabilization. [90] Their current populations have been decimated from historic highs.[91] Given the overall impacts of the project and the importance of Oyster beds to the Hudson River ecosystem, the permit should require a restoration ratio of at least 2:1.

In addition to the mitigation measures mentioned above Riverkeeper supports and incorporates by reference the comments submitted by Scenic Hudson Inc., in particular their proposed list of mitigation projects.

C. The State Must Commit to Funding Additional Mitigation Projects to Support Impacted Communities

Riverkeeper supports and incorporates by reference the comments submitted by Scenic Hudson Inc., in particular their proposed list of community impacts mitigation projects.

[89] 40 CFR § 230; 33 CFR §§ 325, 332.
[90] *See* Oyster Restoration Research Project Technical Report (2010-2011), *available at* www.nynjbaykeeper.org/images/stories/Oyster_Program/PDFs/Grizzle_et_al_2011_ORRP_Phae_1_Report_03_29_2012_Printed.pdf
[91] *Id.*

X. NYSDEC Should Increase Project Transparency Through a Public Document Repository for Project Documents

NYSDEC should establish both an online and local document repository to provide the public with access to all the reports, surveys, Plans and monitoring data required under the state permit. Riverkeeper hereby requests that the following reports, Plans, monitoring data, etc. required to be prepared pursuant to the Draft Permit be disclosed to the public in electronic form at a publicly available website, and in hard copy at local document repositories in Rockland and Westchester County.

1. Final versions of the Endangered and Threatened Species Mitigation Plan and the Implementation Plan, including final schedules and execution programs;[92]

2. Compensatory Mitigation Plan;[93]

3. All documents, including reports and data relating to the Pile Load Testing Program, or the Pile Installation Demonstration Program ("PIDP 2");[94]

4. All reports and information submitted to NYSDEC pursuant to Condition 4, relating to the work of the Oversight and Environmental Compliance Monitor;

5. The final Environmental Compliance Plan required pursuant to Condition 5;

6. Final plans for the construction of temporary and permanent platforms and bulkheads, pursuant to Condition 7;

[92] Draft Permit at pg. 3.
[93] Draft Permit at pg. 4.
[94] Draft Permit Condition 1.

7. Final design plans and operational specifications for the underwater sound attenuation system, as required by Condition 7;

8. All plans and descriptions of the means of concrete production, delivery and placement pursuant to Condition 18, including all measures to minimize or prevent discharges of concrete leachate and cement into the Hudson River;

9. Dredging Plan pursuant to Condition 19;

10. Drawings and specifications of the closed clamshell bucket and other dredging equipment, including specifications demonstrating that appropriate design considerations are incorporated in the equipment, pursuant to Condition 23;

11. Final plan for decanting of barges pursuant to Condition 27;

12. Plan for monitoring the sedimentation rate in Piermont Marsh pursuant to Condition 29;

13. Dredging Report pursuant to Condition 34;

14. Armoring Plan pursuant to Condition 36;

15. Fish Monitoring Plan pursuant to Condition 40;

16. Results of daily surveys and SOP describing the procedures for conducting the surveys pursuant to Condition 41;

17. All information related to the necropsies of dead sturgeon, if needed, pursuant to Condition 44;

18. Final plan of all in-water demolition work related to the demolition of the existing bridge, pursuant to Condition 45;

19. All hydrographic and benthic invertebrate surveys required pursuant to Conditions 49, 50 and 51;

20. Water Quality Monitoring Plan pursuant to Conditions 56 and 57;

21. All analytical results and notifications pursuant to Conditions 59 and 60;

22. Monitoring reports pursuant to Condition 62; and

23. Completed submissions of Water Treatment Chemical Usage Notification forms pursuant to Condition 68.

XI. Riverkeeper's Request for an Adjudicatory Hearing

Riverkeeper hereby requests an adjudicatory hearing upon New York State Thruway Authority Draft ECL Article 25 Tidal Wetlands Permit (NYS NYSDEC # 3-9903-00043/00012), Clean Water Act Section 401 Water quality Certification (NYS NYSDEC # 3-9903-00043/00013), ECL Article 11 Incidental Take Permit (NYS NYSDEC # 3-9903-00043/00014)[95].

Under 6 NYCRR §621.8 (b) NYSDEC is required to hold an adjudicatory hearing[96] "where any comments received from members of the public or other interested parties raise substantive and significant issues. . ." the resolution of which "may result in denial [i.e.,

[95] *See* 6 NYCRR § 621.8.
[96] 6 NYCRR § 621.8. ("*shall* hold an adjudicatory public hearing" (emphasis added)).

rejection] of the permit."[97] A hearing is necessary in this case because the comments herein raise substantive and significant issues.

NYSDEC must base its determination to hold an adjudicatory public hearing on whether the permit, "as proposed, may not meet statutory or regulatory criteria or standards."[98] NYSDEC's draft combined permit for the New NY Bridge project, raises a number of "substantive and significant" issues as set herein.

The threshold for proffering "substantive and significant" issues has clearly been met by the instant comments. Applicable regulations explain that written comments can "raise substantive and significant issues" by "expressing objection or opposition" to a permit and by "explain[ing] the basis of that opposition and identify[ing] the specific grounds which could lead the department to deny [i.e., reject] or impose significant conditions on the permit." [99]

Regulations and precedent offer additional guidance as well. In terms of what constitutes a "substantive" issue:

> An issue is substantive if there is sufficient doubt about the applicant's ability to meet statutory or regulatory criteria applicable to the project, such that a reasonable person would require further inquiry. In determining whether such a demonstration has been made, the ALJ must consider the proposed issue in light of the application and related documents, the draft permit, the content of any petitions filed for party status, the record

[97] *Id.*
[98] *Id.*
[99] 6 NYCRR § 621.8(d).

> of the issues conference and any subsequent written arguments authorized by the ALJ.[100]

Precedent further explains that "[t]o be substantive, the issue cannot be based merely on speculation but on facts that can be subjected to adjudication." [101] Further, "an issue can be demonstrated by identifying a substantive defect or omission in the application materials."[102]

In terms of what constitutes a "significant" issue: "[a]n issue is significant if it has the potential to result in the denial of a permit, a major modification to the proposed project or the imposition of significant permit conditions in addition to those proposed in the draft permit."[103]

Notably, at the initial stage of proffering "substantive and significant" issues, an interested party "need not present proof of its allegations sufficient to prevail on the merits."[104] An "adjudicable issue," i.e., an issue that is "substantive and significant"[105] exists "where there are sufficient doubts about the . . . ability to meet all statutory and regulatory criteria such that reasonable minds would inquire further. Requiring a greater showing would effect an unfair burden on intervening parties."[106]

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[100] 6 NYCRR §624.4(c)(2).
[101] In the Matter of an Application for a State Pollutant Discharge Elimination System (SPDES) permit pursuant to Environmental Conservation Law (ECL) Article 17 and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6NYCRR) Parts 750 *et seq.* by Athens Generating Company, LP, 111 Washington Avenue, Albany, New York 12208, Ruling on Proposed Issues for Adjudication and Petitions for Party Status, NYSDEC No.: 4-1922-00055/00001, SPDES No.: NY-0261009 (April 26, 2000), *available at* http://www.dec.ny.gov/hearings/10977.html (citing *Matter of Concerned Citizens Against Crossgates v. Flacke*, 89 AD2d 759 (3rd Dep't., 1982), *aff'd*, 58 NY2d 919 (1983)).
[102] *Id.* (citing *Matter of Oneida County Energy Recovery Facility*, Interim Decision, July 27, 1982; *Matter of Halfmoon Water Improvement Area*, Interim Decision, April 2, 1982; *Matter of Broome County Department of Public Works*, Commissioner's decision, June 11, 1984).
[103] 6 NYCRR §624.4(c)(3).
[104] *See* In the Matter of the Application of Bonded Concrete, Inc. for Mining and Freshwater Wetlands Permits pursuant to Articles 23 & 24 of the Environmental Conservation Law and 6 NYCRR Parts 420-426 and 663, 1990 N.Y. ENV LEXIS 44, *3-4 (1990).
[105] *see* 6 NYCRR § 624.4(c)(iii)
[106] *See* In the Matter of the Application of Bonded Concrete, Inc. for Mining and Freshwater Wetlands Permits pursuant to Articles 23 & 24 of the Environmental Conservation Law and 6 NYCRR Parts 420-426 and 663, 1990 N.Y. ENV LEXIS 44, *3-4 (1990).

Based on these applicable standards and burdens, Riverkeeper's comments herein raise a number of "substantive and significant" issues, which mandate, and for which Riverkeeper formally requests, a public adjudicatory hearing.

XII. Conclusion

For the foregoing reasons Riverkeeper respectfully requests that NYSDEC grant Riverkeeper's request for a formal adjudicatory hearing on the "substantive and significant issues" raised herein.

Riverkeeper appreciates NYSDEC's consideration of the above comments. Should you require any clarification, or additional information, please do not hesitate to contact the undersigned at (914) 478-4501.

Respectfully Submitted,

/s/ Joshua Verleun /
Joshua S. Verleun, Esq.
Chief Investigator & Staff Attorney

Phillip Musegaas, Esq.
Hudson River Program Director

W. Frank Bohlen
1 Scott Lane
Mystic, Connecticut 06355

Mr. Phillip Musegaas Esq.
Hudson River Program Director
Riverkeeper Inc.
20 Secor Road
Ossining, NY 10562

February 19, 2013

Dear Mr. Musegaas:

At the request of Riverkeeper I have reviewed a variety of documents resulting from the evaluation of possible environmental impacts produced by the replacement of the existing Tappan Zee Bridge including much of the Final Environmental Impact Statement and Section 4(f) Evaluation dated July, 2012 and the New York State Department of Environmental Conservation Draft Permit DEC ID 3-9903-00043/00012 ("Draft Permit"). My review placed particular emphasis on potential sediment/contaminant transport associated with dredging and armoring of access channels and subsequent construction and demolition (i.e. removal of historic bridge following completion of new bridge). I have more than 45 years of experience conducting research in the area of coastal sediment transport and the effects of aperiodic events such as dredging and dredged material disposal. I conducted some of the first field investigations of the amounts of sediment introduced into suspension by mechanical clamshell bucket dredging and have designed and deployed a variety of instrumentation providing time series observations of sediment dispersion in the vicinity of ongoing dredging projects in a variety of coastal environments. (See attached CV).

The effects of several aspects of the dredging operations expected during the replacement of the Tappan Zee Bridge including dredge induced resuspension and associated dispersion, prop wash within the dredged access channels and the transport of selected contaminants (Pb, Hg, total PCBs and Total PAHs) were evaluated by Dr. Donald Hayes (see Appendix E , EIS). These evaluations while rudimentary, appear adequate and provide a reasonable basis for the design of a monitoring program to be conducted during the construction period and the specification of dredging windows.

After reviewing the analyses described above I searched for information detailing the plan for water quality monitoring during construction or efforts to verify the predictions under actual operating conditions. Based upon my review this information is largely absent from the documents I reviewed. The Draft Permit appears to indicate that the monitoring program is to be designed and executed by the contractor subject to approval by the Department of Environmental Conservation (DEC). Section 61 of the Draft Permit requires daily sampling at the onset of construction, with a reduction in frequency to weekly if no water quality exceedances occur during the first two weeks. However, the sole reference to methodology appears in the criterion that the plume of sediment induced by the dredge should not be "visible" beyond the outer limits of the mixing zone.

In order to ensure that operational protocols that will minimize impacts to water quality and ensure adequate monitoring are developed and adhered to during the construction I recommend that the Draft Permit include additional detail describing the best practices required to conduct a comprehensive water quality monitoring program.

Accurate sampling and water quality monitoring during this type of construction project presents certain challenges. The plume of sediment resulting from the vertical excursion of a clam-shell bucket through the water column and into an attendant barge (no overflow) tends to display significant spatial and temporal variability as a function of water depth, local flows, and production rate. The resulting plume is not a contiguous feature which complicates sampling. Relying primarily on discrete samples to detect exceedances can result in "missing" the plume. This variability also makes it very difficult to accurately assess the amounts of material introduced by discrete sampling particularly in areas such as the lower Hudson River where flows are affected by the combination of astronomical tides and streamflows as well as, to a lesser extent, density driven flows due to the intrusion of salty water. Add to these factors, the settling of suspended particles which itself is influenced by particle grain size, concentration, and aggregation and it is clear that the plume is thoroughly four dimensional (i.e. vertical, horizontal, lateral and time). Visual delimiting of such a feature is impossible since it provides no information on vertical structure and discrete point sampling is difficult.

As a result of these complicating factors, I recommend that the Draft Permit's Water Quality Monitoring Plan require the following practices. Recognizing that accurate sampling of dynamic plumes of suspended sediments sufficient for the verification of preliminary model results and the associated water quality analyses is best realized by time series observations the specified monitoring program must employ a variety of moored and mobile instruments in combination with some amount of direct drawn water sampling. Since the dredging of the access channels is to proceed across the main stem of the Hudson River at relatively high rates (15,000 yds^3/day indicated in EIS) data from fixed moorings would most probably be of limited value due to the lateral migration of the plume. This leaves small boat sampling as the most probable optimum platform for plume detailing. I would recommend equipping each sampling boat with a high frequency Acoustic Doppler Current Profiler (ADCP) sufficient to measure both backscatter related to suspended material concentrations and concurrent flow speeds at a series of points over the vertical (0.5m resolution). The backscattering signal would be calibrated against suspended material concentrations from water samples obtained at the study site. Concentrations would be determined by vacuum filtration of 1 liter samples through dried and pre-weighed filters 0.45 micron pore size.

The recommended small boat surveying would be conducted along a series of defined East-West across-river transects beginning in close proximity to the dredge. The surveyed area would extend downcurrent for a minimum distance of 2500m to insure coverage of the entire plume and some amount of adjoining area. A minimum of four transects downcurrent from the dredge would span this area. A single across-river transect would be conducted immediately up-current from the dredge to provide control. Surveys would be conducted daily during both flood

and ebb tidal conditions with drawn water samples at three points on the vertical obtained at locations along each transect shown to have the highest SMC values by the real time ADCP backscattering signal operating in combination with an optical sensor (OBS) located on the pumped sampler being used to obtain water samples.

The data provided by the ADCP should be provided to the Oversight Environmental Compliance Monitor (see Section 4 of the Draft Permit) in as close to real time as possible and used to modify operational protocols, such as production rate, if they show SMC values above water quality standards. The analysis of the drawn water samples will require more time depending and the extent of the evaluation and the parameters selected.

The specified methodology that I have recommended recognizes the complexity of plume dispersion in an estuarine setting and has the potential to provide the monitoring necessary to insure adherence to Permit criteria while facilitating efficient project completion.

Sincerely,

W. Frank Bohlen

W. Frank Bohlen PhD

BIOGRAPHY, BIBLIOGRAPHY AND PROFESSIONAL SUMMARY

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EDUCATION

B.S. 1960 University of Notre Dame
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Woods Hole Oceanographic Institution Joint Program

LICENSES AND CERTIFICATION

Hazardous Waste Site Operator and Emergency Response Training (OSHA 29 CFR 1910.120) May,l996 (Ref.10/98)

EXPERIENCE

1960-62	U.S. Navy - Engineering Officer
1962-63	Research Assistant,Woods Hole Oceanographic Institution
1963-64	Staff Engineer, Robert Taggart, Inc.
1964-65	Research Assistant,Woods Hole Oceanographic Institution
1965-69	Research Assistant, MIT
1969-77	Assistant Professor, The University of Connecticut
1977-78	Visiting Investigator,Woods Hole Oceanographic Institution
1980-90	Associate Professor, The University of Connecticut
1985	Visiting Scientist,Virginia Institute of Marine Science
1991-	Professor, The University of Connecticut
1992	Acting Director, Williams College-Mystic Seaport Museum – Maritime Studies Program
2009	Professor Emeritus

PROFESSIONAL SOCIETIES

Member: American Geophysical Union, Estuarine Research Federation, The Oceanography Society, Marine Technology Society

HONORS OR DISTINCTIONS

WHOI Fellowship 1967-68; Member, Research/Planning Advisory Committee of the New England River Basins Commission; American Geophysical Union Visiting Scientist Lecturer 1970-73; Invited Lecturer 3rd Annual Ocean Disposal Conference,U.S. Army Corps of Engineers, West Boothbay Harbor, ME;Invited Lecturer 4th Annual Ocean Disposal Conference,Boston, MA; Associate Editor, Estuaries 1979-84; Invited Lecturer, 40 Mtg. Coastal Engineering Research Board 1983;Member,NAS/NRC Committee on National Dredging Issues 1983-85;Delegate,10th U.S./Japan Experts Meeting,Kyoto, Japan,1984; Member, NAS/NRC Panel, Particulate Wastes in the Ocean, 1987-88. Member NAS/NRC Committee on Contaminated Marine Sediments 1993-1998 .EPA Hazardous Substances Research Center-South and Southwest Chair Science Advisory Committee. Chairman, Scientific Advisory Committee 1998-. Member NAS/NRC Committee on Assessment of Risks from Remediation of PCB-Contaminated Sediments 1999-2001.Member EPA SAB Contaminated Sediments

Science Panel 2002-03; Member N.Y.Harbor CARP Model Evaluation Group,

2000-2007; Member EPA Housatonic River Peer Review Panel-Model Evaluation Group 2001-2006.

FIELD OF SPECIALIZATION

Physical Oceanography – Coastal Processes

RESEARCH INTERESTS

Fluid Mechanics, Turbulence, Sediment Transport Processes, Coastal Monitoring Systems, History of Science

PUBLICATIONS

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