



## JAMESTOWN LANDFILL PFAS FACT SHEET



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On January 19, 2021, the RIDEM issued a letter notifying all Landfill Owners or Responsible Parties of their requirement to sample and analyze groundwater for Per- and Polyfluoroalkyl Substances (PFAS) according to Section 2.1.8.F(1)(h) of the newly promulgated Solid Waste Regulation No 2.

In accordance with RIDEM's January 2021 letter request, GZA (on behalf of the Town) conducted two rounds of groundwater monitoring, once during the approximate seasonal low groundwater time frame and once during the approximate seasonal high groundwater time frame. GZA collected groundwater samples for PFAS analysis from 10 existing perimeter groundwater monitoring locations (GZ-1, GZ-2, GZ-3, GZ-4, GZ-5, GZ-6, GZ-7S, GZ-7D, GZ-8 and GZ-9), at the closed landfill. Groundwater at the landfill property generally flows in a southwesterly direction.

Note that the sole purpose of this investigation was to evaluate baseline PFAS groundwater concentrations, at the landfill. Groundwater at the Site had previously been evaluated for a broad range of other compounds.

### RESULTS

PFAS results were compared to the EPA health advisory of 70 parts per trillion (ppt)<sup>1</sup> for PFOS and PFOA (and the sum of the PFOS and PFOA concentrations). PFOS and/or PFOA concentrations were detected in samples collected from all six downgradient monitoring wells (GZ-2, GZ-3, GZ-7S, GZ-7D, GZ-8 and GZ-9). Only at three of the six downgradient monitoring wells (GZ-2, GZ-7S and GZ-8) were the concentrations of PFOS and/or PFOA in excess of the EPA's 70 ppt Health Advisory. None of the four upgradient/cross gradient wells (GZ-1, GZ-4, GZ-5 and GZ-6) reported concentrations of PFOS/PFOA in excess of the 70 ppt Health Advisory during either the January or June 2022 sampling events.

The results from the January and June 2022 sampling events indicate that PFAS are present in groundwater at those monitoring wells within the landfill. The highest detected concentrations were identified in samples collected from downgradient well GZ-2 during both monitoring rounds.

This data indicates that concentrations of PFAS are generally elevated in downgradient wells across the Site. Two of the four upgradient/cross-gradient wells were impacted by PFOS/PFOA; however, not above 70 ppt. The PFAS concentrations reported did not vary significantly between seasonal high and seasonal low groundwater conditions.

### RECOMMENDED SAMPLING OF RESIDENTIAL WELL

After review of the baseline PFAS testing completed at the landfill, the RIDEM requested that the Town of Jamestown identify, and sample select residential drinking water wells at developed properties adjacent to the landfill. They requested that these wells be analyzed for 25 specific PFAS compounds via EPA Method 537M, which included PFOS/PFOA.

<sup>1</sup> On June 27, 2022, Rhode Island enacted law H7223/S2298 which set an interim drinking water standard for the state of 20 parts per trillion (ppt) for six specific PFAS compounds – PFOA, PFOS, PFHxS, PFNA, PFHpA and PFDA. This law requires RIDEM to establish enforceable groundwater standards for these six compounds on or before December 31, 2023. The new law also requires Rhode Island Department of Health to establish similar standards for PFAS in drinking water on or before June 1, 2024.



In review of the properties adjacent to the landfill, your private drinking water well is recommended for sampling and analysis. Should you consent to provide access, GZA, Jamestown's environmental consultant, will be collecting a representative drinking water sample for PFAS analysis at your residence. The sample will be collected from an outdoor spigot (if present) or from an interior faucet. The preferred sampling point is the first spigot after water enters the residences. Sampling will be scheduled in advance with each property owner and should take approximately 30 minutes per residence. The property owners will be provided with a copy of the laboratory testing results along with an explanation of their meaning with respect to applicable or relevant drinking water quality criteria.

## PFAS HEALTH EFFECTS

The public is primarily exposed to PFAS compounds via the ingestion pathway from drinking contaminated water, eating contaminated food, or via consumer products that have been treated with or contain PFAS compounds. In occupational settings, where workers are manufacturing or using PFAS compounds in production processes, the inhalation pathway is the primary route of exposure. After a PFAS compound enters the body, the body reacts to it in different ways depending on the specific PFAS compound. The physical structure, chain length, and chemical composition of the various PFAS compounds impact how the body reacts to or responds to the PFAS chemical. PFAS compounds that have a longer chain length, and more branching are eliminated from the body at a slower rate; whereas shorter PFAS compounds are excreted from the body more readily.<sup>2</sup>

An on-going study of the United States population, by the U.S. National Health and Nutrition Examination Survey (NHANES), has detected select PFAS compounds (PFOS, PFOA, PFHxS, and PFNA) in the blood of more than 98% of Americans.<sup>3</sup> Possible relationships exist between exposure to PFAS compounds and health effects; however, direct causal links between human exposure and health effects have not been confirmed. According to the Agency for Toxic Substances and Disease Registry (ATSDR), some research studies have identified that exposure to high levels of certain PFAS compounds in humans may lead to:

- Increased cholesterol levels;
- Changes in liver enzymes;
- Small decreases in infant birth weights;
- Decreased vaccine response in children;
- Increased risk of high blood pressure (preeclampsia) in pregnant women; and
- Increased risk of kidney or testicular cancer.<sup>4</sup>

The data set on the possible health effects associated with PFAS exposure is continually growing and evolving as new research is underway to better understand potential risks associated with exposure to the various PFAS compounds. Currently, there are not federally mandated and enforceable drinking water standards for PFAS levels in drinking water. The lack of federal guidance has led to a range of state-developed drinking water guidelines for multiple PFAS compounds.

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<sup>2</sup> Barlow CA, Kemp MJ, Boyd CA, Parr KAH. PFAS Toxicology – The science behind the variations in drinking water standards. The Journal of the New England Water Works Association. December 2019. Volume 133, No. 6

<sup>3</sup> Calafat 2019. [Polyfluoroalkyl Chemicals in the U.S. Population: Data from the National Health and Nutrition Examination Survey \(NHANES\) 2003–2004 and Comparisons with NHANES 1999–2000 - PMC \(nih.gov\)](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6744441/)

<sup>4</sup> ATSDR. November 1, 2022. Per- and Polyfluoroalkyl Substances (PFAS) and Your Health. Available at: <https://www.atsdr.cdc.gov/pfas/index.html>