

GROUNDWATER CONTAMINATION FROM THE BROOKHAVEN LANDFILL

What is the plume from the Brookhaven landfill and what should Brookhaven do to protect groundwater?

BACKGROUND

The Brookhaven Landfill has been operating for over 50 years and has continuously harmed North Bellport and its surrounding communities during that time. Early portions (or “cells”) of the Landfill did not have adequate liners below the layers of trash, so liquid from the waste in the Landfill seeped into the ground. This liquid is known as leachate. When it seeps into moving groundwater, leachate forms a plume that carries contaminants through the groundwater. The Town has known for decades about the existence of a leachate plume contaminating the groundwater downgradient of the Landfill and installed wells where it periodically monitored the plume.

1,4-DIOXANE & PFAS GROUNDWATER EXCEEDANCE

In May 2023, the Town informed the state Department of Environmental Conservation (DEC) that the level of 1,4-dioxane and two types of polyfluoroalkyl substances (PFAS) in groundwater monitoring wells downgradient of the Landfill exceeded levels permitted by state law. Both chemicals have been connected to health risks. As a result of this contaminant exceedance, DEC required the Town to implement a corrective measures assessment program. Under this program, the Town must investigate the contamination and issue an Emerging Contaminant Plume Investigation Report. Next, the Town must submit a Corrective Measures Report that proposes actions to address the contamination. The Town must hold a public meeting about the Corrective Measures Report, which is expected to occur in December 2025. The Town must submit its final corrective measures assessment report by February 13, 2026 for approval by DEC.

INVESTIGATION REPORT AND OUTSIDE EXPERT ANALYSIS

To ensure accurate reporting and remediation concerning the toxic plume, Brookhaven Landfill Action and Remediation Group (BLARG) retained a technical expert, aquilogic, Inc., to review the Town’s Draft Investigation Report. The expert analysis found several errors in the Town's investigation and conclusions:

- Brookhaven claimed that the 1,4-dioxane and PFAS were not emanating from the Landfill. The analysis by Aquilogic demonstrated that the Landfill is the clear source of the downgradient contaminant plume, even if PFAS was also detected at other points in groundwater that was not downgradient of the Landfill.
- The Town initially recommended that they only conduct minimal groundwater sampling and no remediation measures. By contrast, Aquilogic recommended more comprehensive and extensive testing and research to understand the plume's extent, actions to prevent further contamination, and potential approaches to groundwater and soil restoration.

DEC required Brookhaven to revise its Investigation Report to be more in line with Aquilogic's analysis. In May 2025, the Town submitted the final Plume Characterization Investigation Report, which reversed its stance on the Landfill's connection to the toxic substances found in the groundwater wells and stated that the PFAS and 1,4-dioxane were associated with landfill cells 1, 2, and 3 and that the Landfill is a source of that contamination.

CORRECTIVE MEASURES

The corrective measures process requires facilities to investigate the extent of the pollution and identify actions to correct the harm. Aquilogic and BLARG have recommended specific steps Brookhaven should include as corrective measures:

- Additional research to map the extent of the leachate plume containing 1,4-dioxane and PFAS. The plume may have traveled further downgradient than existing monitoring wells, requiring more testing to determine the outer reaches of the plume;
- Studies on groundwater contamination prevention, approaches to avoid contaminated groundwater discharge into surface water and possible approaches to groundwater remediation and restoration;
- Routine emerging contaminant testing on an expanded number of wells that are off-site and down-gradient to the Landfill;
- The inclusion of landfill closure as a possible corrective measure; and
- Improved public outreach that fully informs Brookhaven residents about the leachate plume.