

The Threat of Landfill Leachate to Drinking Water in the Hudson and Mohawk Rivers

A project of the Hudson and Mohawk Rivers Leachate Collaborative:

Jen Epstein, GIS Analyst and Lead Writer; **Rebecca Martin**, Project Manager; **Captain John Lipscomb**, Technical Advisor; **Pace Environmental Litigation Clinic, Inc.**, Legal Research; and **Good Work Institute**, Fiscal Sponsor

December 17, 2024

Table of Contents

Introduction to the Leachate Loophole.....	1
Key Findings.....	2
How the Leachate Loophole Works.....	3
The Project Area.....	3
Why Leachate Presents a Risk.....	4
The Historical Context.....	5
Impacts in the Hudson and Mohawk Rivers.....	7
WWTPs In the Project Area that Accept Leachate.....	8
The Leachate Loophole and Emerging Contaminants.....	9
Inactive Landfills With High Groundwater PFAS Concentrations.....	15
WWTP Revenue from Leachate Flows in the Project Area.....	18
Closing the Leachate Loophole.....	20
A Precautionary Approach.....	20
Examples of Communities Saying “No” to Landfill Leachate.....	21
How To Take Action.....	24
Resources.....	27
Acknowledgements.....	27
Appendices.....	28
Appendix A: Drinking Water Intakes and Municipalities Served in the Project Area.....	28
Appendix B: Full List of Landfill Leachate Flows in the Project Area.....	31
Appendix C: Methods.....	35
Data Sources.....	36

List of Abbreviations

BOD	Biological Oxygen Demand
C&D	Construction and Demolition
CWA	Clean Water Act
DEC	New York State Department of Environmental Conservation
EPA	US Environmental Protection Agency
FDA	Food and Drug Administration
ILI	Inactive Landfill Initiative
NYS	New York State
PFAS	Per- and polyfluoroalkyl substances
PFOA	Perfluorooctanoic acid
PFOS	Perfluorooctane sulfonate
ppt	Parts Per Trillion
RCRA	Resource Recovery and Conservation Act
SDWA	Safe Drinking Water Act
SPDES	State Pollutant Discharge Elimination System
TSCA	Toxic Substances Control Act
US	United States
WWTP	Municipal Wastewater Treatment Plant

The Threat of Landfill Leachate to Drinking Water in the Hudson and Mohawk Rivers

Introduction to the Leachate Loophole

A set of regulatory gaps allow the Hudson and Mohawk Rivers to be routinely polluted by landfill leachate – the toxic liquid that is created as water percolates through landfills.

The goal of this report is to describe this problem, which we call the “Leachate Loophole,” and to assist communities – particularly those using the rivers for drinking water – in achieving solutions. By mapping available data, and detailing how regulations are failing to protect rivers and drinking water sources from leachate pollution, we hope to support the discussions needed to develop better systems. The release of this report coincides with the 50th anniversary of the Safe Drinking Water Act, with the goal of helping this legislation fulfill its promise.

Modern landfills must take extensive measures to contain leachate in order to protect neighboring groundwater and streams from the highly concentrated contaminants it contains – toxic compounds like per- and polyfluoroalkyl substances (PFAS) and 1,4-dioxane. Yet once this leachate is collected, it’s typically sent to municipal wastewater treatment plants (WWTPs) that are not equipped to remove such chemicals. These facilities are mainly designed to treat sewage, not the harmful substances present in leachate. WWTPs are not required to remove the contaminants in leachate, even where they discharge into drinking water sources. Instead, the communities that utilize the river water for drinking must assume the cost of removing harmful chemicals to make the water safe for consumption. In some cases, operators of drinking water plants are unaware that WWTPs are accepting and discharging leachate nearby.

Members of the public need information about these flows of leachate – from landfills to sewage treatment plants to drinking water sources – in order to identify the risks and call for alternatives and solutions. Only a well informed public can close the Leachate Loophole, which persists because of inadequate environmental laws covering solid waste, surface water and drinking water.

Key Findings

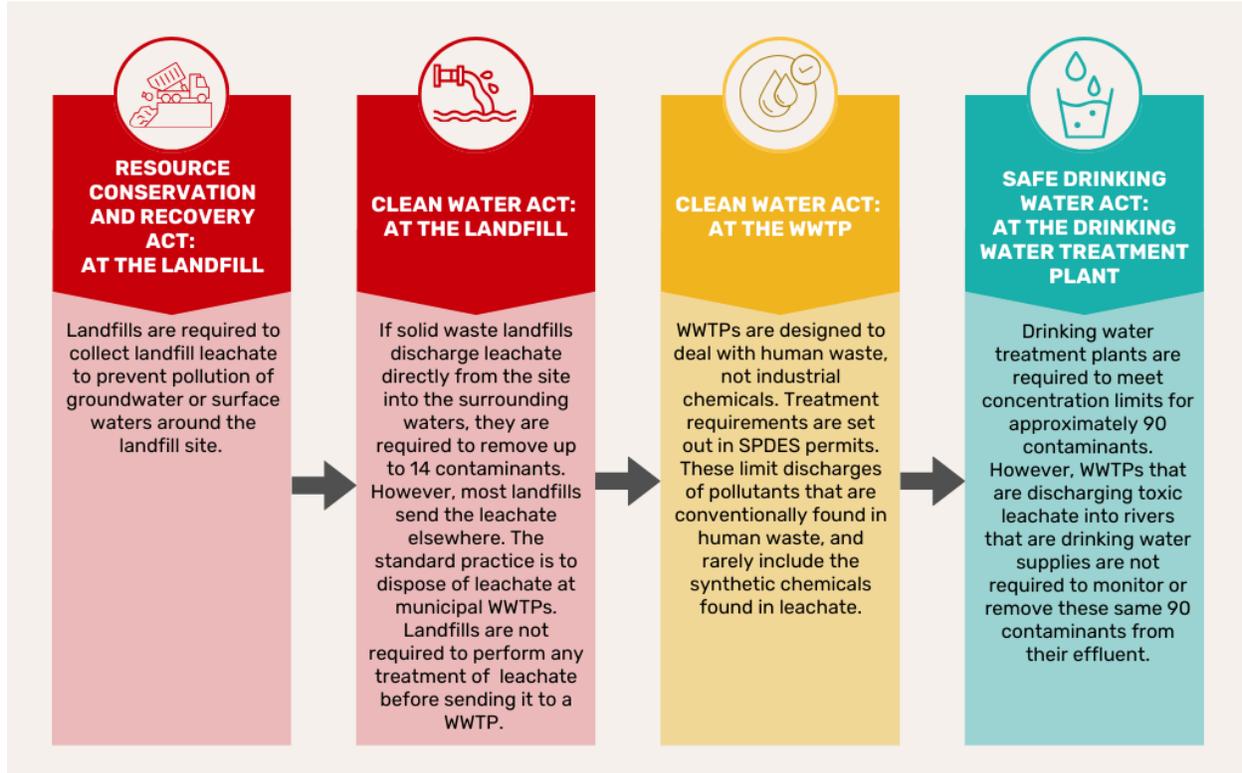
Following are some of the key findings detailed in this report:

- **Because of the Leachate Loophole, about 89 million gallons of landfill leachate were discharged into the Mohawk River and Hudson River Estuary each year from 2019-2023.** That volume is enough to fill about 12,400 average size tanker trucks.
- This liquid waste was brought to WWTPs from 24 landfills across New York and out of state.
- Within the project area, landfill leachate was discharged from six wastewater treatment plants in the Mohawk River and eight in the Hudson River. Fourteen drinking water intakes are located in this project area.
- The practice of disposing landfill leachate at WWTPs began more than 40 years ago, on the assumption that polluting substances break down in the environment over time. Many of these petroleum-based, synthetic chemicals persist in the environment with new ones being made almost everyday. Regulations have not kept pace.
- Research has found that many emerging contaminants can affect living beings in barely detectable concentrations. Dilution does not eliminate their harmful effects.
- Testing of landfill leachate by the New York State Department of Environmental Conservation has documented levels of PFAS “forever chemicals” as high as 5,440.35 ppt at the Dunn Landfill, which delivers leachate to an Albany County wastewater treatment plant that discharges into the Hudson River.
- Regulators are aware of unsafe chemicals in leachate, but they aren’t applying that knowledge to stop landfill pollution from flowing through WWTPs into drinking water supplies. Laws and regulations meant to protect the environment from leachate pollution are falling short.
- This lack of regulation – that the “Leachate Loophole” exposes – is increasing water pollution and shifting the cost of remediation to drinking water suppliers in the project area.

- The New York State Department of Environmental Conservation (DEC) is considering rules that would require landfills to treat leachate onsite before it is transported offsite and released into the environment. A formal rulemaking process for onsite treatment and disposal of landfill leachate would be a critical opportunity to establish better practices.

How the Leachate Loophole Works

Various regulations are meant to control the potential harms from highly contaminated leachate and protect waters that are essential to communities and ecosystems. But the rules fall short – every step of the way.



The Project Area

To represent the big picture, this report focuses on the portions of the Mohawk River and Hudson River Estuary that are used as drinking water supplies: the Mohawk River east of Schenectady, the Hudson River near the mouth of the Mohawk River, and the Hudson River from New Baltimore to Poughkeepsie. Our

geographical focus also includes the section of the Hudson River Estuary between Troy and New Baltimore. Even though drinking water isn't drawn directly from this area, the waters are all connected.

In the project area, 14 drinking water intakes draw water from the Hudson and Mohawk rivers, the Great Flats Aquifer (a groundwater source directly connected to the Mohawk River), or groundwater directly connected to Hudson River surface water. These waters serve as the sole, primary sources of drinking water for more than 259,000 people, including groups that disproportionately experience environmental harms.^{1,2} These waters also provide a partial source of drinking water for 109,000 others, served by public water supplies that blend this water into their systems.³ Nineteen municipalities are partially or completely served by these drinking water sources.⁴ (See [Appendix A](#) for a full list of public water supplies and municipalities.) In these municipalities, people of color make up a larger share of the population (30%) compared to the rest of the project area (21%).⁵

Why Leachate Presents a Risk

Landfill leachate is a complex and variable mix that may contain heavy metals, pesticides, and organic compounds. In this case, "organic" does not mean naturally occurring, but rather that the chemical has a carbon-based structure. The organic compounds in landfill leachate are petroleum-based, synthetic chemicals used in industrial processes, manufacturing, and consumer goods, especially plastics.

Exposure to these chemicals – through air, water, soils, and home or work environments – contributes to a wide range of diseases and health harms, including cancer, immune problems, and developmental effects due to their interference with a wide range of biological systems and processes.^{6,7} The burden of exposure to

¹ EPA. 2024. Safe Drinking Water Information System [dataset]. Washington, DC: EPA; [updated 2024; accessed 2024 Oct 28].

https://sdwis.epa.gov/ords/sfdw_pub/r/sfdw/sdwis_fed_reports_public/200.

² EPA 2024. EJSCREEN Geodatabase (State Level), Tract Level. Washington, DC: EPA; [updated 2024 Aug 6; accessed 2024 Oct 28]. <https://www.epa.gov/ejscreen/download-ejscreen-data>.

³ EPA, Safe Drinking Water Information System [dataset].

⁴ Not all of the people living in these municipalities drink from these public water supplies, but water service area boundaries are not publicly available, so estimates are based on municipal populations.

⁵ EPA, EJSCREEN Geodatabase.

⁶ Woodruff, T.J. 2024. Health Effects of Fossil Fuel-Derived Endocrine Disruptors. *The New England Journal of Medicine* 390:922-933. <https://doi.org/10.1056/NEJMra2300476>.

⁷ President's Cancer Panel. 2010 April. Reducing Environmental Cancer Risk: What We Can Do Now. Washington, DC: National Cancer Institute. https://deainfo.nci.nih.gov/advisory/pcp/annualreports/pcp08-09rpt/pcp_report_08-09_508.pdf.

toxic chemicals is not something individuals can control, and it is not distributed evenly.^{8,9} Women, and especially Black and Hispanic women, have higher levels of toxic chemicals in their bodies compared to other groups, and these exposures are compounded by other economic and social stressors to increase health impacts.^{10,11} The effects of emerging contaminants on pregnant and breastfeeding women are passed along to fetuses and infants, who are especially susceptible to harm from chemical pollution because they are still developing.^{12,13}

Toxic chemicals are ubiquitous in the waste already present in landfills, so they will be present in leachate for the foreseeable future. And with increasing petrochemical production, they are on track to continue being introduced into landfills in the years to come.

The Historical Context

Ever since landfill leachate began to be collected, responsibility for it has fallen to WWTs.

The practice of disposing of solid waste in landfills became common in the United States (US) after World War II. As rainfall percolates through a landfill, it picks up substances from the waste material and becomes a toxic liquid called leachate. But knowledge about the toxicity of leachate was limited at the time that landfilling became popular.¹⁴

World War II had stimulated research and development of new chemicals – many of which were petroleum-based – to meet urgent wartime demands, without much regard for environmental harms.¹⁵ After the war, new uses were sought for these new chemical inventions, and many began to be used to manufacture household goods.¹⁶ A major product of this transformation was new types of plastics, which continued to emerge during the postwar era due to ongoing experimentation with petroleum-based chemistry. At the same time, manufacturers shifted their

⁸ Woodruff, Health Effects of Fossil Fuel-Derived Endocrine Disruptors.

⁹ President's Cancer Panel, Reducing Environmental Cancer Risk.

¹⁰ Woodruff, Health Effects of Fossil Fuel-Derived Endocrine Disruptors.

¹¹ President's Cancer Panel, Reducing Environmental Cancer Risk.

¹² Woodruff, Health Effects of Fossil Fuel-Derived Endocrine Disruptors.

¹³ President's Cancer Panel, Reducing Environmental Cancer Risk.

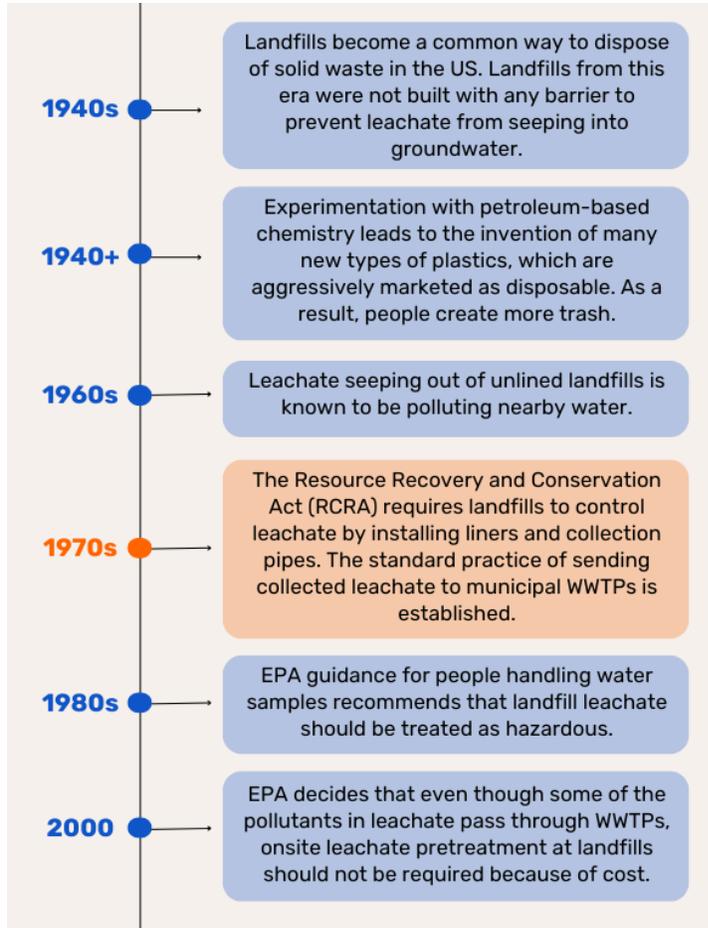
¹⁴ Tarr, JA. 1996. *The Search for the Ultimate Sink: Urban Pollution in Historical Perspective*. Ohio: University of Akron Press.

¹⁵ Tarr, *The Search for the Ultimate Sink*.

¹⁶ Tarr, *The Search for the Ultimate Sink*.

marketing from durability to disposability to increase sales.¹⁷ Between 1940 and 1970, per-person waste generation in the US doubled.¹⁸

The type of waste going into landfills was not closely scrutinized, and concerns



about the impacts of industrial waste on drinking water were mostly focused on taste and odor, not toxicity.¹⁹ But by the 1960s, it had become clear that leachate was seeping out of unlined landfills and polluting nearby groundwater and surface water.²⁰

In 1976, Congress passed the Resource Recovery and Conservation Act (RCRA) to address the nation's growing volume of municipal and industrial waste. Subsequent regulations required landfills to control leachate by installing impermeable liners and collection pipes but it took the US Environmental Protection Agency (EPA) thirty years to land on a collection strategy that decently

captured corrosive leachate. Once leachate collection was under control, the question of what to do with it needed to be addressed. Historical documents show that the answer was taken for granted from the beginning: send it to municipal WWTPs.²¹ This had been a common way for other industries to dispose of their waste for more than a half a century.²²

¹⁷ Copley, M. 2024 Jun 9. Creating a throw-away culture: How companies ingrained plastics in modern life. NPR. [accessed 2024 Jun 29].

¹⁸ Melosi, MV. 2008. *The Sanitary City: Environmental Services in Urban America from Colonial Times to the Present*. Pennsylvania: University of Pittsburgh Press.

¹⁹ Tarr, *The Search for the Ultimate Sink*.

²⁰ Tarr, *The Search for the Ultimate Sink*.

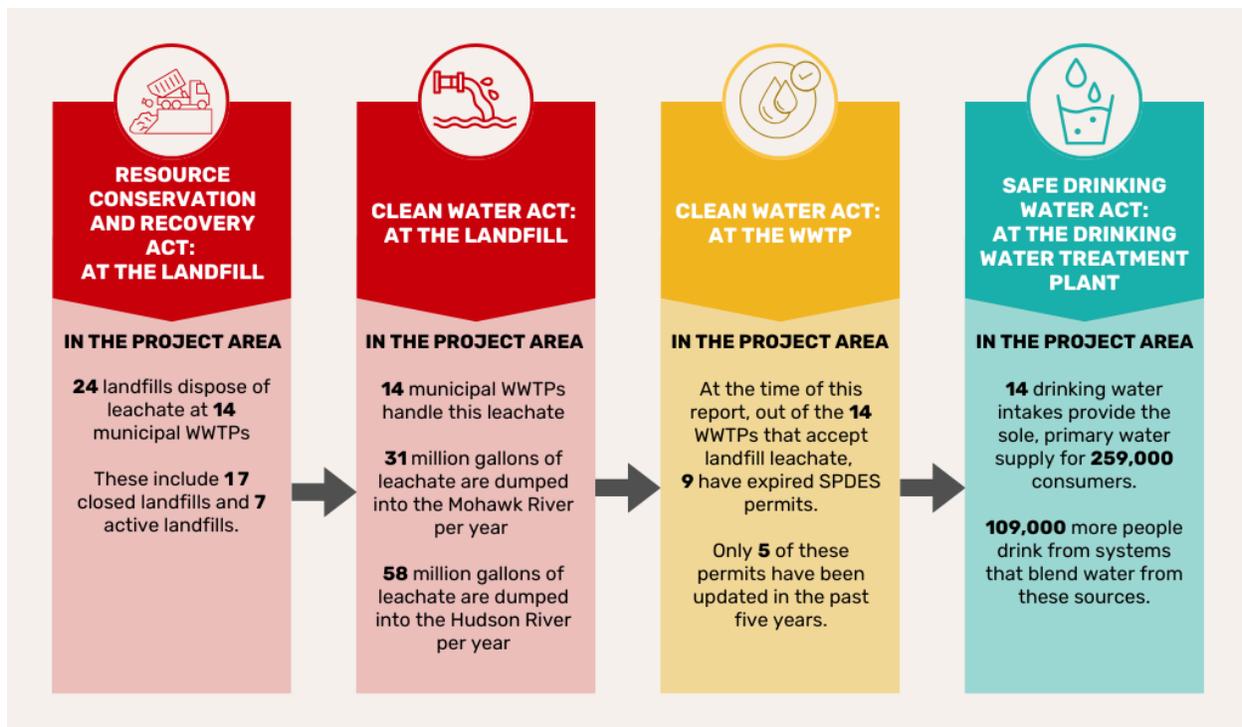
²¹ EPA. 1975 Oct. *Sanitary Landfill Stabilization with Leachate Recycle and Residual Treatment*. Ohio: US EPA. EPA-600/2-75-043.

²² Melosi, *The Sanitary City*.

This was the start of a convenient, reciprocal relationship between landfills and WWTPs. WWTP operators saw it as part of their public duty to accept leachate (and many still do). In turn, landfills accept sludge (the solids that remain at the end of the treatment process) from WWTPs.

Impacts in the Hudson and Mohawk Rivers

Because of the Leachate Loophole, 89 million gallons of landfill leachate are dumped every year into the Mohawk River and Hudson River Estuary.



In the project area, landfill leachate is discharged from 14 WWTPs, eight in the Hudson River Estuary watershed and six in the Mohawk River watershed. This leachate comes from a total of 24 landfills, seven of which are actively operating. (See [Appendix B](#) for the full list of leachate flows in the project area.)

WWTPs In the Project Area that Accept Leachate

Mohawk River

Gloversville-Johnstown
 Mohawk View (Town of Colonie)
 City of Amsterdam
 Village of Canajoharie
 Town of Rotterdam Sewer District #2
 City of Schenectady

Hudson River

Albany County North
 City of Kingston
 City of Beacon
 Village of Catskill
 City of Poughkeepsie
 City of Hudson
 Glasco (Town of Saugerties)
 Rensselaer County Sewer District #1

Although many closed landfills lack liners to prevent leachate leakage, they do have cover layers to prevent the infiltration of snowmelt and rainwater. In contrast, actively operating landfill areas are open to the elements, and they generate much more leachate because precipitation enters more freely. As climate change increases precipitation in the project area, more leachate will be generated by open landfills.²³

²³ Stevens, A., & Lamie, C., Eds. 2024. New York State Climate Impacts Assessment: Understanding and preparing for our changing climate. <https://nysclimateimpacts.org>.

The Leachate Loophole and Emerging Contaminants

WWTPs are not required or equipped to remove the pollutants that are present in landfill leachate.

In theory, the Clean Water Act (CWA) aims to stop pollution into waterways. In reality, pollution is controlled and monitored through permits. In New York State (NYS), facilities that discharge waste into surface or groundwater are regulated under the State Pollutant Discharge Elimination System (SPDES) permit program, part of the CWA.²⁴ The purpose of SPDES permits is to limit the amount of polluting substances that facilities discharge. The CWA sets minimum baseline requirements according to the facility type (a state may apply more stringent standards), and requires SPDES permits to be renewed every five years. Originally, Congress intended this renewal process to provide an opportunity for state agencies to require new water pollution control technology in SPDES permits as it developed. In turn, pollution discharges would be eliminated as technological capacity increased.²⁵

Under the CWA, a WWTP permit renewal should include a full review of information about the facility, including industrial operations that discharge to it, expanded effluent monitoring data, and an opportunity for public comment.^{26,27} The administrative burden of this review cycle has led to large backlogs of expired permits in many states, including New York.²⁸ In response, DEC's policy is to administratively renew or extend permits as is, until a "full technical review" can be conducted.²⁹ At the time of this report and based on available information, **of the 14 WWTPs in the project area that accept leachate, nine have expired SPDES permits.** Only five of these permits have been updated in the past five years.

²⁴ The Clean Water Act includes the National Pollutant Discharge Elimination System (NPDES). When a state obtains the authority to oversee its NPDES program, it is termed SPDES.

²⁵ Coplan K. 2005. Of Zombie Permits and Greenwash Renewal Strategies: Ten Years of New York's So-Called "Environmental Benefit Permitting Strategy." *Pace Env'tl. L. Rev.* 22(1):1-38. <http://digitalcommons.pace.edu/lawfaculty/357>.

²⁶ EPA. 2023 Dec 11. NPDES Permit Basics. Washington, DC: EPA; [accessed 2024 November 7].

²⁷ Coplan, Of Zombie Permits and Greenwash Renewal Strategies.

²⁸ EPA. 2019 Jun 25. Region 2 NPDES Program and Permit Quality Review: New York State. Washington, DC: EPA.

https://www.epa.gov/sites/default/files/2019-07/documents/new_york_2019.pdf.

²⁹ DEC. 2021 Oct 7. State Pollution Discharge Elimination System (SPDES): SPDES permit renewals, reviews, and municipal application updates [PowerPoint slides].

https://extapps.dec.ny.gov/docs/water_pdf/renewalsmodspres.pdf.

For landfills that discharge leachate directly into surface water, the CWA requires SPDES permits limit up to 14 parameters, depending on whether the landfill handles hazardous waste.³⁰ Half of these are industrial and manufacturing chemicals, and half are metals or conventional water quality parameters.³¹ WWTP permits focus on water quality indicators related to human waste. Consequently, the minimum permit limits are focused on conventional parameters such as biological oxygen demand (BOD), solids, pH, and fecal indicator bacteria.³²

In 2000, EPA evaluated the need for landfills to treat leachate onsite before sending it to WWTPs, and decided not to require onsite treatment (commonly called “pretreatment”).³³ By deciding not to require any onsite treatment of landfill leachate before it is sent to municipal WWTPs, EPA left municipal WWTP SPDES permits as the sole guardrail on leachate flowing through WWTPs. But as we’ve seen, WWTP permits focus on indicators of human waste, not the synthetic chemicals contained in leachate. The result of this is that WWTP operators tend to focus on BOD when determining whether to accept leachate, and are willing to accept leachate as long as it does not interfere with the facility’s ability to meet their SPDES BOD effluent limitation.³⁴

Regulators know that landfill leachate is toxic. After all, the hazards posed to water are the very reason that leachate is collected. NYS requires landfill operators to regularly monitor 47 synthetic chemicals – the types of substances present in industrial and municipal solid waste – to protect nearby water quality.³⁵ And yet, of these 47 compounds, only two appear in any of the WWTP SPDES permits for facilities that accept leachate in the project area.

³⁰ eCFR. 40 CFR Part 445: Landfills Point Source Category. Washington, DC: National Archives; [accessed 2023 Aug 24]. <https://www.ecfr.gov>.

³¹ National Library of Medicine. 2024. PubChem [database]. Maryland: National Library of Medicine; [accessed 2024 Nov 8]. <https://pubchem.ncbi.nlm.nih.gov>.

³² DEC. 1997 Mar. Division of Water Technical and Operational Guidance Series 1.3.3. SPDES Permit Development for POTWS [memorandum]. <https://dec.ny.gov/regulatory/guidance-and-policy-documents/water-guidance-documents>.

³³ EPA. 2000 Jan. Development Document for Final Effluent Limitations Guidelines and Standards for the Landfills Point Source Category. Washington, DC: EPA. EPA-821-R-99-019. https://www.epa.gov/sites/default/files/2015-11/documents/landfills-eg_dd_2000.pdf

³⁴ Pers. comm., Laura Orlando, 2024 Aug 25.

³⁵ Westlaw. 2022 Mar 15. 6 CRR-NY 363-4.6: Solid Waste Landfill Facility Manual. New York: Thompson Reuters. <https://govt.westlaw.com/nycrr/Document/Id4d6f245dfe911e7aa6b9b71698a280b?transitionType=Default&contextData=%28sc.Default%29>.

Emerging contaminants have changed how we should look at water pollution, but our regulatory system has not kept pace.

One of the assumptions underpinning US pollution regulations is that polluting substances break down in the environment over time. This is rooted in a scientific understanding of water pollution that dates back to the 1930s, before synthetic chemical production boomed.³⁶ EPA lists 86,000 unique chemicals that are used in manufacturing or processing in the US, not including chemicals used in foods, drugs, and cosmetics, with more added almost every day.³⁷ This includes many synthetic chemicals that belong to a category called “emerging contaminants” – substances that are potentially harmful to people or ecosystems, but are not regulated.

Emerging contaminants are not necessarily *new* contaminants. PFAS are one group of emerging contaminants that is currently receiving intense attention for the harm they cause to human health. PFAS were first discovered in the late 1930s, and have been common in consumer products since the 1950s.³⁸ PFAS have been circulating in the environment for more than 70 years, but information about their potential for harm has become widely known to the public only within the last decade.

With emerging contaminants, the dose does not always make the poison.

Because many emerging contaminants break down extremely slowly, they persist in the water much longer than the conventional pollutants that our environmental regulations are designed to handle. What’s more, these substances can affect living beings in barely detectable concentrations, so dilution does not eliminate their harmful effects. In the US, water pollution regulations usually limit individual chemicals in specific locations. But living beings experience emerging contaminants in mixtures that may cause different effects than each individual chemical acting in isolation. They experience varying mixtures throughout their lifespans, with some effects that appear a generation or more after exposure.

For drinking water plants, under the Safe Drinking Water Act (SDWA), EPA has issued concentration limits or required treatment technologies for approximately 90 drinking water contaminants, including microbes, metals, synthetic chemicals,

³⁶ Tarr, The Search for the Ultimate Sink.

³⁷ EPA. 2024 Jun 3. About the TSCA Chemical Substance Inventory. Washington, DC: EPA; [accessed 2024 October 28]. <https://www.epa.gov/tsca-inventory/about-tsca-chemical-substance-inventory>.

³⁸ Perera DC, Meegoda, JN. 2024. PFAS: The Journey from wonder chemicals to environmental nightmares and the search for solutions. *Applied Sciences* 14:8611. <https://doi.org/10.3390/app14198611>.

disinfection byproducts, and radioactive substances.³⁹ These drinking water standards were updated in 2023 to include enforceable numerical water quality standards for five individual PFAS compounds and one PFAS mixture, coming into effect in 2029. For two PFAS chemicals, perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS), EPA has recognized that there is no risk-free level of exposure, so it has also set a goal of zero parts per trillion (ppt) for PFOA and PFOS in drinking water.⁴⁰

The overwhelming majority of landfills dispose of their leachate via a WWTW which has no SPDES requirement for PFAS levels.

Thus far, NYS regulations on landfills and WWTWs have not kept pace with drinking water standards. DEC has no clear timeline for implementing PFAS limits in SPDES permits for the WWTWs that accept millions of gallons of leachate.

One of DEC's reasons that PFAS limits shouldn't be written into SPDES permits immediately is that WWTWs "are not designed to treat these contaminants"⁴¹ And yet, WWTWs are accepting leachate that is known to contain toxic chemicals, and have been for many decades, because of the Leachate Loophole. It doesn't have to be this way. WWTW permit limits for PFAS would enable WWTW operators to prohibit PFAS from flowing *into* their facilities. Instead of using this powerful CWA tool, DEC plans to collect more information.⁴² Meanwhile, New York's passive approach to handling this serious problem enables landfills to disperse pollution into our communities, causing harm to people, these rivers, and the environment.

³⁹ EPA. 2024 Oct 9. National Primary Drinking Water Regulations. Washington, DC: EPA; [accessed 2024 November 18].

<https://www.epa.gov/ground-water-and-drinking-water/national-primary-drinking-water-regulations>.

⁴⁰ NYS set a drinking water standard of 10 ppt for PFOA and PFOS in 2020. EPA set standards of 4 ppt for these chemicals, which supersede the NYS standards.

⁴¹ DEC. 2024 Jan 10. Division of Water Technical and Operational Guidance Series 1.3.14. Publicly Owned Treatment Works (POTWs) Permitting Strategy for Implementing Guidance Values for PFOA, PFOS, and 1,4-Dioxane (Draft) [memorandum].

<https://dec.ny.gov/sites/default/files/2024-01/TOGS1.3.14%20-%20DRAFT.pdf>

⁴² DEC, Division of Water Technical and Operational Guidance Series 1.3.14 (Draft).

Regulators have a lot of information about unsafe chemicals in leachate, but they aren't using it to stop landfill pollution from flowing through WWTPs into drinking water supplies.

The scientific literature is clear that landfills and WWTPs are significant sources of PFAS in drinking water. Studies have linked PFOS and PFOA in drinking water to the presence of WWTPs in the watershed, and have confirmed that landfill leachate is a source of PFAS to WWTPs.^{43,44} Studies have also shown that some PFAS concentrations may be higher in WWTP effluent compared to influent as these compounds are transformed when passing through the WWTP.^{45,46} Nonetheless, for the foreseeable future, WWTPs in NYS will continue to discharge effluent that contains landfill leachate into drinking water sources, including the Mohawk and Hudson Rivers.

One source of information on PFAS concentration in leachate from specific landfills in the project area is a systematic study of closed landfills that DEC has been conducting since 2017, as part of the Inactive Landfill Initiative (ILI). The ILI was funded by the Clean Water Infrastructure Act of 2017, which authorized DEC to assess “inactive solid waste disposal sites and their potential impact on New York’s drinking water supply with an emphasis on emerging contaminants, including PFAS and 1,4-dioxane” and to remediate pollution of public drinking water supplies from these sources.⁴⁷ Through the ILI, DEC has sampled groundwater for PFOA and PFOS at 503 closed landfills across NYS.⁴⁸ The agency has discovered groundwater PFOA and PFAS concentrations in exceedance of New York State’s drinking water standard (10 ppt) at about 70% of the sites tested to date.⁴⁹

⁴³ Hu XC, Andrews DQ, Lindstron AB, Bruton TA, Schaidler LA, Grandjean P, Lohmann R, Carignan CC, Blum A, Balan SA, Higgings CP, Sunderland EM. 2016. Detection of Poly- and Perfluoroalkyl Substances (PFASs) in U.S. Drinking Water Linked to Industrial Sites, Military Fire Training Areas, and Wastewater Treatment Plants. *Environmental Science & Technology Letters* 3:344-350. <https://doi.org/10.1021/acs.eslett.6b00260>.

⁴⁴ Masoner JR, Kolpin DW, Cozzarelli IM, Smalling KL, Bolyard SC, Field JA, Furlong ET, Gray JL, Lozinski D, Reinhart D, Rodowa A, Bradley PM. 2020. Landfill leachate contributes per-/poly-fluoroalkyl substances (PFAS) and pharmaceuticals to municipal wastewater. *Environmental Science Water Research & Technology* 6:1300-1311. <https://doi.org/10.1039/d0ew00045k>.

⁴⁵ Helmer RW, Reeves DM, Cassidy DP. 2022. Per- and polyfluorinated alkyl substances (PFAS) cycling within Michigan: Contaminated sites, landfills and wastewater treatment plants. *Water Research* 210:117983. <https://doi.org/10.1016/j.watres.2021.117983>.

⁴⁶ Eriksson U, Haglund P, Karrman A. 2017. Contribution of precursor compounds to the release of per- and polyfluoroalkyl substances (PFASs) from waste water treatment plants (WWTPs). *Journal of Environmental Sciences* 61:80-90. <http://dx.doi.org/10.1016/j.jes.2017.05.004>.

⁴⁷ DEC. 2024. New York State Inactive Landfill Initiative, July 2024 Status Report. New York: DEC. <https://dec.ny.gov/sites/default/files/2024-07/inactivelandfillrpt2024.pdf>.

⁴⁸ DEC, New York State Inactive Landfill Initiative, July 2024 Status Report.

⁴⁹ DEC, New York State Inactive Landfill Initiative, July 2024 Status Report.

In the project area, 17 closed landfills send a total of 12 million gallons of leachate annually to WWTPs that discharge into the Hudson and Mohawk Rivers. Twelve of these closed landfills have been surveyed through the ILI.⁵⁰ For at least eight of them, sampling results showed that groundwater PFAS concentrations exceed the NYS drinking water standard.⁵¹ (Site-specific sampling results are not available for all landfills.)

The ILI program ranks sites for further action based on whether nearby drinking water wells have been impacted.⁵² At three of the eight landfills found to have high groundwater PFAS concentrations, nearby wells have been affected.⁵³ As a result, two of these sites (Town of Hurley Landfill and Town of Saugerties Landfill) have been declared to pose “a significant threat to the environment or public health,” and have been placed on the NYS Registry of Inactive Hazardous Waste Disposal Sites (the “Superfund List”) for remediation.⁵⁴ At the other six locations, various strategies are being pursued.⁵⁵

This range of responses overlooks one thing that all of these landfills have in common: they are shipping leachate offsite to WWTPs that are not designed to remove PFAS. The ILI program does not consider impacts to drinking water caused by this practice, so DEC has not stopped these sites from sending their raw leachate to WWTPs that discharge into Hudson and Mohawk River drinking water.

Three of the inactive landfills with demonstrated high groundwater PFAS concentrations (Town of Hurley Landfill, Al Turi Landfill, and Royal Carting Service) ship leachate to three WWTPs that discharge into the Hudson River Estuary within 15 miles of drinking water intakes that serve nearly 103,000 people.⁵⁶ These three WWTPs discharge 954,000 gallons of high-PFAS leachate from these three landfills into this drinking water source each year.

⁵⁰ DEC, New York State Inactive Landfill Initiative, July 2024 Status Report.

⁵¹ DEC, New York State Inactive Landfill Initiative, July 2024 Status Report.

⁵² DEC, New York State Inactive Landfill Initiative, July 2024 Status Report.

⁵³ DEC, New York State Inactive Landfill Initiative, July 2024 Status Report.

⁵⁴ DEC, New York State Inactive Landfill Initiative, July 2024 Status Report.

⁵⁵ DEC, New York State Inactive Landfill Initiative, July 2024 Status Report.

⁵⁶ EPA, Safe Drinking Water Information System [dataset].

Inactive Landfills With High Groundwater PFAS Concentrations

Landfill Name	Max PFOA, Max PFOS Concentration (ppt)	WWTP Name	Gallons Generated Per Year, Average (Includes 2019-2023 unless noted)	Action Taken Under NYS ILI
<i>Mohawk River</i>				
Town of Glenville	Not published	City of Schenectady	16,400	Follow-up monitoring being considered
Town of Rotterdam	Not published	Town of Rotterdam Sewer District #2	1,009,000 (2021-2023)	
<i>Hudson River</i>				
Town of Hurley	81.6, 192 ⁵⁷	City of Kingston	332,000 (2020-2023)	Added to NYS Superfund List for site remediation
Town of Saugerties	31, 70 ⁵⁸	Glasco (Town of Saugerties)	No data	
Royal Carting Service	16, 18 ⁵⁹	City of Poughkeepsie	104,000 (2020-2023)	Added to NYS Superfund List for further study
		City of Beacon	8,000 (2020-2021)	
Al Turi	25, 12 ⁶⁰	City of Beacon	511,000 (2019-2022)	Already on NYS Superfund List

⁵⁷ DEC. 2024. Environmental Site Remediation Database. New York: DEC; [accessed 2024 Nov 13]. <https://extapps.dec.ny.gov/cfm/extapps/derexternal/index.cfm?pageid=3>.

⁵⁸ DEC, Environmental Site Remediation Database.

⁵⁹ DEC, Environmental Site Remediation Database. .

⁶⁰ DEC, Environmental Site Remediation Database.

<i>Inactive Landfills With High Groundwater PFAS Concentrations</i>				
Landfill Name	Max PFOA, Max PFOS Concentration (ppt)	WWTP Name	Gallons Generated Per Year, Average (Includes 2019-2023 unless noted)	Action Taken Under NYS ILI
Sullivan County	Not published	City of Beacon	37,000 (2019-2021)	Follow-up monitoring being considered
City of Troy	Not published	Rensselaer County Sewer District #1	No data	

The foundational purpose of the ILI is to protect people from drinking water that makes them sick. This initiative addresses leachate moving directly from inactive landfills into neighboring wells, but not the leachate that is being trucked from inactive landfills to WWTPs for disposal into drinking water sources. While it is true that PFAS and other pollutants in leachate are diluted when they are discharged into rivers through WWTPs, it is also true that low concentrations of PFAS and other emerging contaminants do not eliminate the risk. Why do we allow this toxic material to be discharged into drinking water sources at all?

Information about PFAS is also available for some active landfills, including Dunn Landfill, an actively operating facility in Rensselaer County, and Seneca Meadows, in Seneca County. Dunn Landfill receives construction and demolition (C&D) debris from 19 NYS counties and out of state, and disposes of its leachate at the Albany North WWTP.⁶¹ Between 2017 and 2023, the volume of leachate that Dunn trucked to the Albany North WWTP quadrupled, totaling 11 million gallons in 2023. A DEC contractor tested Dunn Landfill’s leachate for 21 PFAS compounds in 2021.⁶²

⁶¹ Dunn Mine and C&D Landfill. 2017-2022. Active Construction and Demolition (C&D) Debris Landfill Annual/Quarterly Reports [compliance reports submitted to NYS DEC]. https://extapps.dec.ny.gov/fs/projects/SWMF/Annual%20Reports_Solid%20Waste%20Management%20Facility/Annual%20Reports_by%20Activity%20Type/Landfill.

⁶² Drachenberg, T. 2021. Dunn C&D Landfill Sampling Results [memorandum]. New York: Parsons. <https://dec.ny.gov/environmental-protection/waste-management/solid-waste-program/dunn-landfill>.

Fourteen PFAS compounds were detected in the leachate samples, with a maximum total concentration of 5,440.35 ppt.⁶³ Dunn Landfill sampled its own leachate for PFAS in 2022.⁶⁴ In that testing, 12 PFAS compounds were detected, with a maximum total concentration of 4855.8 ppt.⁶⁵

Seneca Meadows is the largest active landfill in New York State. Managed by the Texas-based company Waste Connections, it processes more than 6,000 tons of waste each day, from throughout NYS.⁶⁶ The City of Amsterdam WWTP began accepting leachate from Seneca Meadows late in 2023. In one month, the City of Amsterdam WWTP discharged 414,000 gallons of Seneca Meadows leachate into the Mohawk River upstream of the Great Flats Aquifer and surface water intakes. Seneca Meadows' leachate was tested for 21 PFAS compounds in 2018.⁶⁷ Fourteen compounds were detected, at a total concentration of 12,847.3 ppt.⁶⁸

The Leachate Loophole is increasing water pollution into the Hudson and Mohawk and shifting the cost of treatment to drinking water suppliers in our project area.

Part of DEC's unwillingness to limit PFAS discharges from municipal WWTPs is an imperative to "control costs" at WWTPs.⁶⁹ Indeed, municipal wastewater systems in NYS are in need of billions of dollars for repairs and retrofits just to continue basic operations.⁷⁰ The cost of adding PFAS treatment would be a major burden. A second reason that DEC is not implementing PFAS limits at WWTPs is that WWTPs "do not

⁶³ Drachenberg, Dunn C&D Landfill Sampling Results [memorandum].

⁶⁴ Dunn Mine and C&D Landfill. 2023. Active Construction and Demolition (C&D) Debris Landfill Annual/Quarterly Report, January 1, 2022 to December 31, 2022 [compliance report submitted to NYS DEC].

https://extapps.dec.ny.gov/fs/projects/SWMF/Annual%20Reports_Solid%20Waste%20Management%20Facility/Annual%20Reports_by%20Activity%20Type/Landfill/Landfill%20Annual%20Reports%20-%202022/R4

⁶⁵ Dunn Mine and C&D Landfill, Active Construction and Demolition (C&D) Debris Landfill Annual/Quarterly Report, January 1, 2022 to December 31, 2022 [compliance report submitted to NYS DEC].

⁶⁶ Cornerstone Engineering and Geology, PLLC, Seneca Meadows Engineering Group. 2023 Mar 1. Seneca Meadows Landfill 2022 Annual Report. [compliance report submitted to NYS DEC]. https://extapps.dec.ny.gov/fs/projects/SWMF/Annual%20Reports_Solid%20Waste%20Management%20Facility/Annual%20Reports_by%20Activity%20Type/Landfill/Landfill%20Annual%20Reports%20-%202022/R8.

⁶⁷ Test America. 2018 Mar 29. Analytical Report, Client Project/Site: Seneca Meadows LF - Region 8.

⁶⁸ Test America, Analytical Report: Seneca Meadows LF.

⁶⁹ DEC, Division of Water Technical and Operational Guidance Series 1.3.14 (Draft).

⁷⁰ DEC. Undated. Wastewater Infrastructure Needs of New York State Report; [accessed 2024 Nov 11]. <https://dec.ny.gov/environmental-protection/water-wastewater-treatment-plant-resources/plant-operation/information-for-municipalities/wastewater-infrastructure-needs-of-nys-report>.

manufacture these contaminants, but rather receive them from upstream sources.”⁷¹ But this is also true of drinking water treatment plants, and of landfills.

Amidst chronic underfunding of water infrastructure, landfill leachate brings revenue to WWTPs. On average, WWTPs in the project area charge \$0.04 per gallon to dispose of landfill leachate. For landfills, this is cheaper than treating leachate onsite, and it adds up to approximately \$3.6 million dollars in potential WWTP revenue annually. Although this is much-needed income, it is created by passing landfill leachate through WWTPs and dumping it into the Hudson and Mohawk Rivers. Eventually, somebody has to pay the cost to clean up the water. Under our current system, these costs are sent “downstream” to the municipal drinking water treatment plants.

<i>WWTP Revenue from Leachate Flows in the Project Area</i>				
WWTP Name	Number of Landfills Sending Leachate	Gallons Received Per Year, Average (Includes 2019-2023 unless noted)	Payment Received Per Gallon, Average (Includes 2019-2023 unless noted)	Total Payment Received Per Year, Average (Includes 2019-2023 unless noted)
<i>Discharging to Mohawk River (from west to east)</i>				
Gloversville-Johnstown	1	14,667,000	\$ 0.01	\$ 147,000
Village of Canajoharie	1	2,944,000 (2020-2023)	\$ 0.03 (2020-2023)	\$ 88,000 (2020-2023)
City of Schenectady	1	16,000	No data	No data
Town of Rotterdam Sewer District #2	1	1,009,000 (2021-2023)	No data	No data

⁷¹ DEC, Division of Water Technical and Operational Guidance Series 1.3.14 (Draft).

<i>WWTP Revenue from Leachate Flows in the Project Area</i>				
WWTP Name	Number of Landfills Sending Leachate	Gallons Received Per Year, Average (Includes 2019-2023 unless noted)	Payment Received Per Gallon, Average (Includes 2019-2023 unless noted)	Total Payment Received Per Year, Average (Includes 2019-2023 unless noted)
City of Amsterdam	4	4,041,000 (2020-2023)	\$ 0.04 (2020-2023)	\$ 162,000 (2020-2023)
Mohawk View (Town of Colonie)	1	10,320,000	\$ 0.01	\$ 103,000
<i>Discharging to Hudson River (from north to south)</i>				
Albany County North	4	52,522,000	\$ 0.02	\$ 1,050,000
Rensselaer County Sewer District #1	1	No data	No data	No data
Village of Catskill	1	434,000	\$ 0.05	\$ 22,000
City of Hudson	1	131,000 (2019-2022)	\$ 0.05 (2019-2022)	\$ 7,000 (2019-2022)
Town of Saugerties	1	No data	No data	No data
City of Kingston	4	4,139,000	\$ 0.05	\$ 207,000
City of Poughkeepsie	3	211,000 (2020-2023)	No data	No data
City of Beacon	5	1,132,000 (2019-2022)	No data	No data

Closing the Leachate Loophole

A Precautionary Approach

When it comes to regulating chemicals, the current system is set up to fail. A precautionary approach to regulation would protect people – and the ecosystems they depend upon – better than the ineffective system currently in place.

PFAS contamination clean-up is urgent, and we need EPA and DEC to do everything in their immediate power to control it. But PFAS is our “canary in a coalmine” and is only part of the picture. A multitude of chemicals have been invented and incorporated into a vast array of consumer products by companies that have marketed them as convenient and safe. The Toxic Substances Control Act (TSCA), passed in 1976 and amended in 2016, gave EPA the authority to regulate chemicals that pose “unreasonable risks” to people or the environment.⁷² By and large, the TSCA has failed to protect people from harmful chemicals.⁷³ One sign of this is that only 6% of over 42,200 chemicals actively in use have been restricted by EPA under the TSCA.⁷⁴

A major reason for TSCA’s failure is that it places a huge burden of proof on EPA. The law does not require chemical manufacturers to study health impacts or conduct risk assessments prior to seeking approval of new chemicals.⁷⁵ It does not allow EPA to “establish a broadly applicable ‘minimum information requirement’” and use it to streamline its determinations of which chemicals require detailed risk assessment.⁷⁶

Instead, EPA must rely on published literature, scientific databases, and the minimal information that companies submit about new chemicals to determine if risk assessment is warranted.⁷⁷ If EPA needs any additional information to determine

⁷² Yen, JH, Bowers, KR. 2021 Jul 20. Title I of the Toxic Substances Control Act (TSCA): A Summary of the Statute. Washington, DC: Congressional Research Service. R45149. <https://crsreports.congress.gov/product/pdf/R/R45149>.

⁷³ Knoblauch, JA. 2024 Mar 20. The Toxic Chemicals Hiding in Our Homes, and How We Can Reduce Them. California: Earthjustice. <https://earthjustice.org/article/toxic-chemicals-hiding-in-our-homes-and-how-we-can-reduce-them>.

⁷⁴ Knoblauch, JA. The Toxic Chemicals Hiding in Our Homes.

⁷⁵ Yen and Bowers, Title I of the Toxic Substances Control Act (TSCA).

⁷⁶ Yen and Bowers, Title I of the Toxic Substances Control Act (TSCA).

⁷⁷ Yen and Bowers, Title I of the Toxic Substances Control Act (TSCA).

whether a risk assessment should be done, to complete such an assessment, or to determine appropriate use restrictions, it must justify the specific information needed for that chemical and purpose, and then issue a rulemaking, administrative order, or consent agreement requiring the manufacturer to develop the information.⁷⁸

According to a 2009 Government Accountability Office report, obtaining “adequate information on chemical toxicity and exposure” has been a major challenge to EPA in implementing the TSCA.⁷⁹ Part of this challenge is that scientific research on industrial chemicals in the environment is limited. According to a 2023 review, “the majority of chemicals in global industrial chemical inventories has not been analyzed in environmental media.”⁸⁰ On top of this, industries have manipulated scientific uncertainty to undermine evidence of harm, and EPA has a long history of bowing to industry pressure in its implementation of the TSCA.^{81,82}

A better way of regulating manmade chemicals is to employ the Precautionary Principle. This would be a proactive approach, similar to the Food and Drug Administration's (FDA) system for approving pharmaceuticals. Instead of placing the burden of proof on the public, and requiring indisputable proof of causation, the Precautionary Principle states that action should be taken to avoid harms to human health and the environment even amidst scientific uncertainty when the threats are large.⁸³

Examples of Communities Saying “No” to Landfill Leachate.

In New Hampshire, Federal and state officials renewed a controversial permit in 2019 that would allow the Turnkey Landfill to send its leachate to the Lowell WWTP, which empties into the Merrimack River, a drinking water supply for 500,000

⁷⁸ Yen and Bowers, Title I of the Toxic Substances Control Act (TSCA).

⁷⁹ US Government Accountability Office. 2013 Jun 13. Chemical Regulation: Observations on the Toxic Substances Control Act and EPA Implementation. Washington, DC: US Government Accountability Office. GAO-13-696T. <https://www.gao.gov/products/gao-13-696t>.

⁸⁰ Muir, DCG, Getzinger, GJ, McBride, M, Ferguson, PL. 2024. How Many Chemicals in Commerce Have Been Analyzed in Environmental Media? A 50 Year Bibliometric Analysis. *Environmental Science & Technology* 57:9119-9129.

<https://doi.org/10.1021/acs.est.2c09353?urlappend=%3Fref%3DPDF&jav=VoR&rel=cite-as>.

⁸¹ Woodruff, Health Effects of Fossil Fuel-Derived Endocrine Disruptors.

⁸² Lerner S. EPA Exposed. 2021 Jul 2 - 2022 Aug 22. *The Intercept*.

<https://theintercept.com/series/epa-exposed>.

⁸³ Bourguignon, D. 2015 Dec. *The Precautionary Principle: Definitions, Applications and Governance*. Brussels: European Parliamentary Research Service. PE 573.876.

[https://www.europarl.europa.eu/RegData/etudes/IDAN/2015/573876/EPRS_IDA\(2015\)573876_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/IDAN/2015/573876/EPRS_IDA(2015)573876_EN.pdf).

people.⁸⁴ The Boston Globe reported on the issue and within two days, Lowell suspended its contract with Turnkey. When asked about filtering the leachate onsite before it left the landfill, Turnkey said that it had the capacity to do so, but that it wasn't required.^{85,86}

In 2024, the Seneca Falls, NY town board decided not to renew its leachate treatment contract with the Seneca Meadows Landfill. Seneca Falls' WWTP discharges into canals that feed Cayuga Lake, the community's drinking water source. The existing agreement required Seneca Meadows to treat its leachate with reverse osmosis before delivering it to the WWTP. Even with this pretreatment, additional treatment steps were required at the WWTP, and the town expressed concern about the costs.⁸⁷

Although Seneca Meadows' state operating permit is set to expire in 2025, when it will reach its current capacity, the company has requested to expand the landfill by 47 acres and operate until 2040.⁸⁸ The landfill is now sending its leachate to the City of Amsterdam WWTP, located 250 miles away. Including Seneca Meadows, the Amsterdam WWTP accepted 4.4 million gallons of leachate from five landfills in 2023.

Another landfill that trucks leachate a great distance to Amsterdam is the Bourne Landfill, also about 250 miles away, in eastern Massachusetts. The Bourne landfill primarily accepts incinerator ash, as well C&D debris and municipal waste.⁸⁹ An expansion of its facility – the largest landfill expansion in Massachusetts history –

⁸⁴ Abel, D. 2019 Nov 5. Toxic chemicals can be dumped into Merrimack River, federal and state officials say. Boston Globe.

<https://www.bostonglobe.com/metro/2019/11/05/toxic-chemicals-can-dumped-into-merrimack-river-federal-and-state-officials-say/N0u3jOxo1CnpcQiACEW88N/story.html>

⁸⁵ Abel, Toxic chemicals can be dumped into Merrimack River.

⁸⁶ Lovato, M, Abel, D. 2019 Nov 7. Lowell water treatment plant to stop accepting toxic water from N.H. landfill. Boston Globe.

<https://www.bostonglobe.com/metro/2019/11/07/lowell-water-treatment-plant-stop-accepting-toxic-water-from-landfill/tmXpsDYICl6Bow0rovemkJ/story.html>

⁸⁷ Shaw, DL. 2024 Aug 30. Seneca Falls Town Board rejects SMI leachate contract extension, tables permit. Finger Lakes Times.

https://www.fltimes.com/news/seneca-falls-town-board-rejects-smi-leachate-contract-extension-tables-permit/article_2e19a8d6-0d59-11ef-b934-fbb490b8f260.html

⁸⁸ Zambito, TC. 2024 Mar 26. Environmental group, businesses sue to block expansion of Seneca Meadows landfill. Democrat and Chronicle.

<https://eu.democratandchronicle.com/story/news/2024/03/26/seneca-meadows-landfill-ny-faces-lawsuit-in-battle-over-expansion/73094409007>

⁸⁹ Gately, P. 2024 Jan 18. Cash generator: Bourne is gearing up for the expansion of landfill off Route 28. Cape Cod Times.

<https://eu.capecodtimes.com/story/news/environment/2024/01/18/bourne-landfill-expansion-was-te-solid-mintz-construction-debris/72156191007>

was recently approved.⁹⁰ As part of proceedings to evaluate its expansion application, Bourne Landfill touted its progress at developing a system to remove PFAS onsite.⁹¹

Turnkey Landfill, Seneca Meadows, and Bourne Landfill are all capable of treating leachate to remove PFAS onsite, but it is cheaper for landfills to dispose of leachate at WWTPs, rather than pay the cost of onsite treatment. Landfills are willing to transport leachate hundreds of miles away to avoid onsite treatment, and municipal WWTPs are willing recipients because leachate is a revenue source. The Leachate Loophole allows cash-strapped municipal WWTPs to sacrifice drinking water quality, and this will continue as long as DEC and EPA allow it. These agencies could step in and put a stop to leachate pollution. Members of the public should demand it.

It defies logic to carefully capture, contain and monitor the liquid pollution from landfills – and then pump it through sewage plants, dispersing it into rivers. It's backward thinking, at best. Given the financial implications, nothing is likely to change without public attention.

Instead of asking, "How much waste can we put in the river before it gets too polluted?" we need to start asking, "How can we develop our communities without putting any pollution in the river?"

Our leachate disposal system has never served us well, but emerging contaminants like PFAS are beginning to show just how bad the picture is. **When we throw our trash "away," it doesn't disappear. What we place on the land comes back to our water.** DEC recognizes that leachate should not be released from landfills back into the environment. The agency has noted that "landfills are designed to contain the leachate so that it may be properly managed. This allows contaminants to be removed from the concentration point that the landfill represents."⁹²

DEC staff also know that despite current efforts to regulate certain emerging contaminants, including PFAS, "these contaminants will continue to be present in

⁹⁰ Gately, Cash generator: Bourne is gearing up for expansion.

⁹¹ Town of Bourne Department of Integrated Solid Waste Management. 2021 Aug 13. Town of Bourne Integrated Solid Waste Management Facility, Commission DRI File No. 20064 (EEA No. 11333), Phases 7, 8 and 9 Landfill Expansion and Handling Facility Relocation [memorandum]. https://www.townofbourne.com/sites/g/files/vyhlf12841/f/uploads/final_submittal_ccc_8-13-21.pdf?__cf_chl_tk=d503.8AFa745_eDcRx7UtvG5HPdgpK4sayxyqQFKUK4-1731350477-1.0.1.1-vTkdo3VtWMM89fNyBjhr3mochXPCIMmxllw8zRIilpQ.

⁹² DEC Division of Materials Management. 2023 Jun 7. MSW Landfill Leachate [PowerPoint slides]. <https://dec.ny.gov/regulatory/regulations/proposed-emergency-recently-adopted-regulations/materials-management-revisions/solid-waste-management>.

solid waste and therefore at landfills [for many years to come].”⁹³ What remains is for DEC to require onsite treatment of leachate at landfills. It’s true that landfills don’t create PFAS, or any emerging contaminants, but they are the logical place to stem the flow of these chemicals into the environment.

How To Take Action

State and federal agencies are poised to take multiple actions to reduce landfill leachate pollution - if the public shows support.

Tell NYS that they must adopt new regulations for onsite treatment and disposal of leachate at landfills.

- In 2023, NYS DEC announced that it was considering new regulations to require leachate treatment and disposal onsite at landfills. Now that we understand why this practice is harmful, there is no time to sit back and wait for DEC's announcement. We must demand that they open their proposed rulemaking to adopt new regulations as soon as possible, and provide a 90-day public comment period.
- Treating a concentrated stream of leachate is far better than dispersing it back into the environment and treating it later at the point of consumption. It is more efficient to engineer a treatment system for a relatively controlled and well-known waste stream at a landfill, compared to designing a treatment system at a WWTP, where many types of industrial and domestic wastewater are mixed together in continuously fluctuating ratios, or at a drinking water treatment plant, after the waste has been dumped and dispersed.

⁹³ DEC, MSW Landfill Leachate [PowerPoint slides].

To protect our rivers and our health, NYS must align drinking water standards, landfill leachate monitoring, and WWTP permit limits

- Incorporating limits for emerging pollutants, such as PFAS, into SPDES permits will motivate WWTPs to say no to accepting landfill leachate.

NYS must stop allowing landfill expansions and extending closure dates

- Closed and capped landfills create far less leachate than open ones, because they are covered to prevent infiltration of rainwater.
- Reducing landfill capacity will create pressure to reduce solid waste. There are multiple, common-sense solutions to solid waste reduction. We just need the incentive to implement them.

New regulations must be developed to make it harder for companies to bring dangerous chemicals to market

- The Precautionary Principle is a different way of doing things. It places the burden of proof at the beginning of the chemical life cycle, and requires industries to prove that new chemicals will not cause harm. This type of approach prioritizes healthy communities over corporate profits.
- The Precautionary Principle is supported by a field of chemistry called “Green Chemistry,” which focuses on designing chemicals without creating hazardous waste.

EPA must fast-track its review of landfill leachate pretreatment standards

- In 2023 EPA announced that pretreatment requirements for landfill leachate need to be revised, but a timeline for these revisions has not been set.

standards for PFAS treatment in landfill leachate prior to disposal at WWTPs.

- The agency should consider a broader range of chemicals, and should complete its review as quickly as possible.

Resources

To see how the Leachate Loophole works, check out our [StoryMap](#)

To explore the facilities involved in the Leachate Loophole in the project area, use our interactive [Web Map](#)

To support our advocacy work, please consider making a [Donation](#). Our project is fiscally sponsored by Good Work Institute, a 501(c)(3) public charity. Contributions of any size for the charitable purposes of our project can be made payable to the Good Work Institute and are tax-deductible to the extent permitted by law.

[Contact us](#) or visit **www.leachateloophole.org**

Acknowledgements

The Hudson and Mohawk Rivers Leachate Collaborative is **Jen Epstein**, GIS Analyst and Lead Writer; **Rebecca Martin**, Project Manager; and **Captain John Lipscomb**, Technical Advisor; **Pace Environmental Litigation Clinic, Inc.**, Legal Research; and **Good Work Institute**, Fiscal Sponsor

This project was made possible by the generous support of Red Elm Tree Foundation, Julianna Margulies and Keith Lieberthal, and Forrest and Trisha Warren.

Thanks to our team: Monica Mercola of PEER.org (Legal Search); Todd Ommen, Kassie Seavy, Justyna Maksimuk, and Hannah Dauray of Pace Environmental Litigation Clinic (Legal Research); and Mark Marshall (Web Design).

Thanks to our thought partners: Leah Rae; Yvonne Taylor and Joseph Campell, Seneca Lake Guardian; Laura Orlando, Just Zero; Mike Ewall, Energy Justice Network; Tracy Frisch, Clean Air Action Network; Susan Kraham, Earthjustice; Margaux Valenti, Buffalo Niagara Waterkeeper; John Garver, PhD, Union College; Dan Shapley, Riverkeeper; Paul Malmrose; Charlie Wessler; Rachel Weisz; Kate Hudson; Mary McNamara; Judith Enck.

A very special thanks to Captain John Lipscomb who has been raising this concern for decades.

Appendices

Appendix A

<i>Drinking Water Intakes and Municipalities Served in the Project Area</i>				
Intake Name	Public Water Supply Name	Municipality Name	Municipality Type	Number of People Served Within the Municipality
<i>Mohawk River</i>				
City of Cohoes	Cohoes City	Cohoes	city	16,883
	Waterford Water Works	Waterford	town	9,800
Latham Water District	Latham Water District	Colonie	town & village	85,590
<i>Great Flats Aquifer</i>				
Town of Glenville	Charlton Water District	Charlton	town	2,000
	Burnt Hills-Ballston Lake Water District	Ballston	town	10,000
	Glenville Water District #11	Glenville	town	15,000

Drinking Water Intakes and Municipalities Served in the Project Area

Intake Name	Public Water Supply Name	Municipality Name	Municipality Type	Number of People Served Within the Municipality
Niskayuna Consolidated Water District	Niskayuna Consolidated Wd #11	Niskayuna	town	22,287
Town of Rotterdam (Main Street)	Rotterdam Water District #3	Rotterdam	town	1,900
Town of Rotterdam (Rice Road)	Rotterdam Water District #5	Rotterdam	town	28,000
City of Schenectady	Schenectady City Water Works	Schenectady	city	61,821
Village of Scotia	Scotia Village Water Works	Scotia	village	12,800
<i>Hudson River</i>				
Village of Green Island	Green Island Village	Green Island	village	2,900
Dutchess County Water and Wastewater Authority (Hyde Park)	Harbour Hills / Zone D	Hyde Park	town	1,544
	Staatsburg Water System	Hyde Park	town	1,164
	Hyde Park Regional	Hyde Park	town	6,928

Drinking Water Intakes and Municipalities Served in the Project Area

Intake Name	Public Water Supply Name	Municipality Name	Municipality Type	Number of People Served Within the Municipality
	Pinebrook Estates	Hyde Park	town	400
Highland Water District	Highland Water District	Lloyd	town	4,000
Port Ewen Water District	Port Ewen Water District	Esopus	town	4,500
City of Poughkeepsie	Poughkeepsie Townwide Water District	Poughkeepsie	town	43,000
	Arbors Condominiums Water District	Hyde Park	town	450
	Poughkeepsie City	Poughkeepsie	city	30,639
	Greenbush Water District	Hyde Park	town	805
	Hopewell Glen	East Fishkill	town	300
Village of Rhinebeck	Rhinebeck Village Water	Rhinebeck	village	6,000

Appendix B

Full List of Landfill Leachate Flows in the Project Area					
Landfill Name	Landfill Status	WWTP Name	Gallons Per Year, Average (Includes 2019-2023 unless noted)	Payment Per Gallon, Average (Includes 2019-2023 unless noted)	Payment Per Year, Average (Includes 2019-2023 unless noted)
Mohawk River					
Fulton County	Active	Gloversville-Johnstown	14,667,000	\$ 0.01	\$ 147,000
Town of Colonie	Active	Mohawk View (Town of Colonie)	10,320,000	\$ 0.01	\$ 103,000
Central Service (Montgomery County)	Inactive	Village of Canajoharie	2,944,000	\$ 0.03	\$ 88,000
Bourne	Active	City of Amsterdam	1,667,000	\$ 0.04	\$ 67,000
Town of Rotterdam	Inactive	Town of Rotterdam Sewer District #2	1,009,000	No data	No data
Eastern Service (Montgomery County)	Inactive	City of Amsterdam	983,000	\$ 0.04	\$ 39,000

Full List of Landfill Leachate Flows in the Project Area

Landfill Name	Landfill Status	WWTP Name	Gallons Per Year, Average (Includes 2019-2023 unless noted)	Payment Per Gallon, Average (Includes 2019-2023 unless noted)	Payment Per Year, Average (Includes 2019-2023 unless noted)
Modern Waste (Browning Ferris)	Inactive	City of Amsterdam	978,000	\$ 0.04	\$ 39,000
Seneca Meadows	Active	City of Amsterdam	414,000	\$ 0.04	\$ 17,000
Town of Glenville	Inactive	City of Schenectady	16,000	No data	No data
<i>Hudson River</i>					
City of Albany	Active	Albany County North	24,086,000	No data	\$ 114,000
Town of Colonie	Active	Albany County North	11,362,000	\$ 0.01	\$ 362,000
Green Ridge (Finch)	Active	Albany County North	9,049,000	\$ 0.04	\$ 481,000
Dunn C&D	Active	Albany County North	8,024,000	\$ 0.06	\$ 106,000
Town of New Paltz	Inactive	City of Kingston	1,759,000	\$ 0.06	\$ 82,000
Town of Ulster	Inactive	City of Kingston	1,636,000	\$ 0.05	No data

Full List of Landfill Leachate Flows in the Project Area

Landfill Name	Landfill Status	WWTP Name	Gallons Per Year, Average (Includes 2019-2023 unless noted)	Payment Per Gallon, Average (Includes 2019-2023 unless noted)	Payment Per Year, Average (Includes 2019-2023 unless noted)
Al Turi	Inactive	City of Beacon	511,000	No data	\$ 22,000
Town of Catskill	Inactive	Village of Catskill	434,000	\$ 0.05	\$ 25,000
Jockey Hill (Darwack)	Inactive	City of Kingston	412,000	\$ 0.06	No data
Orange County	Inactive	City of Beacon	359,000	No data	\$ 17,000
Town of Hurley	Inactive	City of Kingston	332,000	\$ 0.05	No data
Town of New Paltz	Inactive	City of Beacon	217,000	No data	\$ 7,000
Town of Claverack	Inactive	City of Hudson	131,000	\$ 0.05	No data
Royal Carting Service	Inactive	City of Poughkeepsie	104,000	No data	No data
Town of New Paltz	Inactive	City of Poughkeepsie	54,000	No data	No data
Town of Ulster	Inactive	City of Poughkeepsie	54,000	No data	No data
Sullivan County Phase I	Inactive	City of Beacon	37,000	No data	No data

Full List of Landfill Leachate Flows in the Project Area

Landfill Name	Landfill Status	WWTP Name	Gallons Per Year, Average (Includes 2019-2023 unless noted)	Payment Per Gallon, Average (Includes 2019-2023 unless noted)	Payment Per Year, Average (Includes 2019-2023 unless noted)
Royal Carting Service	Inactive	City of Beacon	8,000	No data	No data
Town of Saugerties	Inactive	Glasco (Town of Saugerties)	No data	No data	No data
City of Troy	Inactive	Rensselaer County Sewer District 1	No data	No data	\$ 147,000

Appendix C

Methods

The table below lists the data sources used in the project. Information about leachate flows into WWTPs was obtained through Freedom of Information Law (FOIL) requests to municipalities operating selected WWTPs in the project area. Leachate flows for the years 2019–2023 were summarized for this report. However, in some cases, municipalities did not provide data for all years. Information about public water supplies that use Mohawk and Hudson River surface waters and groundwaters under their direct influence was obtained from Annual Drinking Water Quality Reports with input from Dan Shapley, Senior Director of the Riverkeeper Advocacy, Policy and Planning Program, and John Garver, Professor of Geosciences at Union College.

Data Sources			
Item	Source	Release Date	Download Date
Annual Drinking Water Quality Reports	NYS Department of Health https://water.ny.gov/doh2/applinks/waterqual/#/waterSystems	2023 or most recent available	November 5–6, 2024
NYS Public Water Supply Data	EPA, Safe Drinking Water Information System https://sdwis.epa.gov/ords/sfdw_pub/r/sfdw/sdwis_fed_reports_public/103	Quarter 3, 2024	October 28, 2024
EPA EJSCREEN Data	Geodatabase (State Level), Tract Level	August 6, 2024	October 16, 2024

Data Sources			
Item	Source	Release Date	Download Date
	https://www.epa.gov/ejscreen/download-ejscreen-data		
NYS Active Landfills, edited	NYS GIS Clearinghouse https://data.gis.ny.gov/data-sets/nysdec::inactive-solid-waste-landfills/about	November 1, 2024	November 6, 2024
NYS Inactive Landfills	NYS GIS Clearinghouse https://data.gis.ny.gov/data-sets/nysdec::inactive-solid-waste-landfills/about	March 17, 2023	May 6, 2024
NYS Civil Boundaries (Cities, Towns, Villages)	NYS GIS Clearinghouse https://data.gis.ny.gov/maps/074d3456e5664f5e85d0fb251d05cc5b/about	February 9, 2024	April 29, 2024
NYS Counties (Shoreline)	NYS GIS Clearinghouse https://data.gis.ny.gov/data-sets/sharegisny::nys-civil-boundaries/about?layer=3	February 9, 2024	October 28, 2024
NYS Counties	NYS GIS Clearinghouse	February 9, 2024	May 6, 2024

Data Sources

Item	Source	Release Date	Download Date
	https://data.gis.ny.gov/data-sets/sharegisny::nys-civil-boundaries/about?layer=2		
NYS Water Withdrawal Annual Reports, edited	NYS GIS Clearinghouse https://data.gis.ny.gov/data-sets/nysdec::water-withdrawal-annual-reports/about	January 25, 2024	October 29, 2024