New York's Nation-Leading Efforts to Protect Communities from the Risks of Emerging Contaminants in Our Water

New York State is leading the nation with a comprehensive, science-based strategy to address sources of toxic contamination in our water like per- and polyfluorinated alkyl substances (PFAS) and 1,4-Dioxane, which have been found to negatively affect human health. When these harmful chemicals are found in public water supply systems and private drinking wells, the New York State Departments of Environmental Conservation (DEC) and Health (DOH) act swiftly with our team of engineering, health, and legal experts to ensure communities have access to clean water and polluters are held accountable. In the absence of federal leadership and action to regulate these harmful chemicals, New York State is driving policy and solutions to ensure New York's communities are protected.

About the Risks of Emerging Contaminants

Emerging contaminants (ECs) describe pollutants detected in waterbodies that may cause environmental or human health impacts and typically are not regulated under current environmental laws. Sources of these pollutants include agriculture, industry and manufacturing, urban runoff, and ordinary household products such as soaps and disinfectants, as well as pharmaceuticals disposed to sewage treatment plants and subsequently discharged to surface waters. ECs can enter our water resources after being landfilled, spilled, discharged as waste in runoff making its way into rivers, through effluent discharge, or by seepage and infiltration into the water table, eventually entering water supplies. Emerging contaminants are known to cause a range of health effects which can include endocrine-disruption, cancer, and other deleterious health impacts.

PFAS are manmade chemicals that have been widely used in various consumer, commercial, and industrial products since the 1950s. These chemicals' unique properties make them resistant to heat, oil, stains, grease, and water and useful in a wide variety of everyday products. One of the PFAS' was widely used in fire-fighting foam. These same properties also make ECs challenging when found in our environment. PFAS do not break down easily and persist in the environment, especially in water. Because of widespread use, PFAS releases into the environment have been detected in surface water, groundwater, animals, and humans worldwide.

1,4-Dioxane is a synthetic industrial chemical commonly associated with chlorinated solvents (particularly 1,1,1-trichloroethane [TCA]) and was widely used as a chemical stabilizer in other formulations. New information indicates that it is also a byproduct or contaminant in consumer

products such as laundry detergent. 1,4-Dioxane has been found in groundwater at sites throughout the United States, particularly in the sole source aquifer of Long Island and in association with legacy industrial and hazardous waste sites.

The toxicity and persistence of these compounds in the environment represent a growing challenge; once released, these ECs are extremely costly to clean up from the environment, treatment technologies to remove these chemicals from drinking water supplies are complex and costly, and the permanent disposal of these chemicals is difficult. Remediating PFAS contamination at Department of Defense facilities nationwide alone could cost more than $2 billion, according to the Pentagon.

In absence of any federal action to address this threat, Governor Andrew Cuomo has directed, New York State to undertake comprehensive policy and response actions across the state.

Guiding Principles

New York State's nation-leading program is guided by four core principles:

1. **Taking Systematic, Science-Based, and Data-Driven Decisions** – New York State employs a multi-pronged approach to address emerging contaminants that is aggressive, flexible, systematic, and science-driven. Utilizing the best available analytical technology and driving the creation of new testing methods to upgrade our capabilities to analyze for, detect, and mitigate the presence of these contaminants in our environment, New York's comprehensive on-the-ground sampling drives our actions to protect communities.

2. **Holding Polluters Accountable** – New York State aggressively pursues responsible parties and requires them to take action to correct their mistakes and pay for the remedial work needed to protect public health and the environment and restore communities. The State also works to drive industry to create and adopt cleaner technologies to reduce the potential for environmental harm in the future.

3. **Prioritizing Vulnerable Populations and Communities** – New York State is committed to providing access to clean drinking water by updating and rebuilding critical infrastructure and responding quickly to contamination that potentially threatens public health. By prioritizing actions in environmental justice communities, especially to address legacy and emerging pollution, New York is ensuring those communities most in need receive the support they deserve.

4. **Leading with Prevention –** As New York State moves decisively to address ECs, the State is committed to preventing pollution at its source. Through green procurement, ingredient disclosure, technical assistance, and other regulatory and pollution prevention programs, New York has established itself as a national leader on green chemistry and is helping to drive the market away from the use of chemicals of concern and toward the adoption of nontoxic or less toxic products, means of production, and operations.

New York's Response Actions

Through a comprehensive approach to address ECs, New York State:

- Became a national leader in setting standards to regulate PFOA, PFOS, and other PFAS chemicals as hazardous substances, unlocking the State's ability to respond to these contaminants in our environment;
- Utilized power and resources of the State Superfund Program to advance on-the-ground response actions to provide clean water and hold responsible parties financially accountable for reimbursement of tens of millions of dollars of State expenses;

RAPID RESPONSE SPOTLIGHT:

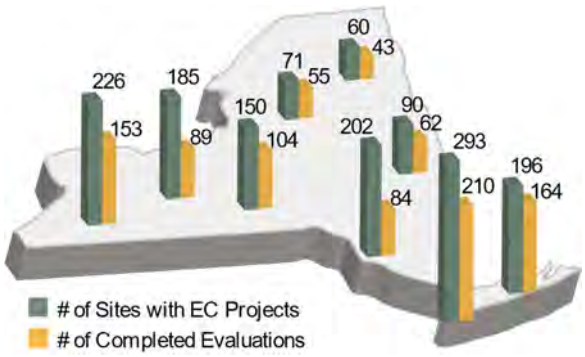
Hoosick Falls

In 2015, Hoosick Falls became the first community in New York identified with major water supply impacts due to PFOA contamination. DEC and DOH have undertaken a comprehensive response to provide clean water and advance cleanup actions, including:

- Requiring responsible parties to investigate several industrial plant sites and develop potential alternative municipal water supply sources;
- Installing wells and testing for a new groundwater source;
- Redeveloping a municipal water supply well to supplement existing supplies;
- Ensuring the municipal filtration system continues to provide clean water to the community;
- Performing biomonitoring/blood testing for thousands of residents;
- Maintaining 1,000 point-of-entry treatment systems in the Hoosick Falls/Petersburgh area to provide clean water for residents and businesses; and
- Nominating the McCaffrey site to the National Priorities List (federal Superfund designation).

- Formed the statewide Water Quality Rapid Response Team and Drinking Water Quality Council to strengthen interagency coordination on critical drinking water issues and advance Maximum Contaminant Levels for emerging contaminants including PFOA, PFOS, and 1,4-Dioxane;
- Invested more than $3 billion through the Clean Water Infrastructure Act to upgrade water infrastructure and advance the State's response efforts to ECs in drinking water;
- Fostered academic partnerships to bolster the State's research capability, including the launch of SUNY Stony Brook Center for Clean Water Technology's development of improved 1,4-Dioxane treatment systems;
- Surveyed more than 2,500 facilities that may have used, stored, or manufactured PFAS compounds (e.g., airports, fire training centers, industrial sites) for potential PFAS contamination and prioritized sampling and response actions at and near facilities in proximity to public or private water supplies;
- Initiated evaluation of almost 2,000 landfills across the state for contamination; evaluating groundwater at 1,400 active State Superfund and Brownfield sites for emerging contaminants, and required this sampling for all new remedial sites; and
- Secured passage of new legislation and product stewardship programs to prevent ECs from entering the environment, including a bill banning the sale of certain household cleaning products and certain cosmetics/personal care items that contain 1,4-Dioxane, beginning in January 2022.

Statewide Sampling for ECs



In 2018, DEC undertook an EC sampling Initiative to sample 1,473 active remedial program sites. This effort utilized existing monitoring wells to sample groundwater. Groundwater data, groundwater flow direction, and proximity to drinking water wells was then used to evaluate the need for additional action, including sampling of nearby drinking water wells and mitigating any impacts.

On-the-Ground Response

New York State acts swiftly to evaluate areas of potential contamination and takes immediate action whenever contamination is detected, including:

Providing Clean Water to Impacted Areas

New York State's site investigations are prioritized by proximity to water supplies to ensure potential exposure risks are immediately addressed. Primary response efforts have focused on airports, Department of Defense facilities, fire training centers, landfills, dry cleaners, and plating and manufacturing facilities. Whenever contaminants are detected in groundwater at these sites, the State rapidly engages to survey nearby water supplies for impacts and immediately acts to provide clean water to impacted residents and communities, through bottled water distribution and installation of treatment systems, and aggressively pursues polluters to advance cleanups.

Biomonitoring

Where appropriate, DOH initiates PFAS blood testing programs for communities such as Hoosick Falls and Newburgh, driving important public health research to evaluate exposure to these contaminants. DOH is partnering with the Agency for Toxic Substances and Disease Registry (ATSDR) and other researchers to advance risk assessments and new health studies to evaluate the impacts of emerging contaminants.

Regulatory and Policy Solutions to Protect Communities

Since 2016, New York State has taken the following actions:

Banned the Use of Aqueous Film Forming Foam (AFFF)

New York enacted legislation prohibiting the use of firefighting foam containing PFOA and PFOS during firefighter training exercises and launched a comprehensive foam collection program to remove these products from use in the state. In addition, the New York State continues to promote expansion of EC-containing product stewardship programs, to reduce wastes and prevent the release of contaminants into the environment.

Ensured Safer Consumer Products

With household products like laundry detergents representing a source of 1,4-Dioxane in the state's waterways, New York enacted a nation-leading law placing limits on the amount of 1,4-Dioxane that can be present in household cleansing, personal care, and cosmetic products beginning in 2022. These limits not only benefit New Yorkers, but the entire nation, as industries work to bring their products into compliance with New York's requirements. DEC is also developing ingredient disclosure requirements for household cleaning products, which will make information about the chemicals in these products and their associated hazards available to the public.

Passed the Child Safe Products Act

By requiring manufacturers of children's products to disclose the presence of hazardous chemicals identified by DEC and remove certain chemicals from children's products if sold in the state, the Child Safe Products Act is providing New York important leverage to reduce potential exposures to and release of emerging contaminants into the environment.

Adopted Nation-Leading, Protective Maximum Contaminant Levels (MCLs)

Guided by recommendations made by the Drinking Water Quality Council and based on the best available science, New York State is in the process of adopting the most stringent water safety standards in the nation for PFOA and PFOS (10ppt each) and the nation's first-ever MCL for 1,4-Dioxane (1 ppb). Once these standards are adopted, water systems serving 10,000 or more people will have 60 days to begin monitoring for these contaminants; water systems serving 3,300 to 9,999 people will commence monitoring within 90 days; and water systems serving fewer than 3,300 people will commence monitoring within six months.

PARTNERSHIP SPOTLIGHT:

SUNY Stony Brook Center for Clean Water Technology

To assist water suppliers with the removal of ECs in drinking water on Long Island, in 2016, the Governor announced an investment of $5 million to support the development of new contaminant filtration technologies. The new SUNY Stony Brook Center for Clean Water Technology is supporting grants for water suppliers to develop and conduct pilot projects to test cutting-edge contaminant filtration and treatment technologies and working to secure commercialization of viable technologies to create economic development opportunities for the region and state.

To date, the project has advanced seven pilot studies to evaluate the effectiveness of different advanced oxidation technologies to treat 1,4-Dioxane, and additional research is beginning to evaluate PFAS treatment with non-granular activated carbon (GAC) alternatives.

Preventing Pollution Utilizing Green Procurement

The State's proactive pollution prevention programs are designed to lead by example, taking bold steps to reduce the presence of ECs in the environment. New York's Green Procurement Program was awarded the 2017 Leadership Award by the Sustainable Purchasing Leadership Council for innovative programs to adopt green purchasing specifications that limit the amount of these contaminants in products purchased by New York State, which reduces the hazards they pose.

Recent actions include the restriction of perfluorinated compounds in products purchased by the State, including food service containers and furniture, in which these compounds have historically been used for grease and stain resistance. These efforts have been successful in moving the market toward safer alternatives, and in 2019, New York State entered into a contract for compostable lunch trays that are PFAS-free. The NYS Green Procurement team will continue to evaluate other products where ECs can be avoided.

PARTNERSHIP SPOTLIGHT:

NYS Pollution Prevention Institute (P2I)

Based at the Rochester Institute of Technology and financed by DEC, P2I employs a team of engineers and sustainability specialists who work directly with New York businesses to prevent the discharge of ECs.

From helping business to evaluate the full life cycle of their operations to identifying process changes or new technologies that decrease a business' potential to discharge ECs to the environment, P2I is an essential partner in New York's response efforts.

Investments in Clean Water

Investments through the $2.5 billion Clean Water Infrastructure Act, $1 billion in subsequent funding targeted for water infrastructure, $1 billion State Superfund, $300 million Environmental Protection Fund, Water Infrastructure Improvement Act, and other programs are providing the resources to tackle this urgent threat and ensure sources of drinking water are protected.

Litigation and Enforcement

New York's litigation and enforcement strategy is based on a simple principle—polluters must pay for damages they cause. Using the State's formidable Superfund authority, DEC secured court-enforceable orders against Saint-Gobain and Honeywell in Hoosick Falls (2016), and Taconic Plastics in Petersburg (2017). These orders mandated that the companies undertake comprehensive investigations and necessary cleanups of PFOA and PFOS contamination in impacted areas, and enabled the State to recover its own costs. In addition, DEC has executed numerous orders with other responsible parties to perform similar cleanup efforts across the state.

New York State initiated litigation against the manufacturers of products that have caused contamination and against other parties, filing four lawsuits currently pending in a multi-district litigation in South Carolina against 3M, Dupont, and other manufacturers of PFOA and PFOS. New York State also continues to aggressively pursue the U.S. Department of Defense, whose negligence and misuse of firefighting foam has impacted water supplies in several communities on Long Island and the Hudson Valley. If the Department of Defense fails to step up and take proper action to clean up the pollution it is legally responsible for, New York State will take all appropriate action to hold DOD accountable and protect public health.

Looking Ahead: Future Actions to Protect Communities

Building on the solid scientific foundation and track record of effective responses to ECs, New York is expanding efforts to address ECs through a suite of legal, regulatory, and funding actions to enhance protections and drive national action:

1. **Develop Water Quality Standards/ Guidance Values and Soil Cleanup Objectives (SCOs):** To complement the new MCLs for drinking water, DEC will propose appropriate ambient guidance values for surface water and groundwater that will govern allowable concentrations of PFAS and 1,4-Dioxane in industrial discharges). In consultation with DOH, DEC is drafting Soil Cleanup Objectives for PFOA and PFOS to reduce potential exposures and human health impacts, which will guide site cleanups moving forward and be incorporated into updates to the State's hazardous waste cleanup regulations.

2. **Evaluate Standards for Biosolids (solids from a wastewater treatment plant, also known as 'sludge') and Biosolids Products:** Building on New York's sampling efforts for ECs in these products, DEC is evaluating policies and regulatory approaches to reduce potential contamination from biosolids and composting. DEC is closely coordinating this effort with the U.S. EPA, which is currently conducting risk assessment of PFAS in biosolids, providing additional guidance to DEC as we develop standards that will be used in New York State for biosolids recycling.

3. **Expand Statewide Investigations and Targeted Sampling of Fire Training Centers and Other Potential Firefighting Foam Hot Spots:** DEC will launch an expanded sampling program at all municipal Fire Training Centers across the state that have not yet been sampled to determine if any contaminants are present at levels that have the potential to impact the environment or human health and drive future response efforts and site cleanups.

4. **Analyze 1,4-Dioxane Concentrations in Cleaning, Personal Care, and Cosmetic Products**: As regulations on the restriction of 1,4-Dioxane in products are developed, DEC will partner with the NYS Pollution Prevention Institute (P2I) to test household cleaning, personal care, and cosmetic products covered by this law. DEC's goal is to ensure the breadth of products tested represents the variety available on the market, including differing price points, market leaders, and those marketed to diverse communities, children, or as 'safer' or 'eco-friendly' products. The resulting data will help DEC identify product categories with high levels of 1,4-Dioxane, the need for further testing, and consider whether 1,4-Dioxane thresholds established in the law should be strengthened.

5. **Clarify Designation of PFAS Substances**: DEC is evaluating the designation of PFAS substances as hazardous wastes to allow greater regulatory control over remediation, disposal, and tracking. New York State will more effectively restrict potential releases of PFAS from permitted facilities and address past releases by regulating PFAS as a "class" instead of as individual compounds.

6. **Leverage Procurement to Continue Spurring Innovation:** The State will continue to expand its green procurement program to other projects that avoid the use of ECs, including flooring, carpet, adhesives, and apparel. The New York State Pollution Prevention Institute will strengthen its focus on ECs by building staff expertise and enhancing support for green chemistry.

7. **Continue the State's Inactive Landfill Initiative:** At the 210 inactive landfills sampled so far, PFAS compounds have been identified above proposed MCLs in landfill groundwater at 77 percent of landfills; nearby drinking water has been found above proposed MCLs at only eight percent of wells sampled. 1,4-Dioxane has been identified in landfill groundwater at 30 percent of the inactive landfills investigated, but nearby drinking water has been found above proposed MCLs at only two percent of drinking water wells sampled. While results to date indicate that impacts to drinking water near inactive landfills is relatively uncommon, contamination can occur and DEC's critical sampling effort will continue for New York's 2,000 landfills.

8. **Integrate ECs into Site Remedies:** To ensure that all site remedies are comprehensive, the standard contaminant parameter list will be expanded to include ECs. This includes all sites in the State Superfund and Brownfield Cleanup Programs, which will now be required to incorporate sampling for ECs during investigations and long-term site management. This may drive additional cleanup actions when detections are shown pose a threat to public health and/or the environment.

9. **Advance Research on Aerial Deposition, Treatment, and Disposal Technologies:** New York State agencies will continue to collaborate with academic institutions and private environmental cleanup industries to develop new technologies for testing, treatment, and remediation. DEC is developing a background study of PFAS levels in soil from non-industrial and rural areas to evaluate the relative effectiveness of site cleanups and baseline risk, while undertaking groundbreaking analyses around facilities such as Norlite in Cohoes to better understand the potential for aerial deposition of emerging contaminants.

10. **Assess the Feasibility of Connecting Long Island to the NYC Water Supply:** DOH, in cooperation with DEC, will determine the availability of consulting firms with the capability to perform an evaluation of the feasibility of using New York City's water supply to provide Nassau County with an additional source of drinking water. The NYC water source is free from many of the contaminants that Nassau County water districts must currently treat.