RIVERKEEPER
NY's clean water advocate

November 15, 2013

Via E-Mail

Pamela L. Young
Bureau of Water Supply Protection
NYC Watershed Section
New York State Department of Health
Corning Tower Room 1110
Empire State Plaza
Albany, NY 12237

Re: Riverkeeper Comments on Department of Health's Draft Mid-Term Revisions to New York City's 2007 Filtration Avoidance Determination

Dear Ms. Young:

Riverkeeper, Inc. ("Riverkeeper"), appreciates the opportunity to comment on New York State Department of Health's ("DOH") mid-term review and revision of New York City's ("NYC") 2007 Filtration Avoidance Determination ("FAD") ("Draft Mid-Term Revisions"), as noticed in the October 16, 2013 *Environmental Notice Bulletin*. Riverkeeper is a member-supported environmental watchdog organization dedicated to defending the Hudson River and its tributaries and to protecting the drinking water supply of nine million NYC and Hudson Valley residents. Through enforcement and litigation, policy and legislation, as well as educational outreach, Riverkeeper focuses on three overarching problems facing Hudson River communities: preserving the New York City Watershed, restoring the Hudson River ecosystem, and improving public access to the Hudson River.

Riverkeeper is a signatory of the 1997 Watershed Memorandum of Agreement ("MOA"), which requires New York City to meet the requirements of the FAD and maintain the quality of its unfiltered drinking water. As a signatory, Riverkeeper has a unique public role to ensure that the agreement succeeds and that its provisions are implemented and enforced. The MOA provides the framework through which NYC conducts its water supply operations and funds projects to address such issues as septic system upgrades, infrastructure repair and extension, pollution control and land acquisition. We have been particularly engaged on the issue of the impacts that NYC Department of Environmental Protection's ("DEP") water supply operations have had on Lower Esopus communities and Ulster County since February of 2011 and we are

committed to continue supporting government and stakeholder efforts to resolve this issue in the most collaborative and coordinated way possible.

Since the Environmental Protection Agency ("EPA") renewed the FAD in 2007, DEP has achieved some important objectives aimed at safeguarding the upstate Catskill and Delaware water systems. For example, DEP's execution of the Septic System Remediation & Replacement Program and implementation of the community wastewater management program have been very successful. Riverkeeper is also pleased that New York City's Catskill and Delaware system waters remain in compliance with EPA's requirements for its FAD under the Surface Water Treatment Rule and the Safe Drinking Water Act. However, Riverkeeper is concerned that there are certain issues which should be DOH priorities but are not adequately addressed in the Draft Mid-Term Revisions.

Riverkeeper appreciates that DOH has worked with EPA and the New York State Department of Environmental Conservation ("DEC") to incorporate into its Draft Mid-Term Revisions many of the recommendations Riverkeeper made in our September 20, 2011, comments on the 2007 FAD mid-term review and revision process,[1] including:

- Providing an additional $50 million for the Enhanced Land Trust Program and setting a goal to solicit an additional 25,000 acres;
- Increasing funding for the Stream Management Program by $10.1 million to address Hurricane Irene-related impacts;
- Expanding the Watershed Agricultural Program to small farms East-of-Hudson and inventorying small farms West-of-Hudson;
- Adding 60 farms to the Precision Feed Management Program;
- Securing funding through the full 2007 FAD term for Septic System Remediation and Replacement Program;
- Continuing the Kensico Water Quality Control Program;
- Cost-sharing the repair of 100 septic systems with MOA funds for Putnam County water quality;
- Increasing funding for East-of-Hudson stormwater retrofits by $15.5 million;
- Identifying alternative water sources for Delaware water consumers while Rondout West Branch Tunnel ("RWBT") is offline for repairs;
- Funding land acquisition, stormwater retrofits and septic repair in the West Branch Basin in advance of RWBT repair activities;
- Supporting "Trees for Tributaries Program" for riparian buffer restoration; and

[1] Riverkeeper, Inc., Riverkeeper, Inc.'s Comments to the N.Y.S. Department of Health, U.S. Environmental Protection Agency and the N.Y.S. Department of Environmental Conservation Concerning the Midterm Review and Revision of New York City's 2007 Filtration Avoidance Determination (2011).

- Stipulation of City's responsibility for design, installation, operation, and maintenance of "Watershed Equipment and Methods" for wastewater treatment plants in NYC Watersheds.

These provisions will help to ensure that NYC maintains its FAD not only throughout the 2007 FAD term, but also into future terms. However, deficiencies remain in the Draft Mid-Term Revisions, and some proposed DEP programs have potential for improvement. We recommend that DOH address the following priority areas.

I. The Revised 2007 FAD Must Address the Catskill Turbidity Control Program and the Ashokan Reservoir Releases it Mandates.

Catskill system turbidity remains the greatest threat to New York City's long-term filtration avoidance. The 2007 FAD acknowledged that "significant improvement to the City's ability to prevent, manage, and control turbidity in the Catskill system is required . . . ."[2] Currently, DEP addresses turbidity through reliance on its Operations Support Tool ("OST"), which allows DEP to track turbidity and guide reservoir operations. The mechanisms DEP has used to reduce system turbidity are either to minimize use of Catskill water or take the Catskill system off line while utilizing the Ashokan Release Channel to release turbid water from the Ashokan Reservoir to the Lower Esopus Creek, or to add aluminum sulfate ("alum") and sodium hydroxide to the turbid Catskill water entering the Kensico Reservoir. Neither of these methods are viable long-term solutions.

The use of the Release Channel in particular negatively impacts the ecosystem in and around the Lower Esopus Creek and the communities and businesses stretching up and down its banks. Negative impacts associated with these releases include excessive suspended sediments and related sediment deposition in the Lower Esopus. These sediment-related impacts eliminate the ability of key bird and fish species to feed and limit recreational use of the creek at municipal beaches and by boats because of decreased depth in the creek. This has adverse economic impacts on marina, boat rental and angler-related businesses as well as restaurants and stores in Lower Esopus communities that depend on boaters, anglers and tourists who do not come when the creek is muddy. The turbid, high flow releases also impact farmers who cannot access their fields and whose irrigation equipment becomes clogged. Finally, bank erosion and bank saturation, which result from extended high volume flows cause property damage, septic field failure and decreases in property values.

[2] U.S. ENVTL. PROT. AGENCY, NEW YORK CITY FILTRATION AVOIDANCE DETERMINATION; SURFACE WATER TREATMENT RULE DETERMINATION FOR NEW YORK CITY'S CATSKILL/DELAWARE WATER SUPPLY SYSTEM 14 (2007), *available at* http://www.epa.gov/region2/water/nycshed/2007finalfad.pdf.

A. Since the FAD-Required Catskill Turbidity Control Program, Which Includes Ashokan Reservoir Releases, Has Resulted in Adverse Environmental Impacts, the Revised 2007 FAD Must Require DEP to Evaluate and Modify Catskill Turbidity Control Mechanisms During the 2007 FAD Term.

The discharges from the Ashokan Reservoir to Lower Esopus Creek clearly fall within the purview of DOH's authority under the FAD. DOH already exercised its authority over the discharges in November 2010 when it approved Release Channel discharges pursuant to the 2007 FAD via a private letter to DEP.[3] In fact, DOH currently *requires* DEP to operate the Release Channel in order to comply with the FAD.[4] DOH cannot support its recent claim that it has no regulatory authority to regulate and impose conditions on use of the Ashokan Reservoir Channel to reduce the turbidity of water entering the Catskill Aqueduct.[5] DOH now proposes to incorporate such releases into water supply operations for the remaining term of the 2007 FAD.[6]

DOH has a duty to evaluate all water supply operations[7] DEP implements to provide ratepayers with water that meets minimum drinking water quality standards. Since turbidity

---

[3] Letter from Roger C. Sokol, Ph.D., Acting Dir., Bureau of Water Supply Prot., N.Y. State Dep't of Health, to David S. Warne, Assistant Comm'r, N.Y. City Dep't of Envtl. Prot., at 1 (Nov. 26, 2010) (on file with author) [hereinafter Letter from Roger C. Sokol] ("Through this letter, DOH, EPA and DEC approve the Phase III Implementation Plan and schedule pursuant to the 2007 FAD."); Letter from Caswell F. Holloway, Comm'r., N.Y. City Dep't of Envtl. Prot., to Michael P. Hein, Ulster Co. Executive, at 1-2 (Jan. 21, 2011) ("activation of the waste channel at Ashokan to prevent turbid water from spilling from the West Basin to the East Basin of the reservoir . . . was consistent with the Catskill Turbidity Control Program Phase III Implementation Plan, which has been approved by [DOH, DEC, and EPA] pursuant to the City's [FAD]."

[4] *See* Letter from Roger C. Sokol, Ph.D., *supra* note 3; N.Y. CITY DEP'T OF ENVTL. PROT., PHASE III FINAL REPORT; CATSKILL TURBIDITY CONTROL STUDY (2007).

[5] William J. Kemble, *N.Y. State Defends Dropping Lower Esopus Creek Requirements from Reservoir Filtration Waiver*, DAILY FREEMAN (Aug. 29, 2013), *available at* http://www.dailyfreeman.com/general-news/20130829/ny-state-defends-dropping-lower-esopus-creek-requirements-from-reservoir-filtration-waiver ("'There is not regulatory authority under the [federal Surface Water Treatment Rule] or through the FAD to require NYC to conduct activities that are outside of NYC's watershed, such as in the Lower Esopus, as those activities would not serve to protect NYC's water supply.'" (quoting N.Y. State Dep't of Health spokesperson Marci Natale)).

[6] *See* N.Y. State Dep't of Health, Draft New York City Filtration Avoidance Determination; Mid-Term Revisions to the 2007 Surface Water Treatment Rule Determination for New York City's Catskill/Delaware Water Supply System 11 (Aug. 2013) [hereinafter Draft Mid-Term Revisions] ("This FAD includes all the commitments made by the City in their 2011 Long-Term Plan. . . .; *Id.* at 58. ("The Revised 2007 FAD requires that the City continue to implement the Catskill Turbidity Control Program . . . ."). *See also* N.Y. City Dep't of Envtl. Prot., 2011 Long-Term Watershed Protection Program 64, 65, 66 (2011) *available at* http://www.nyc.gov/html/dep/pdf/watershed_protection/2011_long_term_plan [hereinafter 2011 Long-Watershed Protection Program] ("Releasing water from the West Basin via the Ashokan Release prior to and during a storm event was also found to provide significant reductions in turbidity loading to the East Basin, and hence to Kensico Reservoir. . . . DEP selected Catskill Aqueduct Improvements and Modified Operations as the most feasible, effective, and cost-effective alternative for reducing turbidity levels entering Kensico Reservoir.").

[7] *See, e.g.*, 40 C.F.R. § 141.71(b)(3).

reduction is a key function of such operations, DOH is obligated to consider in its 2007 FAD midterm review the efficacy and viability of all turbidity reduction measures required for compliance under the FAD, including Ashokan Release Channel discharges.

1. It is important to note that DOH has no authority to require DEP to violate federal or state law in order to comply with the FAD. Yet over the past three years since DEP's high-volume, highly turbid releases from the Ashokan Reservoir commenced, DEP has violated state water quality laws, indisputably causing the impairment of Lower Esopus Creek. In February of 2011, DEC initiated an enforcement action against DEP in part for the Ashokan releases, based on DEC's determination that the releases constituted violations of state environmental laws. Specifically, DEC asserted that these discharges violated the statutory prohibition against discharging pollutants to the waters of New York State from any outlet or point source without a State Pollutant Discharge Elimination System ("SPDES") permit.[8]

In addition, in a separate action, on January 18, 2013 the U.S. Environmental Protection Agency ("EPA") determined that the Lower Esopus had to be listed as impaired for turbidity pursuant to the Clean Water Act, concluding, "[h]uman activities, such as release channel operations associated with the Ashokan Reservoir, have increased the duration of turbidity in the Lower Esopus Creek. These conditions cannot reasonably be considered natural."[9] EPA based its conclusion on "[i]nformation submitted and available to EPA during the 2012 303(d) listing cycle," which indicated that "the Lower Esopus Creek is not simply periodically turbid due to storm events and natural erosion, but is turbid for a longer period of time than could reasonably be expected, due to anthropogenic activities."[10] Given DEC's recent allegations that such discharges are illegal, as well as EPA's finding that the discharges cause violations of state water quality standards, DOH must assess the legality of the discharges and make changes to Draft FAD Revisions to address the possibility that the discharges may be enjoined during the course of the FAD timeframe (i.e., before 2017), potentially prohibiting DEP from meeting its FAD requirements.

2. DOH must also complete a full environmental impact statement pursuant to the State Environmental Quality Review Act (SEQRA) prior to making any determination to allow or require releases from the Ashokan Reservoir for the balance of the 2007 FAD period, since the

---

[8] N.Y. State Dep't of Envtl. Conservation, Administrative Complaint, DEC Case No: D0007-0001-11, at ¶ 52 (Feb. 14, 2011) [hereinafter DEC Enforcement Action].

[9] U.S. ENVTL. PROT. AGENCY, LISTING THE LOWER ESOPUS CREEK ON NEW YORK STATE'S 2012 303(d) LIST OF IMPAIRED WATERS: FACT SHEET 1 (Jan. 13, 2013), *available at* http://www.epa.gov/Region2/water/waterbodies/EsopusListingFactSheet.pdf.

[10] U.S. ENVTL. PROT. AGENCY, RESPONSE SUMMARY FOR EPA'S PROPOSED LISTING OF THE LOWER ESOPUS CREEK ON NEW YORK'S 2012 303(d) LIST 2-3, 5 (2013), *available at* http://www.epa.gov/Region2/water/waterbodies/EsopusListingResponseSummary.pdf.

releases have had, over the past 3 years, and are likely to have in the future, a significant impact on New York State's environment.[11] DOH is obligated to complete such environmental impact statement regardless of whether the environmental impacts would occur within or outside the NYC Watersheds. As DEC correctly observed in July 2009, "depending on how the diversion channel is used, there are . . . the potential for negative impacts to biota, residents and property from periodic, and/or poor quality releases to the lower Esopus Creek."[12] The environmental review being conducted in connection with the Catskill Alum SPDES permit modification cannot satisfy DOH's obligation to comply with SEQRA before taking action to approve the 2007 FAD mid-term revisions and implementation of the 2011 Long-Term Watershed Protection Plan, which includes Phase III of the Catskill Turbidity Control Plan. Given the clear role DOH has in approving the FAD revisions, it should not and cannot walk away from its obligation to address the consequences, both environmental and human, that will result from a decision to allow or require operation of the Ashokan Release Channel.

B. DOH Should Require, Under the Revised 2007 FAD, That DEP Take Action to Convene and Fund a Panel of Experts to Identify and Evaluate Structural and Nonstructural Alternatives to Using Turbid Ashokan Reservoir Releases to Limit Turbidity in the Catskill System.

Due to the importance and the unique technical complications of NYC's water supply infrastructure, Riverkeeper urges DOH to seek the assistance of an independent expert panel to evaluate structural and non-structural alternatives to Ashokan Releases to control turbidity in the Catskill system.[13] The panel should be placed under the direction of all involved regulatory

[11] *See* E.C.L. §§ 8-0801 to 08-0117; 6 N.Y.C.R.R. § 617.7(a) ("To determine that an EIS will not be required for an action, the lead agency must determine either that there will be no adverse environmental impacts or that identified adverse environmental impacts will not be significant."). DEP and DOH have already indicated that they must conduct an environmental review pursuant to SEQRA. N.Y. City Dep't of Envtl. Prot., Lead Agency Declaration and Notice of Intent to Conduct an Environmental Review [on] New York City's Revised Long-Term Watershed Protection Program in Support of the Filtration Avoidance Determination for the Catskill and Delaware System; CEQR No. 12DEP046U (Jan. 17, 2012) (declaring itself lead agency and classifying the implementation of the Long-Term Watershed Protection Plan pursuant to the FAD to be a Type 1 action); Email from Hilary Meltzer, Deputy Chief, Environmental Law Division, N.Y. City Law Dep't, to Katherine Hudson, Watershed Program Dir., Riverkeeper, Inc. (Feb. 7, 2012, 2:35 p.m. EST) (on file with author) ("the City intends to conduct a coordinated review of the Long-Term Plan as well as the 2012 FAD renewal with DOH"); Email from Pamela L. Young, Ph.D., Acting Chief, NYC Watershed Section, N.Y. State Dep't of Health, to Katherine Hudson, Watershed Program Dir., Riverkeeper, Inc (Oct 22, 2013, 3:42 p.m. EST) (on file with author) (stating DOH must approve the FAD in order to complete the environmental review).

[12] Letter from James M. Tierney, Assistant Comm'r for Water Resources, N.Y. State Dep't of Envtl. Conservation, to David Warne, Assistant Comm'r, N.Y. City Dep't Environmental Prot., and Tina Johnstone, P.E. Operations Dir., N.Y. City Dep't of Envtl. Conservation, at 3 (Jul. 17, 2009). *See* DEC Enforcement Action, *supra* note 8, at 53.

[13] In an undated preliminary draft of DOH's 2007 FAD Mid-Term Revisions, DOH proposed to require DEP to fund an expert panel "to review the turbidity models used to support the OST, and to assist in evaluating operation of the Ashokan Release Channel and potential alternatives to control turbidity under the FAD and the Consent Order." N.Y. State Dep't of Health, Preliminary Draft New York City Filtration Avoidance Determination; Mid-Term Revisions to the 2007 Surface Water Treatment Rule Determination for New York City's Catskill/Delaware Water

agencies and parties, DOH, EPA, DEC, and the Watershed Inspector General, and should be directed to evaluate new alternatives recommended by stakeholders and/or experts, as well as alternatives that were previously considered and rejected based solely on DEP's cost-benefit analysis without consideration of external costs or impacts. The FAD should require that the scope of work for the Expert Panel, detailing the goals and questions to be answered, be submitted to DOH, EPA, DEC and the WIG for review and approval. The goals should include examination of alternatives to the use of the Ashokan Release Channel to control Catskill turbidity, both during construction of the Shaft 4 Catskill-Delaware Connection, the Rondout West Branch Tunnel Bypass and the Delaware Aqueduct Leak Repair Project and after those projects have been completed.[14]

These alternatives may include, for example:

- All reasonable structural alternatives to operation of the Ashokan Release Channel for turbidity reduction in the Catskill Watershed, including but not limited to[15]:
    - A bypass conduit that diverts some volume of water from the Upper Esopus Creek directly to the Lower Esopus Creek, before it reaches the West Basin of the Ashokan Reservoir;
    - Installation of dividing weir crest gates (or other alternative) to increase the depth of the West Basin by four feet (thus increasing West Basin capacity by 4 billion gallons);
    - A diversion structure to carry low-turbidity water directly from the Upper Esopus Creek to the East Basin;
    - A new diversion structure from the West to the East Basin to discharge turbid water farther into the East Basin;
    - A settling basin associated with the Ashokan Release Channel;

- Reasonable operational alternatives to use of the Ashokan Release Channel, including but not limited to:

Supply System 59 (2013). The language in the preliminary draft was subsequently modified to limit the scope of the expert panel's work to include only "review the ongoing development and use of the OST, and the effectiveness of OST use in mitigating the effects of elevated turbidity in the reservoir system." Draft Mid-Term Revisions, *supra* note 6, at 58. DOH should reinsert the preliminary language requiring expert review of turbidity reduction alternatives and ensure that such review covers structural measures in addition to non-structural ones.

[14] This requirement should be included in the Revised 2007 FAD as a new program requirement for the balance of the 2007 FAD Term in Section 4.11, Catskill Turbidity Control.

[15] Numerous structural alternatives, including some of those listed in this comment letter, were evaluated by the NYC Comptroller's Office in the Catskill Turbidity Phase III Value Engineering Study. OLYMPIC ASSOCS. CO. AND RH & ASSOCS., VALUE ENGINEERING STUDY; CATSKILL TURBIDITY PHASE III (2008). These alternatives were screened and rejected primarily on a cost basis. *Id.*

- Use of East Basin and blended East and West Basin releases through the Release Channel to the Lower Esopus Creek to reduce turbidity levels to fall within regulatory limits;
- Use of clearer West Basin releases to the Catskill Aqueduct;
- Modification of Release Channel operating rules to reduce turbidity levels to fall within regulatory limits and to avoid or mitigate identified impacts, e.g., set clear, reduced caps on turbidity, volume and duration of releases;
- Re-visiting OST modeling and the Conditional Seasonal Storage Objective (CSSO), and their scientific justifications and revision of both, taking into consideration identified adverse environmental impacts to the Lower Esopus Creek from past OST and CSSO driven releases;

- Reasonable alternatives for operation of the Catskill Aqueduct and Kensico Reservoir including use of the Hudson River Release Chamber (after modifying the existing valve mechanisms) and alum use in the Catskill Aqueduct prior to its deposition into the Kensico Reservoir;

- Other alternatives developed through survey of turbidity/sediment control initiatives, both domestic and international; and

- Combinations of the above measures.

The expert panel should consider the potential environmental impacts associated with each of the alternatives chosen to be evaluated, both inside and outside the Catskill and Delaware Watersheds, including those from continued use of the Release Channel to discharge turbid waters to the Lower Esopus. Such an evaluation should also consider ways to avoid or mitigate those environmental impacts. The Revised 2007 FAD should set expedited milestones for the convening of the expert panel tasked to consider turbidity control alternatives, for completion of the report on the Panel's preliminary recommendations and the final report on the findings of the Panel on alternatives to operation of the Ashokan Release Channel. The work of this panel should proceed concurrently with the work of the panel tasked to consider monitoring. In addition, it should not be delayed to wait for the results of the environmental review mandated by the Consent Order, but should consider any useful information that becomes available from that review while the Panel is conducting its own alternatives evaluation and preparing its own reports. Any final decisions by DOH with respect to modification of Catskill Turbidity Control mechanisms required under the FAD should be made based on the alternatives and impact analyses and expert panel input.

C. The Revised 2007 FAD Should Require That, If DOH Determines to Authorize Turbid Releases to the Lower Esopus, DEP Develop a Plan to Remediate Unmitigated Environmental Impacts and Compensate Communities That Are Adversely Affected.

If DOH decides, based on the expert panel's alternatives analysis and impact evaluation, to authorize turbid releases to the Lower Esopus throughout the duration of the 2007 FAD term to avoid diversion of turbid Catskill water to the aqueduct and to rely instead on Delaware water using the Shaft 4 connection, DOH should require in its Revised 2007 FAD that DEP propose and release for public input a plan for remediating any identified and unmitigated environmental impacts and for compensating communities inside and outside the Catskill and Delaware Watersheds that are adversely affected by such DOH-authorized reservoir operations.

D. DOH Should Impose Strict Interim Ashokan Reservoir Release Operating Rules While the Expert Panel Undertakes Its Alternatives Review.

DOH must require, through the FAD, the development of, and DEP compliance with, strict interim operating rules for the Ashokan Release Channel with clear caps on turbidity and duration of releases that ensure compliance with state water quality laws. Those rules would govern releases while the impact and alternatives studies are being conducted.

The Consent Order agreed to between DEC and DEP[16] gives DEP the authority to make turbid releases for at least the next two years as the State and City agencies examine the environmental impacts associated with a proposed modification of the City's Kensico Reservoir alum permit. The Consent Order does not limit the amount of turbidity or the duration of releases in order to preserve the quality of the water that is sent to New York City. The touted 36-hour, clearer water flushes in between 12-day periods of turbid releases do not reduce the turbidity load to the Creek resulting from those releases. The Consent Order also does not require the City to comply with state water quality laws in the short or long terms. Thus, provisions in the Consent Order are inadequate to protect the Lower Esopus and its communities from high-volume, long-duration releases of turbid water. It is warranted and appropriate for DOH to impose its own interim restrictions on these FAD authorized releases.

[16] [16] N.Y. State Dep't of Envtl. Conservation, Order on Consent, DEC Case No: D0007-0001-11, at ¶ 52 (Oct. 3, 2013), *available at* http://www.dec.ny.gov/docs/water_pdf/ashcatalum2013.pdf.

E. DOH Must Require DEP to Expand and Implement Its Watershed Monitoring Program Under the FAD Beyond NYC Watershed Boundaries to Monitor Turbidity in the Lower Esopus and Ensure That Existing and Future Impacts to the Creek Resulting from Reservoir Operations Are Identified, Assessed and Mitigated.

At present, DEP's voluntary monitoring of the Lower Esopus is not a requirement of the FAD. This monitoring must be included in DEP's Watershed Monitoring Program, required by the 2007 FAD and included in its Long-Term Watershed Protection Program. Monitoring turbidity only within NYC Watershed boundaries ignores the impacts of the City's water supply operations on communities and ecosystems outside the watershed, many of which have been compromised by extended, turbid, high-volume discharges from the Ashokan Release Channel. Monitoring the Lower Esopus for turbidity between the Ashokan Reservoir and the Hudson River will allow regulators and stakeholders to evaluate existing release protocols to determine impacts and guide consideration of potential modifications.[17]

* * *

In sum, DOH has the authority, responsibility and opportunity to avoid or mitigate the impacts that Ashokan Reservoir releases will have on Lower Esopus communities, their property and the environment. Riverkeeper strongly urges DOH to require evaluation and appropriate modification of FAD-required turbidity control mechanisms in its Revised 2007 FAD, incorporating all information that has become available regarding their consequences.

II. DOH Must Require DEP to Take Actions During the Balance of the 2007 FAD Term to Protect the NYC Watersheds from the Risk of Adverse Impacts Posed by DEC's Potential Authorization of High-Volume Hydraulic Fracturing.

DOH must proactively address the potential for large-scale gas production via low-volume and high-volume hydraulic fracturing ("LVHF" and "HVHF," respectively) in NYC's West-of-Hudson Watersheds and adjacent to water supply infra-structure (aqueducts and tunnels), which are underlain by the Marcellus and Utica shale deposits. LVHF, or production of gas via underground injection of less than 80,000 gallons of water, sand and chemicals, is currently permitted within the West-of-Hudson Watersheds. The State Departments of Environmental Conservation and Health are now considering the potential for the State to allow HVHF, or production of gas via injection of greater than 300,000 gallons of the hydraulic fracturing mixture.

[17]This expanded monitoring requirement should be added to Section 5.1 of the Revised 2007 FAD, Watershed Monitoring Program.

Despite the prohibition on site disturbance related to HVHF operations in or within 4,000 feet of the NYC Watershed, DEC's proposed gas production policies as most recently set forth in the revised draft supplemental generic environmental impact statement ("SGEIS") for HVHF[18] and the revised draft HVHF regulations,[19] if finalized, would severely threaten NYC's water supply and endanger the viability of the FAD.

As currently drafted, DOH's FAD revisions would require DEP to develop parameters only to *monitor* potential pollutants *if* the proposed prohibition on HVHF within 4,000 feet of the NYC Watershed were lifted. DOH completely ignores LVHF.[20] DOH's wait-and-see approach is insufficient to address the potentially catastrophic impacts LVHF and HVHF could have on the NYC water supply. DOH should require DEP to develop a committee of representatives from DOH, EPA, DEP, the Watershed Inspector General, and environmental stakeholders to identify and seek to address potential adverse impacts on the NYC watershed so those potential impacts may be incorporated into DEC's decision-making processes. The committee could also help DOH and DEP develop a contingency plan to address those impacts if and when DEC authorizes HVHF. Following are further actions[21] that DOH should require be taken under the FAD during the balance of the 2007 FAD term to address the potential adverse impacts of LVHF and HVHF.

A. DOH Should Require DEP to Advocate Against Gas Production Within and Underneath the NYC Watersheds.

DEC's proposed prohibition on "site disturbance" related to HVHF operations within 4,000 feet of the NYC Watersheds would allow HVHF underneath Watershed lands. Horizontal well bores can reach over 6,400 feet,[22] giving gas producers the capability to circumvent the protection intended to be afforded by the buffer. Such underground operations could be potentially harmful to surface and groundwater in the vicinity. DEC acknowledges it has no

[18] N.Y. State Dep't of Envtl. Conservation, Revised Draft Supplemental Generic Environmental Impact Statement on the Oil, Gas, and Solution Mining Regulatory Program; Well Permit Issuance for Horizontal Drilling and High-Volume Hydraulic Fracturing to Develop the Marcellus Shale and Other Low-Permeability Gas Reservoirs (2011) [hereinafter RDSGEIS].

[19] N.Y. State Dep't of Envtl. Conservation, Revised Proposed Express Terms of 6 NYCRR Parts 52, 190, 550–556, 560, and 750 (2012).

[20] N.Y. State Dep't of Health, New York City Filtration Avoidance Determination; Mid-Term Revisions to the 2007 Surface Water Treatment Rule Determination for New York City's Catskill/Delaware Water Supply System 62 (2013).

[21] DOH should add a subsection to its Protection and Remediation Program under Section 4 of the Revised 2007 FAD to address oil and gas development.

[22] Traci Read, *2010 Large Directional Drilling Rig* Census, 237 PIPELINE & GAS J. 10 (2012), *available at* http://www.pipelineandgasjournal.com/2010-large-directional-drilling-rig-census?page=9; Southeast Directional Drilling, http://www.southeastdrilling.com/ (last accessed Nov. 1, 2013).

information on the whereabouts of 40,000 abandoned gas wells in the state,[23] and its analysis in the SGEIS fails to account for the possibility that these man-made conduits or existing natural faults could expedite contaminant transport to NYC Watershed surface waters or aquifers. Due to this potential, undetermined contamination risk, DOH should mandate as a requirement of the FAD that DEP advocate for a prohibition on all HVHF underneath the Watershed. DOH should also require that if DEC authorizes HVHF operations in New York State, DEP will monitor water supplies for all contaminants and radioactivity prevalent in hydraulic fracturing operations and waste products.

DOH should also require DEP to continue advocating for a prohibition on LVHF within the Watershed. DEP astutely noted in its comments on the SGEIS that the allowance HVHF around the Watershed could have the unintentional effect of incentivizing LVHF within and around the Watershed,[24] which could have the same water quality impacts as HVHF.

B. DOH Should Require DEP to Develop a Contingency Plan to Prevent Potential Impacts of HVHF or LVHF in Close Proximity to Any NYC Water Supply Infrastructure.

DEC has proposed wholly inadequate protection for New York City's subsurface water supply infrastructure. Specifically, DEC proposed only site-specific environmental assessments for HVHF wells that are determined by DEP to be within 1,000 feet of its subsurface water supply infrastructure.

Much of NYC's water supply infrastructure (the aqueducts, tunnels, and dams that deliver the water) is located directly atop the Marcellus and Utica shales, but falls outside of the boundaries of the City's Watersheds. It is therefore not protected by DEC's proposed ban on surface disturbance within the Watersheds, despite the well-known susceptibility of this aging and already leaking infrastructure. In light of the growing body of science linking oil and gas production to seismic activity, it is important to recall that DEP has, on numerous occasions, raised serious concerns about the impacts of potential seismic activity from fracking-related activities on New York City's water supply infrastructure.[25] DEP's questions remain

---

[23] N.Y. State Dep't of Envtl. Conservation, What Landowners Need to Know about Oil and Gas Wells, http://www.dec.ny.gov/energy/1532.html (last accessed Nov. 1, 2013).

[24] Letter from Carter H. Strictland, Jr., Comm'r, N.Y. City Dep't of Envtl. Protection, to Joseph Martens, Comm'r, N.Y. State Dep't of Envtl. Conservation, at 3-4 (Jan. 12, 2012), *available at* http://www.nyc.gov/html/dep/pdf/natural_gas_drilling/nycdep_comments_on_rdsgeis_for_hvhf_20120111.pdf [hereinfter NYCDEP 2012 Comments].

[25] N.Y. City Dep't of Envtl. Prot., New York City Comments on: Draft Supplemental Generic Environmental Impact Statement (dSGEIS) on the Oil, Gas and Solution Mining Regulatory Program – Well Permit Issuance for Horizontal Drilling and High-Volume Hydraulic Fracturing to Develop the Marcellus Shale and Other Low-Permeability Gas Reservoirs (2009), *available at* http://www.nyc.gov/html/dep/pdf/natural_gas_drilling/nycdep_comments_final_12-22-09.pdf [hereinafter

unanswered, as do questions about the potential impacts of seismic activity on water supply infrastructure across the state.[26]

Riverkeeper has two specific concerns related to drilling in proximity to the infrastructure: 1) a threat that seismic activity from drilling activities could jeopardize the structural integrity of the tunnels themselves; and 2) a threat that fracking fluids or other contaminants could migrate in and around the vicinity of the drilling rigs and enter the tunnels via small cracks or fissures in the tunnel walls, potentially contaminating the drinking water supply. Based on like concerns, DEP originally proposed a seven-mile buffer to protect this critical resource, and no scientific basis has been given to decrease that buffer.[27] DOH should require DEP to continue advocating for that buffer, unless science dictates otherwise, and develop a contingency plan in case DEC authorizes HVHF operations in the vicinity of water supply infrastructure.

C. DOH Should Require DEP to Monitor and Oppose the Development of New Gas Production Infrastructure Within NYC Watersheds.

The development of gas pipelines, compressor stations and other infrastructure is of particular concern because it is currently allowed within the NYC Watersheds. The impacts of construction activities associated with building pipelines and related facilities, such as stormwater runoff and wetland disturbance, may be significant and their cumulative impacts should be evaluated for the NYC Watersheds. One application for an interstate gas pipeline has already suggested a potential alternative route that would traverse the West-of-Hudson Watershed,[28] and another proposed pipeline expansion project would require construction in the East-of-Hudson Watershed, potentially damaging wetland resources and increasing polluted stormwater runoff.[29] Riverkeeper appreciates DEP's strong review of these proposed destructive projects. DOH should require DEP to develop a strategy to actively monitor and oppose any

---

NYCDEP 2009 Comments]; 2012 Comments, *supra* note 24; N.Y. City Dep't of Envtl. Prot., Technical Memorandum; Geophysical Evaluation of Infrastructure Risks of Natural Gas Production on New York City West of Hudson (WOH) Water Supply Infrastructure (2011), *available at* http://www.nyc.gov/html/dep/pdf/natural_gas_drilling/hager-richter_technicalmemorandum_20111221_hydrofrac.pdf [hereinafter NYCDEP Technical Memorandum].

[26] Casey Seiler, *Tkaczyk, Avella Question DEC's Seismic Work*, CAPITOL CONFIDENTIAL (Feb. 8, 2013), *available at* http://blog.timesunion.com/capitol/archives/178040/tkaczyk-avella-question-decs-seismic-work/.

[27] *See* NYCDEP 2009 Comments, *supra* note 25; NYCDEP 2012 Comments, *supra* note 24; NYCDEP Technical Memorandum, *supra* note 25.

[28] Constitution Pipeline Company, LLC, Application for Certificate of Public Convenience and Necessity (Jun. 13, 2013), Federal Energy Regulatory Commission (FERC) Docket No. CP-13-499-000.

[29] Federal Energy Regulatory Commission, Notice of Intent to Prepare an Environmental Impact Statement for the Planned Algonquin Incremental Market Project, Request for Comments on Environmental Issues, and Notice of Public Scoping Meetings (Sep. 13, 2013), Docket No. PF-13-16-000.

new gas production infrastructure projects within the NYC Watersheds that could have potential water quality impacts.

D. DOH Should Require DEP to Monitor Water Withdrawals from the NYC Watersheds for HVHF Operations.

DOH should develop a contingency plan to monitor water withdrawals from the NYC Watersheds for HVHF operations if DEC permits HVHF. The State's water withdrawal regulations allow withdrawal from the NYC Watersheds for use in HVHF anywhere within or outside of New York State.[30] The regulations also allow water to be withdrawn from waterbodies both upstream and downstream from the NYC Watershed. HVHF operators may withdraw 2 million gallons per day from such sources without a permit until 2016,[31] and even this limit may be easily circumvented with multiple-owner tanker truck runs.

These withdrawals may reduce inflow to NYC reservoirs, lowering available supplies and decreasing the probability of refilling reservoirs prior to summer drawdown to meet drinking water demand. During dry periods, the withdrawals could increase the amount of time spent under drought watch, warning, or emergency conditions. The withdrawals could also strain reservoirs that are required to release water to meet minimum flow requirements to protect downstream users, aquatic habitat and biota.[32]

DEC has not estimated the volume of water to be withdrawn from the NYC Watershed, nor has it considered the effects such withdrawal will have on the drinking water of over 9 million people.[33] The potential adverse impacts warrant careful planning and continued attention. DOH should require DEP to estimate the probable impacts on NYC's Watersheds from the high-volume water withdrawals that would be required for HVHF and implement a plan to monitor withdrawals and take action to ensure sufficient water supply when necessary. DOH should also require DEP to initiate a change to the Watershed Rules and Regulations to establish further water withdrawal permitting for withdrawals from within NYC Watersheds.

* * *

Even the risk of water contamination from gas production operations could lead to the failure of the FAD to meet Surface Water Treatment Rule requirements. We urge DOH to take these actions prior to any determination by DEC regarding the future of HVHF in New York in order to avert such a threat.

---

[30] *See* 6 N.Y.C.R.R. § 601.4.

[31] 6 N.Y.C.R.R. § 601.7(2).

[32] *See* NYCDEP 2009 Comments, *supra* note 25, at 12-17.

[33] RDSGEIS, *supra* note 18, at 6-10.

III. DOH Should Ensure the Flood Buyout ("FBO") and Local Flood Hazard Mitigation ("LFHM") Programs Are Well Funded to Provide for Future Needs.

The FBO is primarily funded by Federal Emergency Management Agency ("FEMA"), but the Draft Mid-Term Revisions require the City to pay $15 million toward buyout based on the value of properties that initially applied for the FEMA program following Irene and Lee but did not follow through. To complement the flood buyout program, DEP will pay Catskill Watershed Corporation $17 million for the LFHM Program and an additional $10.1 million for the Stream Management Program to identify and mitigate flood hazards. We appreciate the dedicated funding for these programs and urge DOH to require the City to continue this funding into the future and evaluate the need for additional funding as the City examines the impacts of climate change. This separate funding should be commensurate with changing program needs to avoid and mitigate the impacts of flooding and should not rely on additional Land Acquisition Program funds to achieve FBO and LFHM program goals.

IV. DOH Should Make Agricultural Easements Permanent and Protective of Water Quality in Perpetuity.

The 2007 FAD acknowledges the importance of protecting stream buffers.[34] Through the Watershed Agricultural Council, the City has been working to achieve this objective by advancing the U.S. Department of Agriculture's Conservation Reserve Enhancement Program ("CREP"). Under CREP, over 2,000 acres of environmentally sensitive riparian buffer lands on nearly 150 watershed farms have been retired from production.

Due to the uncertain future of the Farm Bill, Riverkeeper supports the requirement in the 2007 FAD that DEP assess potential program alternatives to CREP in the event that it is not reauthorized.[35] We also believe the requirement for DEP to provide funding to support a riparian buffer restoration program (such as Trees for Tributaries) in East-of-Hudson basins[36] will have a positive effect on water quality at relatively low cost, and we fully support its inclusion in the FAD.

In addition, DOH and DEC should take further action to prevent agricultural operations in stream buffer lands. Even if CREP were reauthorized under the Farm Bill, CREP provides for easements on farms for only 10-15 year terms. Once the USDA contracts expire, these lands may be brought back into production to eventually degrade water quality in local streams and rivers that flow to City reservoirs. As such, DOH and DEP should implement mechanisms to make these easement programs permanent and protective of water quality in perpetuity.

---

[34] *See, e.g.*, Draft Mid-Term Revisions, *supra* note 6, at 75.

[35] *Id.* at 10, 39.

[36] *Id.* at 41.

V. DOH and DEP Should Re-Engage in Economic Support for West-of-Hudson Communities in Order to Protect Water Quality.

The Watershed MOA had two goals: to protect drinking water and to foster the economic vitality and social character of Watershed communities.[37] NYC and the State made significant financial commitments in order to achieve the latter goal. As part of the 1997 agreement, NYC dedicated $500,000 to fund a study of community and economic development goals and opportunities for the West-of-Hudson Watersheds and their sub-regional areas in order to assist the West-of-Hudson communities to achieve their economic, social and environmental goals, consistent with the City's water quality objectives and the Watershed Regulations.[38] NYC also dedicated over $59 million to establish the Fund for the Future in order to support responsible, environmentally sensitive economic development projects in the West of Hudson Communities.[39]

For its part, New York State agreed to provide over $26 million to pay for various programs, including the support of responsible, environmentally sensitive economic development projects through the use of existing economic development information centers, a regional development program to promote regional economic development interests, a public relations and tourism development program to target the special programs and resources in the Watersheds, and the use of the existing industrial productivity program to help increase efficiency of new or existing Watershed businesses.[40] In addition, the Watershed MOA established the Watershed Protection and Partnership Council, whose main function was to "serve as a forum for the exchange of views, concerns, ideas, information, and recommendations relating to Watershed protection and environmentally responsible economic development."[41]

Although the goal of sustainable economic development was central to the agreement that serves as the basis for the FAD, the State and NYC have taken little additional action beyond that required by the MOA to support the economic vitality of the West-of-Hudson communities. Riverkeeper recommends that DOH and DEP seek additional ways to promote sustainable economic development in the West-of-Hudson Watersheds. For example, creation of a fund under the FAD that is available to be used as a source of matching funds for other development resources that become available through other state and federal grant programs would make a

[37] New York City Watershed Memorandum of Agreement, at Art. I, ¶ 6 (1997), *available at,* http://www.nysefc.org/Default.aspx?TabID=76&fid=389.

[38] *Id.* at Art. V, ¶ 134(a).

[39] *Id.* at Art. V, ¶ 135(a).

[40] *Id.* at Art. V, ¶ 152(f)(vii).

[41] *Id.* at Art. IV, ¶ 97.

significant contribution to improving the economic vitality of communities both inside the watershed and those that lie outside but are being impacted by watershed operations.

Proactive support of sustainable development goes hand-in-hand with protecting water quality. Good planning could create beneficial opportunities for West-of-Hudson communities and prevent conflicts over less desirable economic development, such as hydraulic fracturing. As the State and NYC already know, such an intense industrial operation in the Watersheds could risk catastrophe for the West-of-Hudson water supply. By providing financial and administrative support, NYC and DOH could support the economic goals of West-of-Hudson communities, while at the same time advancing its water quality goals.

VI. DOH Should Develop Baseline Data and Goals for Newer FAD Programs and Convene a Blue Ribbon Panel to Evaluate Programmatic Success.

There has been a lack of clarity regarding measures of success for several DEP programs that has made it difficult to evaluate how effective FAD programs have been in achieving the goal of protecting the quality of drinking water resources. We recommend that DOH, EPA, DEC, and the Watershed Inspector General meet with DEP officials in order to define goals for DEP's newer programs aimed at achieving successful implementation and establish targets tied directly to measurable effects on water quality. These implementation goals could help DOH formulate ways for DEP to streamline its annual deliverable progress reporting and make it easier to quantify the annual progress of all DEP programs.

In addition, baseline data included in the Program reports that have been deliverables for many years should be used to evaluate the performance of the various watershed protection programs. The current draft FAD revisions state that activity and reporting milestones for each program element were established in DEP's Long-Term Watershed Protection Program ("LTWPP"). The 2006 LTWPP provides that the "reports are designed to give regulatory oversight agencies and watershed stakeholders the information they need to assess the progress of the watershed protection program."[42] A list of 37 such reports appears in Table 2.64 of the more recent 2011 LTWPP.[43] It appears that neither EPA nor DOH has been making use of this existing data to inform their oversight and assessment of progress.

Finally, since many of the FAD programs have been operating for 16 years without independent evaluation, Riverkeeper recommends that DOH solicit review of the baseline and monitoring data and evaluation of program performance by an independent panel to bring a neutral perspective to DEP's own review process. Such an independent review could help facilitate evaluation of the effectiveness of a number of programs, including the Stream

[42] N.Y. City Dep't of Envtl. Prot., 2006 Long-Term Watershed Protection Program 64 (2006) *available at* http://www.epa.gov/region2/water/nycshed/2007wp_program121406final.pdf.

[43] 2011 Long-Term Watershed Protection Program, *supra* note 6, at 91-91 tbl.2.64.

Management, Riparian Buffer Protection, Septic, Catskill Turbidity Control, and Whole Farm Plan Programs. The FAD should provide that such an independent evaluation be conducted every five years.

* * *

Thank you for your consideration of these comments. Riverkeeper looks forward to supporting DOH's and DEP's continued work to protect NYC's pristine water supply, reduce impacts on communities affected by water supply operations, and strengthen the FAD for the short and long terms.

Respectfully submitted,

Kate Hudson
Watershed Program Director

Cc: J. Matthews, Director, Clean Water Division, U.S. EPA, Region II
J. Tierney, Assistant Commissioner for Water Resources, NYSDEC
P. Rush, Commissioner, Bureau of Water Supply, NYC DEP