

Bedrock Investigation Supports PFAS and 1,4-Dioxane Plume Delineation in Massachusetts

PROJECT: Bedrock Drilling

LOCATION: Massachusetts

SERVICE: Investigative Drilling

DURATION: 6 Weeks

CHALLENGE

A historic industrial facility in Massachusetts required additional investigation after PFAS became a regulated contaminant, prompting renewed evaluation of a site that had previously received a No Further Action determination. The project team was tasked with investigating the extent of a groundwater plume containing PFAS and 1,4-dioxane and collecting data to support plume delineation efforts.

The investigation presented a unique challenge. Work was performed in a residential area where municipal water supplied through local hydrants contained PFAS. Because hydrant water was needed to support drilling operations, using untreated water created the risk of introducing PFAS into groundwater samples and compromising analytical results. Any cross-contamination could have resulted in inaccurate conclusions regarding site conditions and plume extent.

SOLUTION

Cascade provided bedrock drilling services to support the investigation and implemented a tailored water treatment approach to address the cross-contamination risk. Rather than transporting certified PFAS-free water from several states away, the team designed and deployed a granular activated carbon (GAC) treatment system to remove PFAS from municipal hydrant water before it was used during drilling activities.

The treatment system allowed drilling operations to proceed while helping maintain sample integrity throughout the investigation. Additional precautions included transporting treated water in PFAS-free vessels and carefully managing field operations to avoid introducing PFAS into groundwater samples. The team also addressed operational challenges associated with maintaining GAC treatment equipment in winter conditions and preventing treated water from freezing during use.

THE RESULTS

The approach enabled the collection of groundwater samples that were representative of actual subsurface conditions and not influenced by PFAS-containing drilling water. By proactively addressing a significant contamination risk before drilling began, the project team maintained confidence in the resulting groundwater data and supported ongoing delineation of the PFAS and 1,4-dioxane plume.