

PFAS AND THEIR IMPLICATIONS FOR LANDFILLS

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March 2019

Introduction

In recent years, there has been a new focus on groundwater contamination and the threat unregulated contaminants pose to the safety of communities' drinking water. An emerging family of contaminants known as Per- and Polyfluoroalkyl substances (collectively "PFAS") has been found in the public water supply throughout the State of New York. These contaminants, which include Perfluorooctanoic acid ("PFOA") and Perfluorooctanesulfonic acid ("PFOS"), are persistent and bioaccumulate in humans, and have been linked to several types of cancer and other debilitating diseases. While PFOA and long-chain PFAS chemicals are no longer found in new U.S. products, the chemical is still found in landfills around the country, creating an ongoing threat of contamination into the environment through landfill leakage. Landfilling is one of the most common disposal methods for a variety of consumer products, including those containing PFAS chemicals, and represents a logical end-of-life reservoir for PFAS. PFAS can then be released from such waste through biological and abiotic leaching,¹ causing a serious compliance issue for landfills. Their toxicity and persistence in the environment creates a health and an environmental hazard, endangering public health at very low levels of exposure resulting in developmental effects to fetuses, kidney damage and cancer.² It is therefore unsurprising that public interest in PFAS continues to rise, with plaintiffs beginning to target landfill owners and companies responsible for manufacturing, using, and disposing of PFAS based on releases from landfill leachate.

In New York, the issue first came to widespread public attention in 2016 when high levels of PFOA were found in the drinking water supply for the Village of Hoosick Falls. Saint-Gobain Performance Plastics Corp owned and operated a facility where PFOA was used in the manufacturing process for decades. As a result of the contamination, the State of New York and the United States Environmental Protection Agency ("EPA") declared the facility a Federal and State Superfund cleanup site. Whether the concern surrounding the dangers of PFAS in New York

¹ Civil Engineering, University of British Columbia, 6250 Applied Science Lane, Vancouver, BC, V6T 1 Z4, Canada; Chemical and Biological Engineering, University of British Columbia, 2360 East Mall, Vancouver, BC, V6T 123, Canada.

² *Id.* Landfill leachate is characterized by high organic and inorganic pollutant concentrations and is extremely toxic to the environment. *Id.*

came to light from Hoosick Falls or from the New York State Department of Environmental Conservation (“NYSDEC”) testing in 2016 for PFAS at landfills, the reality is frightening and readily apparent: most, if not all landfills, are likely contaminated with PFAS waste. Several states, including New York, along with municipal water providers, and plaintiffs’ attorneys have now begun to take necessary steps to address the issue facing one of New York’s most pristine and sensitive resources.

Background on PFAS

PFAS have been unregulated and untested for many years. It was not until recently that water districts and other entities began testing for these contaminants. A recent US Landfill Study whereby 95 samples were taken from 18 landfills, found PFAS present in leachate in over 50% of the landfills tested.³ If a landfill is not properly managed, waste containing PFAS will inevitably migrate offsite, with potential to get into the groundwater and become a major concern for surrounding communities and water districts. In many jurisdictions, people are not drinking water from private wells but from municipally owned and operated public water supply wells. PFAS’ ability to move through water extremely fast creates a dangerous nexus from landfill leachate to a drinking water system hydraulically downgradient from a landfill. Once in the surface or groundwater supplies, the contaminants are highly soluble, and will remain for a significant period unless remediated. Thus, the burden is on municipalities, as well as landfill owners and operators, to make sure engineering controls are up to date. Just as New York has listed sites as a Superfund based on PFAS contamination as seen in Hoosick Falls, New York will likely continue that trend to remediate landfill leachate.

Regulatory Limits Being Considered or Implemented

Federal Guidelines

In early 2016, New York insisted that the EPA adopt federal guidelines on PFAS contamination and on May 19, 2016, the EPA issued a Lifetime Health Advisory (“LHA”) of 70 parts per trillion (ppt) for long-term exposure to PFOA and PFOS in drinking water.⁴ The EPA’s

³ *National Estimate of Per- and Polyfluoroalkyl Substance (PFAS) Release to U.S. Municipal Landfill Leachate* ES&T 2017 J. R. Lang, B. McKay Allred, J.A. Field, J.W. Levis, & Morton A. Barlaz.

⁴ NYDEC (New York State Department of Environmental Conservation). Per- and Polyfluoroalkyl Substances (PFAS). <https://www.dec.ny.gov/chemical/108831.html>.

release of these guidelines is aligned with an exponential increase in PFAS litigation, which includes landfill owners and operators, and potential water districts proximately located downgradient to PFAS contaminated landfills. The LHA for PFOA and PFOS however is advisory in nature; it is not a legally enforceable federal standard. The EPA is also looking at regulating PFAS through federal statutes such as the Comprehensive Environmental Response, Compensation, and Liability Act (“CERCLA”), to require companies responsible for contamination to pay the state and municipalities for its cleanup, as well as the Safe Drinking Water Act (“SDWA”), which provides maximum limits on PFAS chemicals for states and local water utilities.

Most recently, the EPA announced on February 14th, 2019 their first-ever comprehensive nationwide PFAS action plan which will establish a maximum contaminant level (“MCL”) for PFAS under the SDWA which will be fully enforceable, applying to all public water systems in the United States. This will give water districts a concrete law to sue under in their fight against manufacturers and companies responsible for PFA disposal in landfill leachate. Additionally, the EPA will likely begin the necessary steps to propose designating PFOA and PFOS as hazardous substances through CERCLA as PFAS have been reported to EPA at a minimum of 14 different Superfund sites during CERCLA five-year reviews.⁵ A question remains; how do you hold companies accountable after they have already remediated to DEC’s satisfaction? CERCLA, among other similar statutes is a creature of strict liability. Once PFAS is listed as a hazardous substance, a multitude of liabilities and responsibilities will result; there is no less of an imposition merely from the fact that these substances were declared hazardous waste now, rather than in the 1980s. While the EPA has only issued an advisory standard for PFAS thus far, it did bring a surge in state regulation of PFAS in New York.

New York Regulations

New York, which is one of the states that has received considerable press regarding PFOA contamination due to Hoosick Falls, has recently taken regulatory steps to combat risks to drinking water. In January of 2016, New York became the first state in the nation to regulate PFOA as a hazardous substance followed by the regulation of PFOS in April 2016. The regulation requires

⁵ U.S. EPA, Emerging Contaminants—Perfluorooctane Sulfonate (PFOS) and Perfluorooctanoic Acid (PFOA) 4 (Mar. 2014).

the proper storage of these substances and limited releases to the environment, which enabled the state to use its legal authority and resources of the State Superfund program to advance investigations and cleanups of impacted sites.⁶

New York is also in the process of developing an MCL for PFAS, which would apply to groundwater. Specifically, on December 18, 2018, the New York Drinking Water Quality Council (“DWQC”) recommended adoption of the nation’s most stringent drinking water standards related to “emerging contaminants,” which includes PFAS. The DWQC proposed that the New York State Department of Health (“DOH”) adopt an MCL of 10 ppt for PFOA and PFOS. The proposed limits are significant reductions from the EPA guidance limit of 70 ppt for PFOA and PFOS. Further assessment and evaluation of PFAS as DWQC pursue regulations for these chemicals is critical. If New York wants to ensure every community is safe from these harmful chemicals – meaning every water supply is tested and proper protocols are put in place – a health standard must be established. Testing for these chemicals will help determine whether public or private wells must put in place proper treatment systems to prevent PFAS contamination to their residents. If New York develops the MCL’s it will hopefully prompt similar action in other states, providing the tougher regulation that is necessary for the safety of the communities in the vicinity of landfills.

In the interim, the NYSDEC has recently initiated their own sampling at operating landfills to determine the presence of PFAS. Beginning in 2018, NYSDEC began requesting owners of current and past remediation sites across the State to review and/or test the groundwater to analyze, sample and report on the presence of PFAS within a specified timeframe. If elevated concentrations of these contaminants are found, steps will need to be taken to mitigate any existing or potential exposures. For example, if a water provider is located downgradient from a landfill where PFAS was detected, the water provider will be required to treat the contamination through granular activated carbon (GAC) treatment. To avoid forcing resident ratepayers to cover the additional treatment costs through higher bills, water providers will be forced to bring lawsuits against the polluting landfill owners and operators, companies that sent PFAS containing waste to these landfills, and the manufacturers responsible for creating the PFAS chemicals that ended up in landfill leachate.

⁶ NYDEC (New York State Department of Environmental Conservation). Per- and Polyfluoroalkyl Substances (PFAS). <https://www.dec.ny.gov/chemical/108831.html>.

If New York adopts the proposed MCL, a plethora of possible consequences can arise. New sites added to remedial programs in New York, such as under the Brownfield Cleanup Program (“BCP”) and the State Superfund Program (“SSF”), may require PFAS sampling to be completed as part of the groundwater investigation process. The NYSDEC could also seek to reopen closed sites or expand the scope of existing investigations and remediations. The NYSDEC has already conducted preliminary investigations into possible contaminants at 26 inactive landfills in Columbia County and 27 inactive landfills in Greene County in the state of New York.⁷ Given that landfills have the very real potential for emerging contaminant contamination such as PFAS, they will likely continue to be identified by the NYSDEC for sampling on those sites.

Landfill leachate is a different animal than treating waste water. Leachate can have PFAS along with thousands of other contaminants, which makes analyzing and addressing treatment options extremely difficult that requires sampling methodology and analytical testing protocols. It is unclear how the NYSDEC fully intends to regulate and address PFAS related to groundwater moving forward since the NYSDEC’s policy is limited, guidance is still being developed, and there is an absence of an enforceable standard at this time. Yet what is clear is that data collected from the new sampling and reporting requirements by the NYSDEC have the potential to significantly impact a party’s remediation obligations and alter ongoing and past remediation efforts at sites across the state if PFAS are found above reporting limits.

With millions of New Yorkers’ drinking water supplies at risk, the DWQC must take the vital step of setting a stringent safety standard for the public health of communities across the state.

Conclusion

As the NYSDEC gains a better understanding of the risks associated with PFAS, new requirements may be on the horizon. While additional action at the federal level by the EPA is forthcoming, New York has begun the imperative steps to determine reporting requirements and groundwater standards. Based on this continued focus and public concern, it appears that PFAS response actions and litigation may continue to increase, with state agencies taking the lead on setting policy and regulations to address PFAS contamination.

⁷ Moody, Richard, *DEC tests local landfills, Superfund sites for chemicals associated with PFOA*, HUDSONVALLEY360, <https://www.hudsonvalley360.com/article/dec-tests-local-landfills-superfund-sites-chemicals-associated-pfoa>. (May 30, 2018) (last accessed on February 14, 2019).