CONTAMINATION OF THE DRINKING WATER RESERVOIR AND WATERSHED OF THE CITY OF NEWBURGH:

A CASE STUDY AND A CALL FOR COMPREHENSIVE SOURCE WATER PROTECTION

JULY 2016

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EXECUTIVE SUMMARY

When we turn on the tap, we trust that the water flowing from it is safe.

In the City of Newburgh, the presence of a toxic chemical in the city's primary reservoir is a breach of that trust. For years, and possibly decades, 29,000 people were exposed, including those most acutely at risk: developing fetuses and newborn babies.

Imagine the mother of a young child mixing formula, or a pregnant woman pouring herself a glass of water. These simple acts should never endanger the health of a child.

Emergency response to date has ensured that the chemical, perfluorooctane sulfonate, or PFOS, is no longer reaching taps. But filtration of drinking water supply, and remediation of contamination will come at great expense, and the city's primary reservoir remains contaminated.

The long-term protection of drinking water quality requires a long-term commitment to protecting source waters – rivers, streams, reservoirs and groundwater. Protection of water supplies has wide public support, and can be typically achieved at a cost far less than the cost of remediation of contaminated supplies.

In Newburgh, water protection laws have not been effectively enforced or implemented, and the lands and waters that supply Lake Washington and Brown's Pond in the Quassaick and Moodna Creek watersheds have not been adequately protected. The present contamination is the result.

This document demonstrates that New York State has a comprehensive legal framework for protecting source waters, but its implementation is both incomplete and uncoordinated. While additional legal authorities may be needed, there are many tools available now that should be utilized immediately to protect and restore source waters, even while emergency response measures are in effect.

To protect drinking water supplies and prevent crises such as Newburgh is facing, we must:

- Enforce the Clean Water Act and Environmental Conservation Law in order to protect waters from degradation from pollution, and to preserve the natural filtration provided by forests, wetlands and other natural infrastructure;

- Enforce the Safe Drinking Water Act and Public Health Law in order to assess and prevent risks to source waters, and to empower communities to protect their water supplies;

- Coordinate protection efforts across multiple layers of government, each with significant authorities and responsibilities for source water protection; and,

- Provide the leadership, funding and staffing necessary to implement comprehensive source water protection programs.

The need to coordinate actions to protect source waters in Newburgh is particularly acute, both because the city's source watershed has been badly degraded, threatening public health, and because the city is an Environmental Justice community, facing disproportionate socioeconomic and environmental challenges. The case of Newburgh demonstrates that achieving Environmental Justice in drinking water quality should be a priority for implementation statewide.

Many of the recommendations contained in this document have previously been identified, studied, or recommended by numerous agencies and organizations, including City of Newburgh, Hudson River Estuary Program, Hudson River Watershed Alliance, Hudson Valley Regional Council, Moodna Creek Watershed Intermunicipal Council, Orange County Water Authority and Quassaick Creek Watershed Alliance. In several cases, the NYS Environmental Protection Fund has provided funding for reports cited in this document.

The Departments of Environmental Conservation and Health have faced often crippling budget and staffing cuts over the course of decades. While this report demonstrates that the tools necessary to achieve comprehensive source water protection are available, their effective implementation will require significant resources. The Governor and Legislature need to provide the necessary funding, staffing and direction to proactively protect drinking water supplies in Newburgh and across New York State.

1. PERFLUOROOCTANE SULFONATE AND ITS PRESENCE IN THE CITY OF NEWBURGH'S DRINKING WATER SUPPLY

A. PFOS: Background and Regulatory Context

Perfluorooctane sulfonate, or PFOS, is a man-made chemical used in consumer and industrial products.

It is well known that airports and military bases used large amounts of firefighting foams with PFOS for training purposes. As of 2011, there remained 10,000 tons of PFOS-based firefighting foam in stock or in service in the U.S.[1]

Exposure to PFOS can be dangerous because of its high persistence in the environment and human bodies. The health concerns occur at very low levels of exposure to this industrial chemical. A short-term exposure to PFOS can persist for years and accumulate with additional exposures.[2] As of 2000, EPA knew that PFOS was toxic and a threat to human health.[3] In 2009, EPA issued an action plan to ban the substance.[4] In May 2016, EPA made the Health Advisory for PFOS and PFOA available on the Federal Register to explain health concerns with PFOS and PFOA.[5] At that time, EPA revised its lifetime

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1 Dr. Jimmy Seow, *Fire Fighting Foams with Perfluorochemicals – Environmental Review,* Industrial Fire Journal *available at* Seow_WA-DEC_PFCs_Firefighting_Foam_final_version_7June2013.pdf.

2 EPA, Drinking Water Health Advisory for Perfluorooctane Sulfate (PFOS) at 50 (May 2016), *available at* https://www.epa.gov/sites/production/files/2016-05/documents/pfos_health_advisory_final_508.pdf.

3 "PFOS is of significant concern on the basis of evidence of widespread human exposure and indications of toxicity. ... These chemicals 'combine persistence, bioaccumulation, and toxicity properties to an extraordinary degree.'" EPA internal memorandum, May 16, 2000 available at http://www.chemicalindustryarchives.org/dirtysecrets/scotchgard/1.asp.

4 *See* EPA's *Long-Chain Perfluorinated Chemicals (PFCs) Action Plan* dated December 30, 2009.

5 EPA, Lifetime Health Advisories and Health Effects Support Documents for Perfluorooctanoic Acid and Perfluorooctane Sulfonate, 81 Fed. Reg. 33250 (May 25, 2016).

health advisory for PFOS in drinking water, from the exposure level of 200 parts per trillion (200 micrograms per liter) to 70 parts per trillion (ppt).[6]

There are many significant health concerns related to exposure to this chemical. Studies show that newborns and developing fetuses are particularly sensitive to PFOS induced toxicity.[7] Other data shows "associations between PFOS exposure and high cholesterol, thyroid disease, immune suppression, and some reproductive and developmental parameters, including reduced fertility and fecundity."[8] Several human epidemiology studies have researched the link between PFOS and cancers including bladder, colon, and prostate.[9] Evidence also shows that PFOS is distributed within the body and can be transferred maternally from mother to offspring.[10] PFOS can affect humans through dietary exposures from eating fish and other organisms that bio-accumulate the chemical.[11] Thus, exposure to PFOS contamination is a concern to the population at large, but particularly to pregnant women, women of child bearing age and children.

The Centers for Disease Control and Prevention tested for PFOS in the blood of the general U.S. population aged 12 years of age and older[12] in a 2012 study. The results showed that the average blood levels in adolescents and adults for PFOS were 6.3 parts per billion (ppb), with 95% of the general population at or below 21.7 ppb.[13]

In response to the water crises in Hoosick Falls and Petersburgh, and upon the recommendation of the DOH, the DEC has instituted an Emergency Rulemaking officially

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6 *Id.*

7 Drinking Water Health Advisory for Perfluorooctane Sulfate at 10.

8 *Id.*

9 *Id.* at 42.

10 *Id.* at 27.

11 *Id.* at 21.

12 CDC, National Health and Nutrition Examination Survey, 2012, *available at* http://wwwn.cdc.gov/nchs/nhanes/search/nhanes11_12.aspx.

13 New Hampshire Dep't of Health and Human Services, Frequently Asked Questions: Perfluorochemicals (PFCs) Detected in the Pease Tradeport Water System, at 11 (Feb. 3, 2016) *available at* http://www.dhhs.nh.gov/dphs/documents/pfc-faqs-02032016.pdf.

declaring that PFOS is a hazardous substance. The change in state law, which took effect on April 25, 2016, allows the DEC to regulate the handling and storage of PFOS and it also allows the state to remediate contaminated sites under NY superfund law. In the Regulatory Impact Statement of the emergency rule-making by DEC on PFOS, DEC highlights the risks to human health from exposure to PFOS. Human studies show, among other adverse health effects, increases in cholesterol, tryglycerides, and uric acid in the general population, and increases in the risk for low birth weight babies. [14] The DOH stated that comprehensive evaluations of human health effects from various states and agencies "show statistical associations between PFOS exposure and an increased risk for several adverse health effects in humans."[15]

Human exposure to PFOS also results from food we consume. As a bio-accumulative compound, it can contaminate the food chain, leading to ever greater concentrations of PFOS in predators that consume PFOS-contaminated prey. This affects fish, birds and mammals, including humans. EPA has documented several states that monitor fish for levels of PFOS, and EPA has set a reference dose for calculating the allowable limit of PFOS in fish tissue.[16] Fish consumption advisories exist in at least two states, Minnesota and Alabama.[17]

In Minnesota, the Department of Health produced a contaminant-based and site-specific fish consumption advisory in 2008 that sets forth meal advice. Since humans cannot see, smell, or taste PFOS in fish, the advisory is critically important for protecting public health. There are four meal advice categories for PFOS in fish, ranging from unrestricted eating to a "do not consume" warning. The Minnesota Department of Health recommends no consumption restrictions when PFOS levels in fish are less than or equal to 40 ppb, no

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[14] DEC, Regulatory Impact Statement Emergency Rule and Proposed Rule Amendments to 6 NYCRR Part 597 Hazardous Substances Identification, Release Prohibition, and Release Reporting (proposed Apr. 25, 2016).

[15] Letter from Howard A. Zucker, Commissioner of Health, DOH, to Basil Seggos, Acting Commissioner, DEC, (Apr. 20, 2016) *availableat* http://www.dec.ny.gov/do cs/remediation_hudson_pdf/part597erriswdoh.pdf.

[16] EPA, National Listing of Fish Advisories, (Dec. 2013), *available at* https://www.epa.gov/sites/production/files/2015-06/documents/technical-factsheet-2011.pdf.

[17] Alabama Department of Public Health, Alabama Fish Consumption Advisories (June 2015), *available at* https://www.adph.org/tox/assets/2015_Advisory_small.pdf.

more than one meal per week at 40 - 200 ppb, no more than one meal per month at 200 - 800 ppb and no meals at greater than 800 ppb.[18]

B. PFOS in City of Newburgh's water supply, and surrounding watersheds

Lake Washington is Newburgh's primary reservoir. It lies within the Quassaick Creek Watershed, with a diversion from Patton Brook called Murphy's Ditch channeling water to the reservoir; additionally, Silver Stream, part of the Moodna Creek Watershed, flows from Brown's Pond, and is diverted to flow into Lake Washington. Both reservoirs and their watersheds are located largely outside of the City of Newburgh's municipal boundaries, in the Towns of Newburgh and New Windsor.

The current PFOS contamination in Newburgh's drinking water was identified because of testing required by an EPA program studying emerging contaminants in 2013 and 2014,[19] and made public with Newburgh's 2014 annual drinking water quality report in May 2015, showing PFOS levels of 150 ppt in its drinking water, based on a single sample. The 2015 annual drinking water quality report shows several emerging contaminants were detected in Newburgh's drinking water[20], including five sample results at levels ranging from 140-170 ppt.[21]

At that time EPA's national recommended limit on PFOS in drinking water was 200 ppt. Despite the finding of significant levels of PFOS, neither EPA, the City, DEC nor DOH, appears to have investigated the source of the PFOS in order to eliminate potential health threats until March 2016. State agency involvement with the PFOS contamination[22] in the

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18 Minnesota Department of Health, Site Specific Meal Advice (Apr. 2008), *available at* http://www.health.state.mn.us/divs/eh/fish/eating/mealadvicetables.pdf.

19 EPA, Third Unregulated Contaminant Monitoring Rule, (May 2, 2012), *available at* https://www.epa.gov/dwucmr/third-unregulated-contaminant-monitoring-rule.

20 On July 1, Riverkeeper requested EPA assistance in evaluating and advising the state and city of the risks, alone and in mixture, of each contaminant detected: chlorate, chromium hexavalent, perfluoroheptanoic acid, perfluoroctanoic acid and strontium.

21 City of Newburgh, Annual Water Quality Report: Water Testing Performed in 2015, (2016) *available at* http://www.cityofnewburgh-ny.gov/sites/newburghny/files/u98/cnny010652-1y16.pdf.

22 Letter from Howard A. Zucker, Commissioner, NYSDOH, and Basil Seggos, Commissioner NYSDEC, to Riverkeeper (June 18, 2016).

drinking water supply can by characterized as emergency response and began following the Hoosick Falls water crisis and the formation in February 2016 of Gov. Andrew Cuomo's "Water Quality Rapid Response Team."[23]

DEC and DOH sampling, begun in March 2016, has identified important sources, but probably not all sources, of PFOS to the City of Newburgh's drinking water supply.[24] According to statements by DEC staff, the major source of contamination is believed to be a groundwater plume infiltrating stormwater infrastructure. Specifically, the stormwater outfalls discharging near a base runway to Recreation Pond at Stewart Air National Guard Base, which include not only outfalls draining stormwater from the Base but also from Stewart Airport and a nearby industrial park, have to date shown the highest levels of PFOS contamination, according to data made publicly available. This pond discharges into a tributary of Silver Stream which in turn feeds Lake Washington, the principal water source for Newburgh's residents. Elevated levels of PFOS were found in all outfalls discharging to this pond, including one outfall with PFOS levels of 5,900 ppt.[25]

The City of Newburgh declared a public emergency on May 2, 2016, and rescinded it when it temporarily replaced Lake Washington with Brown's Pond, an uncontaminated backup water supply. Subsequently, with state assistance, it has tapped New York City's Catskill Aqueduct.

On May 19, 2016, EPA issued a health advisory for the lifetime exposure to PFOS, reducing the recommended level in drinking water to 70 ppt.[26]

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[23] On April 25, 2016, DEC adopted an emergency rule to classify PFOS and related substances, (perfluorooctanoic acid, ammonium perfluorooctanoate, perfluorooctane sulfonic acid, and perfluorooctane sulfonate) as hazardous substances at the request of the New York State Department of Health (NYSDOH). *See*: http://www.dec.ny.gov/regulations/104968.html.

[24] Letter from Robert Schick, Department of Environmental Conservation, and Nathan Graber, MD, Department of Health to Mayor Judy Kennedy and City Council Members, City of Newburgh, at 4, (May 9, 2016).

[25] Letter from Robert Schick, Department of Environmental Conservation, to Mayor Judy Kennedy (June 17, 2016).

[26] EPA, Lifetime Health Advisories and Health Effects Support Documents for Perfluorooctanoic Acid and Perfluorooctane Sulfonate, 81 Fed. Reg. 33250 (May 25, 2016) *available at* https://www.gpo.gov/fdsys/pkg/FR-2016-05-25/pdf/2016-12361.pdf.

While the state has assured Newburgh residents that they are now drinking water that is uncontaminated by PFOS, the city's primary reservoir, its watershed, and other watersheds remain contaminated.

C. Timeline

This timeline identifies some key recent developments related to PFOS contamination in Newburgh's drinking water supply.

On February 5, 2015, Riverkeeper raised to the New York State Department of Environmental Conservation several water quality issues and Clean Water Act concerns regarding the watershed of the City of Newburgh.

In May 2015, the City of Newburgh released its annual Drinking Water Quality report for 2014, identifying PFOS as a contaminant identified through EPA's Unregulated Contaminant Monitoring Rule.

In February 2016, Gov. Andrew Cuomo formed the Water Quality Rapid Response Team.

In March 2016, testing by DEC and DOH began.

On April 25, 2016 the DEC issued a temporary emergency rule declaring that PFOS (and PFOA) related chemicals are hazardous substances under state law, allowing DEC to regulate and track the chemicals and to remediate sites contaminated with the chemicals.

On May 2, 2016, the City of Newburgh declared a State of Emergency for its drinking water supply for its 29,000 residents, and began transitioning its primary drinking water source from Lake Washington to Brown's Pond.

In a letter dated May 9, 2016, DEC and DOH reported results of water quality testing to City of Newburgh.

On May 12, 2016, Riverkeeper sent a letter addressed to the Port Authority of New York and New Jersey, operator of Stewart International Airport, and to the Stewart Air National

Guard, demanding immediate action in response to the underlying causes of the drinking water State of Emergency.[27]

On May 19, 2016, U.S. EPA published "Drinking Water Health Advisory for Perfluorooctanoic Acid," setting a health advisory level of 70 ppt for PFOS in drinking water.

On June 7, 2016, City of Newburgh began utilizing drinking water from the New York City supply.

On June 17, 2016, Riverkeeper wrote to the Departments of Environmental Conservation, Health and Transportation, outlining a series of steps that should be taken not only in emergency response to the current situation, but to protect and restore drinking water quality in the long term. Responses followed on June 19 and 20.

On June 20, 2016, Newburgh held a public meeting and hosted a panel discussion that included EPA, DEC, DOH, Riverkeeper and city officials.

On July 1, 2016, Riverkeeper wrote to the EPA, outlining a series of steps that should be taken in response to the issues in Newburgh.

On July 7, 2016, Riverkeeper met with DEC and DOH staff.

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[27] We have reviewed the publicly available record and have currently pending Freedom of Information Law (FOIL) and Freedom of Information Act (FOIA) requests for additional records in compiling this White Paper. Riverkeeper FOIL request to DEC dated May 13, 2016. DEC indicated it would respond by June 15, 2016. A Riverkeeper (FOIA) request was submitted to EPA on May 16, 2016. There has not yet been a response from EPA. We attended a public information meeting on June 20, 2016 where presenters included City officials, DEC, DOH, and US EPA. We also attended a meeting with DOH and DEC staff on July 8, 2016.

2. *STATE LAWS AND AUTHORITIES RELATED TO THE PROTECTION OF DRINKING WATER QUALITY*

A. Clean Water Act and Environmental Conservation Law

The Clean Water Act's primary objective is to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters" by eliminating the discharge of pollutants, by 1985, making all waters suitable for life and "fishable and swimmable," by 1983.[28]

In New York, EPA has delegated to the Department of Environmental Conservation the authority to implement Clean Water Act programs subject to EPA's oversight and review. EPA retains oversight of DEC actions; DEC implements the Clean Water Act's goals by assigning waters and wetlands classifications that provide varying degrees of administrative protection. The Environmental Conservation Law authorizes DEC to assign discharge restriction categories to specifically protect "waters of particular public health concern" such as drinking water supplies.[29] Similarly, DEC is authorized to protect waters by designating waters for "no new discharge" and prohibiting "increase in any existing discharges."[30] Finally, the State Pollutant Discharge Elimination System (SPDES) permit program requires the DEC to oversee all surface wastewater and stormwater discharges, and many groundwater discharges, to avoid pollution of water bodies.

Drinking water bodies should be designated with the highest degree of protection and are thus classified as "AA" or "A."[31] For Classes AA-S, A-S, AA, and A waters, "a source of water supply for drinking" is listed as a "best usage," whereas that usage is notably absent from the lists describing the best usages of Classes B, C, and D waters.[32] Similarly,

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[28] Clean Water Act of 1972 ("CWA"), Pub.L.No.92-500, 86 Stat. 816 (codified as amended at 33 U.S.C.§§ 1251–1376 (2006)). *See also* 33 USC §1251(a)(1)-(3).

[29] 6 NYCRR § 701.19, § 701.20.

[30] 6 NYCRR § 701.23.

[31] 6 NYCRR §§ 701.

[32] The best usages of Classes B, C, and D waters do not include use of water as a "source of water supply for drinking." (6 NYCRR §§ 701.7-701.9). For example, "the best usage of Class D waters is fishing. Due to such natural conditions as intermittency of flow, water conditions not conducive to propagation of game fishery, or stream bed conditions, the waters will not support

wetlands[33] are classified from 1 to 4 with drinking water supply wetlands receiving a Class 1 designation.[34] For wetlands under 12.4 acres, DEC may gain jurisdiction and prevent negative impacts by designating such wetlands as "wetlands of unusual local importance." [35]

DEC's "narrative" water quality standards prohibit discharge of categories of pollutants and all other deleterious substances. For example, no "oil and floating substances," may be discharged to any waters of New York. And, "[n]o residue attributable to sewage, industrial wastes or other wastes, nor visible oil film nor globules of grease" is permitted.[36]

Water quality criteria necessarily "take into consideration the water quality standards of downstream waters" and "ensure that its water quality standards provide for the attainment and maintenance of the water quality standards of downstream waters." [37]

Further, when issuing a SPDES permit, the Clean Water Act requires DEC to impose conditions to maximize pollution prevention.[38] In renewing SPDES permits, DEC is required to assess whether there has been a "material change in permit conditions."[39] Where changes have occurred since the permit was last issued, DEC must subject the permit renewal to technical scrutiny and allow public review and comment.[40] Where

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fish propagation. These waters shall be suitable for fish, shellfish and wildlife survival. The water quality shall be suitable for primary and secondary contact recreation, although other factors may limit the use for these purposes." 6NYCRR §§ 701.2-701.6; 6 NYCRR §§ 701.7-701.9.

33 DEC's general jurisdiction over wetlands extends to those exceeding 12.4 acres. There is an exception for those wetlands exhibiting special characteristics as set forth in the regulations.

34 6 NYCRR § 664.5(a)(6).

35 ECL § 24-0301.

36 6 NYCRR § 703.2.

37 40 C.F.R. § 131.10[b]; *see* also *American Farm Bureau Federation v. United States EPA*, 984 F. Supp. 2d 289, 331[M.D. Pa. 2013], *citing Ark. v. Okla.,* 503 U.S. 91, 98-108 [1992].

38 *See* DEC's explanation of its SPDES program at http://www.dec.ny.gov/permits/6054.html.

39 *See* ECL § 70-0115.

40 *Id. See also* 6 NYCRR § 750-1.16.

"substantive and significant" issues are raised as to whether the project complies with the Clean Water Act or permit conditions, DEC may convene an adjudicatory proceeding. Then, an administrative judge is appointed and charged with issuing findings as to whether the permit should be issued or renewed following submission of evidence and sworn testimony in a trial-like setting.[41]

Even where a discharger is in full compliance with its SPDES permit, the Commissioner may require abatement action to be taken by the permittee and may prohibit the permittee's operation until the SPDES permit has been modified.[42] Thus, DEC has the authority to abate and prevent the pollution of waters of the state in accordance with both water quality standards and in connection with the SPDES program.[43] NYSDEC must use all known, available and reasonable methods to prevent and control pollution of the waters of the State.[44]

Environmental Conservation Law also authorizes other actions relevant to drinking water source protection, including publication of the state's Open Space Conservation Plan[45]; and establishment of a Water Resources Planning Council.[46]

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41 *See* DEC's Uniform Procedures at 6 NYCRR § 621.

42 *See Indian Point Water Quality Certification Denial Appeal*, Ruling on Proposed Issues for Adjudication and Petitions for Party Status [December 13, 2010] ["CWA § 401 Issues Ruling"], 2010 N.Y. ENV LEXIS 86 at *51-52, quoting 6 NYCRR § 750-2.1[b].

43 ECL § 17-0303.

44 *See* Matter of Port of Oswego Auth. v Grannis, 70 A.D.3d 1101, 1104 [3d Dep't 2010], quoting ECL §17-0101 and citing ECL § 17-0501[17].

45 *See* ECL § 49-2

46 *See* ECL § 15-2901.

B. Safe Drinking Water Act and Public Health Law

The Safe Drinking Water Act (SDWA) was established to protect drinking water quality. Under the SDWA, EPA has established minimum drinking water standards and requires public water systems to comply with these health-related standards. Public drinking water systems must perform regular monitoring and reporting. These reports provide the water systems and regulators with the data they need to ensure that drinking water monitoring is ongoing and that drinking water standards are being met. When results indicate that a contaminant is present at a level that exceeds standards, states and EPA must work with public water systems to take steps to prevent or remove the contaminants and notify consumers.

Federal law and policy emphasize the protection of watershed source waters and the prevention of contamination as the best and most cost-effective way to protect public health. The EPA has set a goal that "by the year 2005, 60 percent of the population served by community water systems will receive their water from systems with source water protection programs in place."[47] To reach this goal, EPA has developed and provided state and local governments with several guidance documents, including guidance for structuring source water assessment and protection programs.[48] In this guidance document, EPA outlines options available to states for funding source water protection efforts from the Drinking Water State Revolving Fund. New York State conducted source water assessments according to a program developed in 1999.[49]

The Public Health Law § 1100 empowers the New York State Department of Health to make rules protecting water supplies and empowers localities to take action beyond municipal borders to supplies.

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[47] EPA, EPA Response to Major Issues for the National Guidance on State Source Water Assessment and Protection Programs (Mar. 12, 2003), *available at* http://nepis.epa.gov/Exe/ZyPDF.cgi/P100NE9R.PDF?Dockey=P100NE9R.PDF.

[48] EPA, State Source Water Assessment and Protection Programs Guidance: Final Guidance (Aug. 1997), *available at* http://nepis.epa.gov/Exe/ZyPDF.cgi/200026V1.PDF?Dockey=200026V1.PDF.

[49] DOH, New York State Source Water Assessment Program Plan (Nov. 1999) *available at* https://www.health.ny.gov/environmental/water/drinking/swapp.pdf.

3. EMERGENCY RESPONSE ACTIONS TO ELIMINATE THE ENVIRONMENTAL AND PUBLIC HEALTH THREAT OF PFOS-CONTAMINATED DRINKING WATER

DEC and DOH have to date taken many appropriate actions since emergency response began in March 2016, including the provision of safe drinking water, commitments to fund drinking water filtration, and investigation of contamination sources. Additional DEC and DOH emergency response actions should include the following:

A. Prohibit discharges of PFOS from Recreation Pond at the Stewart Air National Guard Base

Testing data made public to date has identified the importance of contamination emanating from Recreation Pond at the Stewart Air National Guard Base. PFOS discharges from Recreation Pond must be prevented from discharging via Outfall 010. Department of Environmental Conservation can achieve this via an interim remedial measure, under Environmental Conservation Law Article 27, which provides legal authority to address the remediation issues in this case. It can also act under its authority to abate and prevent the pollution of waters of the state in accordance with both water quality standards and in connection with the SPDES program of the Clean Water Act.

Discharges from Recreation Pond flow into a tributary of Silver Stream, which under typical conditions is diverted to Lake Washington, but which the city has now diverted to its original course in order to prevent risk to the reservoir's Class-C high-hazard earthen dam, and communities downstream.[50] With DEC authorization,[51] PFOS is being discharged to the Moodna Creek Watershed, and could be reaching the Hudson River.[52]

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[50] "Lake Washington dam in Newburgh could be at risk," and "Newburgh stops diverting stream to unused lake due to dam threat," Times Herald Record, June 6, 2016 http://www.recordonline.com/news/20160606/washington-lake-dam-in-newburgh-could-be-at-risk and http://www.recordonline.com/news/20160606/newburgh-stops-diverting-stream-to-unused-lake-due-to-dam-threat.

[51] Letter from Martin D. Brand, Regional Director, DEC Region 3, to Michael G. Ciaravino, City Manager, City of Newburgh (June 14, 2016).

[52] Letter from Michael Ciaravino, City Manager, City of Newburgh to Martin Brand, Regional Director, NYSDEC Region 3 (June 2, 2016).

The polluter, not the city suffering from the pollution, should be responsible for stopping the pollution at its source and preventing downstream pollution.

The risk to the environment is real, and in fact, there may be an additional public health risk from exposure PFOS to those who consume contaminated fish. The fish should be sampled throughout the Quassaick and Moodna Creek watersheds to determine the significance of contamination in wildlife. Longstanding fish consumption advisories in the Hudson River, due to toxic pollution including PCBs, already have severely limited for a generation the public's enjoyment of one of the world's greatest estuaries. The source of PFOS contamination should be abated immediately to prevent adding PFOS as yet another chemical on the list of Hudson River contaminants.

Firefighting foam was used at Stewart Air National Guard Base for firefighting training exercises.[53] It is unclear if either Stewart Airport or the Air National Guard ever disclosed the use of the foam that clearly has drained into the discharges to Recreation Pond, or to surface waters via other stormwater outfalls. Though the Air National Guard SPDES permit required "sampling of waste stream segments for the purpose of pollutant 'hot spot' identification" DEC did not require the testing of Recreation Pond for PFOS contamination – even after Newburgh's 2014 Water Quality report showed significant PFOS levels in the drinking water. Residents likely drank and bathed in water contaminated with PFOS for years.

Perhaps recognizing the PFOS threat, the Air National Guard Base and Stewart Airport SPDES permits from 2010 and 2011, respectively, prohibit discharge of "contained firefighting runoff" or "fire training water contaminated by contact with pollutants or containing foam or fire retardant additives." Specifically, each SPDES permit at Section "F" states:

> Prohibited Discharges – In all cases, any discharge which contains a visible sheen, foam, or odor, or may cause or contribute to a violation of water quality in the receiving water is prohibited. The following discharges are prohibited unless specifically authorized elsewhere in this SPDES permit: spills or leaks, tank bottoms, maintenance wastewaters, wash waters where detergents or other chemicals have been used, tank hydrotest and ballast waters, contained fire-fighting runoff, fire training water contaminated by contact with pollutants or containing

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[53] New York Air National Guard 105th Civil Engineering Squadron firefighters practice emergency fire management techniques during exercise Fallen Angel at Stewart Air National Guard Base, Newburgh, N.Y., on Dec. 3, 2004. (U.S. Air Force PHOTO by STAFF SGT. Lee C. Guagenti) (Released),"*available at* https://dp.la/item/c9a6896164f30f8e7bb34bc3fa1283a1

> foam or fire retardant additives, and unnecessary discharges of water or wastewater into secondary containment systems.

Despite this clear prohibitive language in the Clean Water Act permit, elevated levels of PFOS were found in *all outfalls discharging from the stormwater system* to this pond - including the outfall registering PFOS levels of 5,900 ppt.

DEC and DOH's monitoring data show that Stewart Airport and Air National Guard Base are out of compliance with permit terms, specifically, the permit conditions prohibiting discharge of firefighting foam. These discharges constitute a violation of the Clean Water Act and Environmental Conservation Law. The DEC has clear authority under the current permits to enforce the terms and conditions of the permit. Further, due to the fact that these discharges enter source waters of a drinking water supply, the DEC is justified in acting aggressively to stop the discharges from Recreation Pond. Further, the significant penalties that are justified in this case could be offset with Environmental Benefits Projects to fund, in whole or in part, recommendations contained in this report.[54]

Further, DEC has additional authority to execute an interim remedial measure that would stop discharges from Recreation Pond, under the authorities provided by the April 2016 emergency rule designating PFOS as a hazardous substance. Treatment systems to address the contamination in Recreation Pond have been used on numerous sites, including the Nepera hazardous waste site[55] in Harriman, Orange County, demonstrating that any discharges from Recreation Pond to the drinking water system (or to the tributaries of the Hudson River) can be effectively treated, the chemicals removed.

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[54] DEC has many enforcement tools outlined in DEC's "TOGS 1.4.2 Compliance and Enforcement of SPDES Permits" which include penalties assessed under ECL 79-1929(1):

> A person who violates any of the provisions of, or who fails to perform any duty imposed by titles 1 through 11 inclusive and title 19 of article 17, or the rules, regulations, orders or determinations of the commissioner promulgated thereto or the terms of any permit issued thereunder, shall be liable to a penalty of not to exceed thirty-seven thousand five hundred dollars per day for each violation, and, in addition thereto, such person may be enjoined from continuing such violation as hereinafter provided. Violation of a permit condition shall constitute grounds for revocation of such permit, which revocation may be accomplished either as provided in paragraph f of subdivision 4 of section 17-0303 or by order of judgment of the supreme court as an alternate or additional civil penalty in an action brought pursuant to subdivision 3 of this section.

[55] NYS State Superfund site No. 336006

In the case of Hoosick Falls, the DEC invoked the State Superfund law to compel private companies to investigate and remediate the contamination.[56] In this case, a variety of government agencies must take action: Department of Transportation as land owner; Port Authority of New York and New Jersey as operator of Stewart Airport; and the U.S. Air Force and/or NYS Division of Military and Naval Affairs and/or other state or federal military divisions, as operator of the Stewart Air National Guard Base. Further, the Governor of the State of New York has the authority to direct the Air National Guard to support the state in times of need.

B. Comprehensively sample and test surface water, groundwater, sediment and fish

Department of Environmental Conservation (DEC) testing to date has been extremely valuable in defining important source areas necessary to target for remedial measures. Additional results, including those taken under the direction of DEC by those potentially responsible for the contamination, are pending.

As previously noted, the publicly available testing data has identified several stormwater outfalls originating from Stewart Airport and Air National Guard Base as having elevated levels of PFOS. However, the two properties together have at least 20 outfalls discharging into the watershed for Newburgh's drinking water, and five of these have been tested, or the results reported publicly.

To identify additional likely sources of contamination reaching Newburgh's reservoirs, outfalls 009, 010 and 011 at Stewart Airport and outfalls 001, 01A, 004, 005, 006, 007, 008, 009 and 009A at Stewart Air National Guard Base should be tested immediately to determine if and to what degree these outfalls may be contributing to the pollution of Newburgh's drinking water. These outfalls discharge to tributaries of Silver Stream or Patton Brook, upstream of Lake Washington. Contamination reported in Silver Stream at Weather Oak Hill and in the drainage area near the Stewart Mall, above its confluence with the unnamed tributary that receives water from Recreation Pond, suggests additional outfalls from Stewart Airport and/or other sources may be contributing further contamination to Lake Washington. Contamination in Murphy's Ditch suggests that

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[56] Press Release, NYSDEC, DEC Requires Companies to Fully Investigate and Clean Up Hoosick Falls PFOA Contamination (Feb. 11, 2016) *available at* http://www.dec.ny.gov/press/105069.html.

additional outfalls from Stewart Air National Guard Base, and/or landfills in the area and/or other sources, may be contributing additional contamination to Lake Washington.

In addition to the important impacts to drinking water, PFOS is likely contaminating fish and wildlife, and may be putting anglers at risk of exposure from consuming contaminated fish.

One source of known contamination to the Moodna Creek watershed is via Silver Stream, since Newburgh diverted its flow from Washington Lake on or about June 2, 2016.[57]

To identify likely sources of contamination reaching Moodna Creek watershed from Stewart Airport, outfalls 001, 002, 003, 004, 005, 006 and 007 should be sampled. Not only is this important for assessing potential risk to fish, wildlife and humans who consume fish in the Moodna Creek Watershed, but there may be other drinking water supplies downstream, such as Town of New Windsor municipal wells and the Beaverdam Lake Water District, that may be vulnerable. To assess the extent of contamination, the planned monitoring project for the Moodna Creek[58] should be executed, and its results made public expeditiously. Fish sampling, which DEC and DOH indicated was under consideration,[59] should be prioritized to determine to what extent fish, wildlife and anglers may be affected.

We understand that many of the outfalls identified above have been sampled and results are pending, and sampling has been completed at several other public water supplies. As results become available, they should be made public. We are encouraged to learn of plans to develop a Website with information about this site.

Landfills in the area, including the Air National Guard Base and Town of New Windsor landfill[60], as well as other areas identified as potential dump sites on or near the airport

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57 Letter from Michael Ciarvino, Newburgh City Manager, to Martin Brand, Regional Director, DEC Region 3 (June 2, 2016).

58 Letter from Martin Brand, Regional Director, DEC Region 3, to Michael Ciarvino, Newburgh City Manager (June 14, 2016).

59 Letter from Basil Seggos, DEC Commissioner, and Howard Zucker, MD, DOH Commissioner, to Dan Shapley Riverkeeper Water Quality Program Manager, and John Parker, Riverkeeper Director of Legal Programs (June 18, 2016).

60 State Superfund Site No. 336019.

properties, should be tested for potential leaching of PFOS. Testing data to date shows detectable levels in groundwater at the Town of New Windsor landfill.

Finally, private well owners in areas that may be affected by contamination of groundwater should be offered free testing immediately. We understand that planning is in place to sample private wells.

Any data available now or in the future related to testing locations, results and conditions under which samples were taken should be made public and communicated clearly and directly to the City of Newburgh, and to the public. We appreciate the attention paid to developing a comprehensive testing program, including consideration of our earlier suggestions for sampling, and look forward to continued dialog on this topic.

C. Conduct comprehensive blood testing as part of a comprehensive health screen of City of Newburgh residents

In the cases of Hoosick Falls, N.Y., the Department of Health (DOH) collected blood samples as part of a biomonitoring study to understand exposure to PFOA,[61] and its potential health impacts. A similar initiative is planned for Petersburgh, N.Y.[62] The consumers of the City of Newburgh drinking water should, at a minimum, receive the same kind of health screening for PFOS, so residents and their doctors can make informed choices about health care, with knowledge of their exposure. Testing may provide clues as to the length of exposure, and contribute to the understanding of this nationally emergent issue.

There appears to be no clear framework for decision-making when it comes to conducting blood testing in cases such as this. Newburgh, as an Environmental Justice community, should receive no less a response than other communities in New York, facing similar contamination of drinking water. The data on the duration and extent of the contamination of local residents in Newburgh is as important as the data collected from residents of Hoosick Falls and Petersburgh. Sampling of drinking water has shown that

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[61] DOH, Information Sheet PFOA Biomonitoring Group-Level Results, June 2, 2016, *available at* https://www.health.ny.gov/environmental/investigations/hoosick/docs/infosheetshortgroupresults.pdf.

[62] DOH, PFOA Blood Testing in Petersburgh, (July 2016) *available at* http://www.villageofhoosickfalls.com/Water /Documents/July2016-BloodTestingPetersburgh.pdf.

PFOS exceeded the EPA guidance values for lifetime exposure – further underscoring the need to measure exposure via blood testing.

Without education of the healthcare community, however, such testing will be not be fully useful, which is why Riverkeeper has called on the EPA, in our letter of July 1, to work with the Agency for Toxic Substances and Disease Registry, and/or other federal resources, to assist in providing the resources necessary for the healthcare community to interpret results and advise the community.

D. Clearly state commitments to fund safe alternative water supplies, and ensure decision-making is open and inclusive

The Departments of Health and Environmental Conservation have stated their commitment to fund temporary safe water supplies and install filtration for the Lake Washington supply. These temporary actions are necessary and welcome, and in some cases complex and expensive. The state deserves credit for taking actions to provide safe drinking water expeditiously. Commitments should be clear and in writing, and decisions about treatment technologies should be made in an open and inclusive manner, so that city officials and residents understand relevant costs and benefits of treatment technologies. Riverkeeper has asked EPA to provide technical advice regarding treatment technologies, particularly in light of the multiple emerging contaminants detected in Newburgh's drinking water supply.

4. SHORT-TERM ACTIONS TO ADDRESS LONGSTANDING ISSUES REGARDING COMPLETE, ACCURATE AND EFFECTIVE IMPLEMENTATION OF STATE AND FEDERAL LAWS

In Newburgh's source waters, water quality protection programs have not been effectively implemented or coordinated. The Departments of Environmental Conservation and Health have the authority and legal obligation to immediately implement and enforce provisions of the Clean Water Act, Safe Drinking Water Act and several state laws and regulations to protect and restore the City's drinking water. These actions can and should begin concurrently with the emergency response.

A. Accurately map the City's source waters as part of an updated Source Water Assessment

Congress intended to avert just the kind of crisis now facing Newburgh with the 1996 amendment to the Safe Drinking Water Act.[63] EPA required states to produce source water assessments. Congress expressed clearly its rationale for this requirement:

> the House Commerce Committee Report language (House Report 104-632, Part 1), it states that, "the Committee recognizes that source water protection can be cost-effective strategy for ensuring safe drinking water supplies... To address source water protection, the bill creates a new program in which states with primacy will conduct an assessment, coordinated with existing information and programs, to determine the vulnerability of sources of drinking water within state boundaries... designed to protect source water from threats identified during the assessment." Furthermore, the Senate Committee report provides that, "the only options typically available to community water systems finding contaminants in their water supply have been treatment or the development of new water supplies... To remedy this problem, the bill adds a new section to the Safe Drinking Water Act that provides a means other than treatment for community water systems to address problems or emerging problems of contamination," that is, petition programs and source water protection efforts.[64]

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63 *See* CWA § 1453(a)(3).

64 *See* State Source Water Assessment and Protection Programs Guidance, 1997.

In the case of Newburgh, the resulting effort to map and assess vulnerabilities to the city's drinking water supply were incomplete and inaccurate.[65] The Source Water Assessment map delineating City of Newburgh's drinking water supply watershed is inaccurate and incomplete, focusing only on the Brown's Pond backup reservoir to the exclusion of the city's primary reservoir, Lake Washington. Relying on that flawed map, the assessment omits substantial and important portions of the watershed, including Stewart Airport and the Stewart Air National Guard Base, and areas around Patton Brook, which include areas vulnerable to development at the intersection of the NYS Thruway and I-84, where in fact much development has occurred, and is currently taking place.[66] Lacking an accurate map or assessment, numerous environmental impact statements under State Environmental Quality Review Act are likely to have been inadequate in the planning for these developments. Steps that might have prevented or mitigated impacts were not taken.

The assessment also failed to adequately assess risks to the watershed, including direct discharges from Stewart Airport and Air National Guard Base, the presence of landfills in the watershed, stormwater runoff from extensive impervious surface cover, and future development potential in the watershed. The source water assessment is summarized in the city's 2014 Annual Water Quality Report as follows, with emphasis added:

> The analysis of available information for this source water assessment *did not find any significant sources of contamination in the watershed.* Statewide and local databases of permitted facilities were used to identify discrete potential sources of contamination. *No discrete sources were identified within the assessment area.* Land use within the watershed was evaluated by contaminant category to rate the likely prevalence of contamination associated with the land use. The contaminant category rating for land use types were determined to be medium for microbial contamination due to agricultural practices in the watershed. The overall susceptibility of this watershed to potential sources of contamination was found to be medium for microbial contamination. A copy of the assessment, including a map of the area, can be obtained by contacting us, as noted in this report.

As evidenced by the current drinking water contamination and the sources identified to date, there are both significant sources of contamination and discrete sources of

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65 See "2005 NYS DOH "SWAP" Report of Source Water Assessment Program" attached to letter from Lloyd Wilson, Ph.D., Section Chief, Source Water Protection Program, to Jean Ann McGrane, City Manager, City of Newburgh, dated April 5, 2005.

66 *See* "Newburgh-area development decisions can boost risks for drinking-water safety," Times Herald Record, Leonard Sparks, June 5, 2016 *available at* http://www.recordonline.com/article/20160605/NEWS/160609700.

contamination that have already contaminated the drinking water supply for the City of Newburgh.

The assessment for Brown's Pond relied on outdated aerial photography. The risks to this watershed were not identified sufficiently, as evidenced in part by the presence of potentially Harmful Algal Blooms (HABs) on Brown's Pond documented in 2013 and 2015.[67] These algae blooms can produce cyanotoxins, and the EPA has found that "adverse health outcomes from exposure to cyanotoxins may range from a mild skin rash to serious illness or death."[68] Recognizing the threat to public health from HABs, EPA has published Health Advisories for cyanotoxins produced by HABS[69] and recommendations for managing public water supplies affected by them.[70] The first recommended management step in a system-specific surface water evaluation is identified as "effective source water protection strategies to limit excess nutrients in surface water." Excess nutrients can be associated with agricultural or urban land uses, and if "source water is vulnerable to nutrient rich runoff from agriculture or urban areas, the [Public Water System] may be vulnerable to cyanotoxins as well," according to the EPA's management recommendations. Urbanization in Newburgh's source watershed has been dramatic, and was not identified as a threat in the DOH's 2005 Source Water Assessment focused on Brown's Pond. Development is occurring or being considered today that would put the source waters at further risk.

The DOH should initiate the drafting of a new and comprehensive Source Water Assessment. Pursuant to the DOH's 1999 Source Water Protection Plan, the DOH, "may update the assessments (and make them available to the public) as necessary to meet the originally defined or evolving objectives of the assessment for each public water system

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67 See DEC Archived Blue Green Algae Bloom Notices for 2013 and 2015 *available at* http://www.dec.ny.gov/docs/water_pdf/habsarchive2013.pdf and http://www.dec.ny.gov/docs/water_pdf/2015habarchive.pdf.

68 EPA, What health risks do humans face as a result of exposure to cyanotoxins? *available at* https://www.epa.gov/nutrient-policy-data/health-and-ecological-effects#what1

69 EPA, What are the health-based standards and guidelines for cyanobacteria/cyanotoxins in drinking water? *available at* https://www.epa.gov/nutrient-policy-data/guidelines-and-recommendations#what2.

70 EPA, Recommendations for Public Water Systems to Manage Cyanotoxins in Drinking Water (June 2015) *available at* https://www.epa.gov/nutrient-policy-data/recommendations-public-water-systems-manage-cyanotoxins-drinking-water.

source."[71] The originally defined objective was never met, as evidenced by the inaccurate map and failure to identify discrete and significant sources of contamination as evidence. Further, the objective has clearly evolved with the documentation of Harmful Algal Blooms in Brown's Pond, and the identification of PFOS and other emerging contaminants in Lake Washington. As such, the threshold has clearly been met for the development of a new Source Water Assessment.

As recommended by EPA, the new assessment should be developed in collaboration with "credible groups" in each source water area, which in this case should include the City of Newburgh and multiple DEC divisions, as well as the Hudson River Estuary Program; Orange County Water Authority; Quassaick Creek Watershed Alliance; Riverkeeper and others. This assessment can draw on existing data and recommendations included in the Quassaick Creek and Moodna Creek watershed management plans, and it should form the basis for an actionable plan to execute such strategies as the preservation of natural infrastructure, including wetlands and forests; investment in green infrastructure retrofits to treat stormwater runoff; and elimination of present and future risks to the city's reservoirs.

Riverkeeper is currently collaborating with the City of Newburgh in an effort to map stormwater outfalls discharging to its reservoirs on city-owned property, and to implement water quality monitoring plans, including for nutrients. We have also called on the EPA to use any available authority to compel the drafting of a new, accurate and comprehensive Source Water Assessment.

Outside of Newburgh, a systematic evaluation of existing Source Water Assessments should be undertaken to identify other communities with a high-priority need for new assessments. This analysis should pay special attention to Environmental Justice communities such as Newburgh. These assessments should include all elements identified in this report.

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[71] DOH, New York State Source Water Assessment Program, at 14 (1999) *available at* https://www.health.ny.gov/environmental/water/drinking/swapp.pdf

B. Suspend, revise, re-issue and re-notice the Stewart Airport and Air National Guard Base SPDES permits

The Department of Environmental Conservation (DEC) must suspend[72] the Stewart Airport[73] and Air National Guard Base[74] State Pollution Discharge Elimination System (SPDES) permits because documented PFOS contamination violates permit conditions prohibiting discharge of firefighting foam, and downstream drinking water reservoirs are contaminated at levels exceeding EPA's 70 ppt health advisory. This alone comprises "newly discovered, material information" requiring assessment and elimination of PFOS discharge points.

In addition, as we describe below, receiving waters were improperly classified and water quality standards are not being met. Finally, there is significant public interest in the resolution of the drinking water crisis. Therefore, DEC must publicly notice and schedule a public hearing, known as a "legislative hearing" as part of the suspension, revision and re-issuing of these SPDES permits. The public should be offered robust opportunity to review and comment on the proposed SPDES permit renewals.

More than a year ago, Riverkeeper urged DEC to take specific steps to address some of the significant concerns we have with the threats to the City of Newburgh's drinking water.[75] Riverkeeper called upon DEC to perform an in-depth technical review of the Air National Guard's SPDES permit in the Town of Newburgh rather than simply allowing an automatic renewal of the permit.[76] The State Comptroller has been highly critical of the

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72 Pursuant to ECL § 17-0817(5).

73 SPDES Permit NY0234915.

74 SPDES Permit NY0250457.

75 *See* Letter of Dan Shapley, Riverkeeper Water Quality Program Director to Lindy Sue Czubernat, DEC Environmental Program Specialist, Division of Environmental Permits, dated February 5, 2015.

76 ECL § 17-0817(5) provides that any interested party may file a written request with the Department at any time for modification, suspension, or revocation of a SPDES permit "on the grounds that newly discovered, material information has been discovered; that a material change in environmental conditions has occurred, [or] that relevant technology or applicable law or regulations have changed since the issuance of the existing permit."

DEC's administrative renewal process for SPDES permits.[77] The permit expiration date was set for August 31, 2015.

To the best of our knowledge, those concerns have not been addressed, including:

- Correcting misclassified receiving waters to protect them as Class A tributaries supplying Newburgh's primary reservoir;
- Revising effluent levels accordingly;
- Investigating the water quality of receiving waters, and increasing monitoring, beyond the emergency investigation of PFOS; and,
- Institutionalizing a spill notification program to be created to warn the City of toxic spills of jet fuel, oil or other hazardous wastes.[78]

Many of Riverkeeper's concerns apply equally to the Stewart Airport SPDES permit that is due to expire December 31, 2016, and many of these concerns have been echoed by the City of Newburgh.[79]

Regarding PFOS, even though Stewart Airport and the Air National Guard Base had ample opportunity to disclose the use of PFOS firefighting foams, they apparently did not. DEC's permit renewal application has a statement advising that if toxic or hazardous pollutants are used, stored, handled or discharged, the permittee must draft an Industrial Best Management Practices plan to prevent or minimize release of pollutants to receiving waters. Neither discharger apparently disclosed its use of PFOS. Further, in its prohibition of discharges of firefighting foam, no monitoring was required of either permittee for PFOS.

Indeed, for the Stewart Airport SPDES renewal, the permittee, the Port Authority of New York and New Jersey, simply checked the box stating that the facility did not conduct ancillary activities that involved use of toxic substances such as PFOS. Thus, the Stewart

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[77] DEC, N.Y. State Comptroller Rep., Clean Water Permit Process, 2001-S-18 at 5-6 (2003), *available at* http://www.osc.state.ny.us/audits/allaudits/093003/093003-h/01s18.pdf (last visited June 2, 2016).

[78] The response to Riverkeeper's letter was given during a general meeting with Riverkeeper last year where DEC apparently referred our concerns over the lack of a spill notification and response program for Stewart Airport to the Orange County Department of Health.

[79] *See* Letter from Michael Ciaravino, Newburgh City Manager, to Kelly Turturro, Acting Regional Director, DEC Region 3 (July 1, 2016).

Airport permittee avoided any DEC or public review of their actual use of PFOS in firefighting foam.

DEC should also correct its misclassification of Stewart Airport in its SPDES permit.[80] That SPDES permit wrongly identifies the airport as a "Petroleum Bulk Station" rather than an Air Transportation Facility.[81] And DEC should ensure that these site-specific SPDES permits, at a minimum, include all best management practices required of the SPDES Multi-Sector General Permit (MSGP) to control industrial stormwater discharges, while retaining the current prohibitions against the discharge of firefighting foam contained in Section F of each SPDES permit.

C. Correct classifications so that all streams that supply Newburgh's reservoirs are recognized as Class A or AA sources of drinking water

In 2015, Riverkeeper commented to DEC regarding the proposed renewal of the Air National Guard SPDES permit, noting the misclassification of Patton Brook and Silver Stream as Class "D" streams. These tributaries flow to Lake Washington, Newburgh's principal drinking water supply, and their tributaries receive discharges from the Stewart Air National Guard Base and Stewart Airport.

The two permits at issue classify and name the same stream differently, with the Stewart Airport permit documenting discharges to tributaries of a Class A tributary of Moodna Creek, and the Air National Guard Base permit documenting discharges to tributaries of Class D Silver Stream. The streams are one and the same, and all discharges should meet Class A standards, at a minimum. Patton Brook, in the Air National Guard permit, too, is identified as a Class D "tributary to Quassaick Creek." The DEC Waterbody Inventory/Priority Waterbodies List for the Lower Quassaick Creek indicates that "the waters of this portion of the stream are Class C. [Tributaries] to this portion of the stream

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80 *See* DEC's SPDES database, *available at* https://www.dropbox.com/sh/hz3spt98h4d88ue/AADmNLcYxcpZQFeWUNAxGMi9a?dl=0.

81 Stewart Airport's SPDES permit identifies it with Standard Industrial Code (SIC) No. 5171 as "[e]stablishments primarily engaged in the wholesale distribution of crude petroleum and petroleum products, including liquefied petroleum gas, from bulk liquid storage facilities." By contrast, DEC's Multi-Sector General Permit identifies "Air Transportation Facilities" as classified by SIC numbers between 4512-4581. *See* Permit No. GP-0-12-001 Appendix B, at 199, Sector S: Air Transportation.

are also Class C."[82] Information available on the NYS Environmental Resource Mapper indicates relevant segments of Patton Brook are Class A. Thus, different DEC records identify Patton Brook as Class A and C, and discharges were set to meet Class D standards.

As noted in the February 2015 Riverkeeper letter regarding the Air National Guard base SPDES permit, properly classifying the receiving waters affects multiple discharges, including benzene and toluene, which have been permitted to be released at higher levels than Class A or AA standards into the City of Newburgh's drinking watershed via tributaries of Silver Stream and Patton Brook.

DEC must ensure the accurate classification of Patton Brook and Silver Streams, and their tributaries, as Class "A" or "AA" streams. Where they are classified other than "A" or "AA" they should be re-classified, and all references to these streams should be updated and corrected. Further, all SPDES permits in the city's drinking watershed must undergo a full individual and technical review and revision, to ensure permits are in compliance with discharge limits to Class A or AA waters. This review and revision must start with the Stewart Airport and Stewart Air National Guard Base SPDES permits and must include new draft permits with a public comment and review period, as stated above.

As part of Source Water Assessments for other communities, stream classifications should be systematically reviewed and updated similarly.

D. Implement New York State Water Quality Standards

The DEC is vested with the authority and entrusted with the obligation to *abate and prevent* the pollution of waters of the state *both* in accordance with water quality standards and in connection with the SPDES program.[83] The DEC must use all known, available and reasonable methods to prevent and control pollution of the waters of the State.[84] There must be compliance with SPDES permits.

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82 Quassaic Creek-Hudson River (0202000805) WI/PWL *available at* http://www.dec.ny.gov/docs/water_pdf/wilhudsquassaic.pdf .

83 ECL § 17-0303.

84 *See* Matter of Port of Oswego Auth. v Grannis, 70 A.D.3d 1101, 1104 [3d Dep't 2010], *quoting* ECL §17-0101 *and citing* ECL § 17-0501(17).

The water quality standards law and regulations are clear:

> 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 to a condition in contravention of the standards adopted by the department pursuant to section 17-0301.[85]

Further, discharges of deleterious substances which would impair waters for the best usages are prohibited.[86]

Satisfaction of SPDES permit provisions notwithstanding, the Commissioner may require abatement action to be taken by the permittee and may prohibit the permittee's operation until the SPDES permit has been modified.[87] In addition, the State regulations clearly contemplate situations where, despite the existence of a current SPDES permit, a permittee may still be in violation of New York Water Quality Standards.[88]

Several actions are necessary in this context. Patton Brook and Silver Stream, and their tributaries should be reclassified as A or AA streams and DEC's water quality standards enforced. Both the Stewart Airport and the Air National Guard SPDES permits must be amended as described above, to reflect the appropriate water quality standards in order to protect use of these waters as a source for drinking as required by State and Federal law.

E. Protect all existing wetlands within the City's watershed

Wetlands are universally recognized as important natural infrastructure for filtering pollutants. DEC must designate any wetlands associated with these tributaries as Class 1 wetlands because they perform the critical function of enhancing drinking water quality.[89] Riverkeeper also urges DEC to undertake a comprehensive review including all necessary

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85 ECL § 17-0501.

86 6 NYCRR § 703.2.

87 *See* 6 NYCRR § 750-2.1(b).

88 *Id.*

89 *See* 6 NYCRR § 664.5(a).

classification procedures[90] related to all wetlands in the City of Newburgh drinking water watershed.[91]

The DEC should also undertake a full mapping and delineation review of all wetlands in the watershed that may not meet the regulatory Article 24 threshold of 12.4 acres as part of a "wetlands of unusual local importance" determination. No further loss of wetlands should be allowed in this watershed.

As part of Source Water Assessments for other communities, wetlands protections should be systematically reviewed and updated similarly.

F. Reduce and eliminate discharges to Newburgh's source waters

Past overdevelopment has constrained the natural ability of Newburgh's watershed to filter stormwater and other pollutants from its source waters. The percent of impervious surface (pavement, rooftops, etc.) in a watershed is a marker of its health, with as little as 10% imperviousness having been linked to degraded water quality. The percent imperviousness in Newburgh's source watershed is nearly 33 percent, suggesting that the watershed is overbuilt as a drinking water supply.[92]

Recognizing this, the Department of Environmental Conservation should assign a "discharge restriction category" to all streams in the watershed of Newburgh's reservoirs in order to increase protections for these source waters. The purpose of discharge restriction categories are to protect "waters of particular public health concern" and "other sensitive waters where"… "existing standards are not adequate to maintain water quality." Those thresholds are met in this case. [93]

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90 Pursuant to 6 NYCRR §§ 664 *et seq*

91 *See also* 6 NYCRR §§ 662, 663, and 664.

92 "Quassaick Creek Watershed Management Plan," Orange County Water Authority, 2014, http://waterauthority.orangecountygov.com/PROJECTS/QUASSAICK_CREEK/REPORTS/Chapter%202_Assessment%20of%20Waterbodies%20and%20Watershed%20Resources.pdf.

93 See 6 NYCRR §§ 701.19, 701.20.

DEC should also designate Newburgh's source waters for "no new discharge."[94] For waters so-designated, "no new discharges shall be permitted, and no increase in any existing discharges shall be permitted." A zero-discharge goal should be set, not just for new discharges, but for existing discharges, including stormwater.

[94] See 6 NYCRR § 701.23.

6. LONG-TERM ACTIONS TO INSTITUTE A COMPREHENSIVE STRATEGY FOR PROTECTING SOURCE WATERS OF NEWBURGH'S DRINKING WATER SUPPLY

For decades, Newburgh's drinking water source has been degraded due to inadequate implementation of existing laws, from inadequate coordination among neighboring municipalities, and inadequate attention to preservation and restoration of this critical natural and public health resource. The drinking water crisis is not limited to PFOS. The City of Newburgh's water supply has been a slow-moving crisis for decades.

This crisis affects people outside of the City of Newburgh, as well. Some residents in the Towns of New Windsor and Newburgh rely on Lake Washington and the City of Newburgh's drinking water infrastructure; and Brown's Pond can act as a backup supply for the Town of New Windsor. The Orange County Water Authority identified Lake Washington as a critical piece of regional drinking water infrastructure for future use not only by the City of Newburgh but the Towns of New Windsor and Newburgh.[95]

The best practices for protecting watersheds include preserving substantial forested areas, minimizing and treating stormwater runoff and pollution discharges, reducing impervious surfaces, limiting land uses to avoid the handling and disposal of hazardous materials and chemicals, regulations and programs to reduce nutrient loads, and many other practices.

Clearly, Newburgh could be well served by implementing and enforcing existing laws and regulations, as outlined above. Additional effort would benefit the watershed, and the thousands of families reliant on it for their drinking water. Multiple agency actions are needed to lead an effort to create a new paradigm that will allow for the future protection and restoration of this critical resource.

The first steps toward achieving these long-term actions can be taken today, though their full implementation is likely to take longer than the actions listed above.

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[95] Orange County Water Authority, Northeast Orange County Water Supply Project Facility Plan (April 2014) *available at* http://waterauthority.orangecountygov.com/PROJECTS/NORTHEAST%20ORANGE%20COUNTY/NEOC%20Water%20Supply%20Implementation%20Plan.pdf.

A. Promulgate Source Water Protection Rules

Public Health Law empowers the Department of Health (DOH) to "make rules and regulations for the protection from contamination of any or all public supplies of potable waters and water supplies of the state" and specifically to empower localities to take actions outside of their municipal borders in order to protect their drinking water supplies. [96] As described by a Hudson River Regional Council and Hudson River Watershed Alliance white paper, published with funding from the NYS Environmental Protection Fund: [97]

> ... unlike most laws that enable local governments to control land use and related activities, the enactment of watershed rules and regulations by NYSDOH under NYS Public Health Law Article 11, §1100, allows local governments to regulate certain activities occurring in other municipalities where their water sources are located. Through this extraterritorial authority, where one community's reservoir or parts of its watershed are located in another municipality, under this legal mechanism, the municipality that owns the water supply can have certain inspection and enforcement powers for regulated activities in the relevant watershed. At the same time, because both NYSDEC and NYSDOH can have authority over certain activities involving land use and discharges of pollutants into waterbodies, their authority can sometime overlap. This has created challenges in the past both internally for each department and in terms of inter-agency coordination. Because NYSDOH regulations can give specific authority to local government to have a role in administering regulations that affect land use in a separate municipality, the administration of watershed rules by NYSDOH can present complications for local and state government. Perhaps these complications lead to the NYSDOH focusing resources on other priorities rather than the review and enactment of new or updated watershed regulations.

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[96] See § 1100.

[97] Watershed Rules and Regulations for Protection of Drinking Water in New York *available at* http://hudsonvalleyregionalcouncil.org/wp -content/uploads/2015/11/Watershed-Rules-and-Regs-for-Protecting-Drinking-Water-in-NY-Article.pdf.

The authority for New York City's watershed regulations come in part from this law, and have empowered New York City to enact a world-renowned watershed protection effort for the largest unfiltered drinking water supply in the world.[98]

Source water protection rules for Newburgh are decades out of date and inadequate. The authority that exists under this law requires DOH action but would empower the City to actively engage and address many necessary issues that directly impact its drinking water. For example, the City of Newburgh can exercise no more influence than participating in public comment periods when developments are proposed in the Towns of New Windsor or Newburgh that may impact its watershed and degrade water quality in its reservoirs. As a second example, funding of an aggressive green infrastructure retrofit program is likely to be a high priority for reducing the impacts of urban stormwater runoff to these source waters, and yet the city (to Riverkeeper's knowledge) has no current authority to compel the implementation of such a program in the towns outside of its city limits, where it is needed to improve water quality in the city's reservoir. Promulgation of Source Water Protection Rules could empower the City of Newburgh in these or other ways.

It is past time to utilize the Public Health Law, as was done to worldwide acclaim to protect New York City's drinking water supply, to ensure the long-term preservation and restoration of Newburgh's source waters. Promulgation of rules for other communities around the state, too, should be prioritized, with achieving Environmental Justice as one priority.

B. Update New York's Open Space Conservation Plan to prioritize source water protection

The first goal listed in the Draft 2014 Open Space Conservation Plan is "[t]o protect water quality, including surface and underground drinking water supplies, lakes, streams and coastal and estuarine waters needed to sustain human life and aquatic ecosystems."[99]

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98 DEP, Rules and Regulations for the Protection from Contamination, Degradation, and Pollution of the New York City Water Supply and its Sources, (Apr. 2010) *available at* http://www.nyc.gov/html/dep/pdf/recrules/regulations.pdf .

99 DEC, 2014 Draft Open Space Conservation Plan, *available at* http://www.dec.ny.gov/docs/lands_forests_pdf/osp14draftplan.pdf.

Priority lands are identified on Long Island to protect groundwater supplies used for drinking water, and in New York City's drinking watersheds in the Catskills and Croton system. The Delaware River system is identified as a priority for its use as drinking water for both New York City and downstream users in other states. The Palisades Ridge is identified as a priority for conservation, in part because it helps preserve drinking water for Lake DeForest, a drinking water source for some 300,000 residents in Rockland County and countless additional residents of northern New Jersey.

Newburgh's drinking water supply, however, is not mentioned, despite the need being highlighted in a 2008 letter from the City of Newburgh sent to multiple recipients, including state and regional DEC and DOH officials. That letter requested DEC and DOH to "promote land acquisition in order to protect watersheds," and estimating the cost of acquiring remaining open lands in the city's watershed at $19.5 million.[100]

The need to conserve remaining open lands in Newburgh's drinking water supply is acute, and priority must be given to it in the state's Open Space Conservation Plan, ideally before a new final plan is adopted.

Given the relative few drinking water supplies identified as priorities in the plan, we also recommend a comprehensive approach to identifying source waters in need of protection regionally and statewide. Environmental Justice should be given high priority in prioritizing land acquisition for source water protection, and the Source Water Assessment Program, if implemented effectively statewide, could be an effective vehicle for updating priorities in the Open Space Conservation Plan.

Finally, eligibility for funding projects that protect land in drinking water reservoirs should be changed, in light of the requirement that funding is contingent on the owner of the water supply reservoir having enacted "watershed rules and regulations pursuant to Public Health Law § 1100."[101] This barrier is too high, given that the DOH has not promulgated source water protection rules for Newburgh or presumably for many other communities that would benefit from land acquisition in their watersheds.

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[100] Letter from City Manager Jean-Ann McGrane to Honorable Robert K. Sweeney, Chair, Assembly Committee on Environmental Conservation, *Re: Protection of Water Quality and Aquatic Resources* (Aug. 28, 2008).

[101] DEC, Project Eligibility and Evaluation Process, NYS Open Space Conservation Plan, http://www.dec.ny.gov/docs/lands_forests_pdf/osp14eappc.pdf.

C. Reconstitute the Water Resources Planning Council to coordinate source water protection efforts

The Department of Environmental Conservation (DEC) is to establish a Water Resources Planning Council.[102] The council is to consist of the "commissioners of agriculture and markets, economic development, environmental conservation, health, transportation, the chair of the public service commission, president of the New York state energy research and development authority," and seven other members appointed by the governor, of which at least one should have "expertise in the science of water resources planning" and at least one should be a "member selected from a list proposed by public interest or environmental citizens organizations."[103]

Newburgh's water crisis – both the immediate issue of PFOS and the longstanding issues of inadequate watershed protection outlined in this document – is best addressed as a multi-agency process, and with representatives from not only state agencies, including the NYS Thruway Authority, one of the largest landowners in this watershed, but county, city, town and stakeholder environmental and community representatives. A regional Water Resources Planning Council focused on City of Newburgh could provide a template for identifying comprehensive strategies and prioritizing their implementation.[104] This is particularly important on the issue of drinking water, as there are severe gaps with poorly coordinated actions associated with DEC's regulation of discharges to ground and surface waters, wetlands protections and other environmental regulations; DOH's regulation of drinking water quality and treatment; and local municipalities' regulation of land use.

The City of Newburgh's drinking water supply has been threatened and degraded by inadequate coordination and implementation. The same challenges to coordination exist statewide. The Water Resources Planning Council could correct this situation by coordinating effective actions related to source water protection.

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102 See ECL § 15-2901.

103 ECL §15-2901.

104 Letter from City Manager Jean-Ann McGrane to Honorable Robert K. Sweeney, Chair, Assembly Committee on Environmental Conservation, *Re: Protection of Water Quality and Aquatic Resources* (Aug. 28, 2008).

D. Fund the full implementation of recommendations in regional watershed management plans

The Orange County Water Authority published watershed management plans for the Moodna Creek in 2010[105] and the Quassaick Creek in 2014.[106] Funding for these efforts was provided by New York State's Environmental Protection Fund. Newburgh's source water includes parts of both watersheds, and both plans provide a number of relevant recommendations for protecting and improving water quality. While these plans have capable and active volunteers working to implement recommendations, there is no staffing or funding dedicated to the sole priority of achieving these watershed goals.

A *partial list* of the recommendations that should be fully implemented by the reconstituted Regional Water Resources Planning Council, in order to better protect and restore Newburgh's source waters, includes:

- Draft new or update existing DOH Watershed Protection Rules and Regulations for all reservoirs within the watershed;
- Establish a program for ongoing monitoring of various stream water quality parameters; collect and monitor water quality at reservoirs and lakes; develop a system to monitor and track groundwater quality; and continue stream biomonitoring research and determine causes of pollution;
- Research nutrient loading;
- Track monitoring results of closed landfills in Lake Washington watershed;
- Identify and protect priority lands, wetlands, riparian buffers and other natural areas within reservoir subwatersheds; restore and protect riparian and wetlands habitats; create a checklist and/or maps of sensitive areas for municipal boards; and adopt at the county level official map showing high priority resources and drainages;
- Encourage local regulatory measures for water resource protection, especially for drinking water and stormwater reductions; develop model codes for water resource protection; develop a watershed protection guide that can be adopted by municipalities;

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105 Orange County Water Authority Moodna Creek Watershed Management Plan *available at* http://waterauthority.orangecountygov.com/PROJECTS/MOODNA_CREEK_WATERSHED/Moodna%20Creek%20Watershed%20Plan%20Final.pdf.

106 Orange County Water Authority, Quassaick Creek Watershed Management Plan *available at* http://waterauthority.orangecountygov.com/PROJECTS/QUASSAICK_CREEK/REPORTS/Quassaick%20Plan%20(Final).pdf.

- Fund a Regional Stormwater Specialist; implement stormwater retrofits at identified sites and other appropriate locations; inventory and address illicit MS4 discharges; incentivize stormwater management, implement stormwater drainage districts, promote the appropriate use of green infrastructure, increase maintenance of stormwater infrastructure, and update local codes to require regular inspections and reporting on stormwater infrastructure;
- Reassess safe yields for public and community water supplies;
- Develop program to encourage septic maintenance; and pilot and demonstrate decentralized wastewater treatment projects; and,
- Support development of local Conservation Advisory Councils (CACs).

Note that while these recommendations in many cases could be written about protecting any watershed, and indeed, many watershed management plans in the Hudson River watershed and elsewhere catalog similar recommendations, there are specific local projects identified to implement many of these recommendations relevant to Newburgh's source waters.

E. Establish a full-time watershed inspector general

New York City and New York State agencies devote considerable staff, resources and time to studying the watersheds that supply New York City with drinking water, implementing best practices, enforcing rules and regulations, and promoting the value of watershed protection for providing unfiltered drinking water. Newburgh lacks even a single staff member at any level of government whose sole responsibility is to protect and preserve its source watershed.

A full-time watershed inspector general should be established, either for Newburgh alone, or with regional jurisdiction.

The New York City Watershed Inspector General is a model that would be useful to emulate, having been established by Executive Order No. 86[107] to empower an Assistant Attorney General to conduct and supervise investigations of alleged violations with subpoena power; to commence, prosecute and settle proceedings relating to civil and criminal violations; to cooperate with any agency or department possessing regulatory authority relating to the use, operation and protection of the Watershed; to report; and to recommend legislative, regulatory and management practice changes.

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[107] 9 NYCRR § 5.86.

An individual performing these duties would be invaluable in Newburgh's source waters, and many others in New York State.

CONCLUSION

Families and businesses turn on their taps and expect clean water that does not pose a threat to their health. The quality of that water, and the public health, is based upon many actions by government regulators. This is particularly true for a surface water reservoir system like that is used to provide drinking water to almost 30,000 residents in the City of Newburgh. The City of New York watershed system demonstrates what is possible when a comprehensive approach is taken to protect drinking water.

The story of the 2016 water crisis for the City of Newburgh highlights the acute need for adequately funded and staffed New York State agencies. The status quo was insufficient to protect Newburgh's drinking water.

The mission of the Department of Health and the Department of Environmental Conservation, and the state and federal laws they are charged to implement and enforce, provide the legal authority necessary to have prevented the crisis from occurring. Coordinated action can prevent the next crisis, in Newburgh and elsewhere, and at much less cost than remediation. Protection of source water requires a comprehensive and vigilant effort by communities and regulators. At this time, with ample legal authority to protect high-quality drinking water, even with emerging contaminants like PFOS, government must supply the will and the resources to act.

This analysis identifies many key areas for action. We now call on the State agencies with authority to protect and restore water quality for the City of Newburgh to act.