

# Per- & Polyfluoroalkyl Substances Assessment at Biosolid Land Application Sites, St. Johnsbury

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ENVIRONMENTAL  
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## Services / Expertise

DEC Program Oversight  
PFAS Monitoring  
Site Specific Health and Safety Plan (HASP)  
Work Plan and Cost Estimate  
Sampling Work Plan

## Markets

Municipal Government

## Project Location

North Danville, Vermont  
Lyndonville, Vermont  
Barnet, Vermont

## Date Completed

2020 to present

## Project Owner

Town of St. Johnsbury

## Project ID#

19-160

## Project Manager

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## Project Team

Daniel Voisin  
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Sandra Walser  
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## Subcontractors/Subconsultants

Platform Environmental Drilling and  
Remediation Services  
Alpha Analytical Labs



Site map of the Barnet, Vermont application site. A monitoring well and a discrete soil boring are both labeled.

**THE** Vermont Department of Environmental Conservation's Residual Management Program recognized PFAS as a contaminant of concern in biosolids produced from municipal wastewater treatment facilities in 2018. PFAS chemicals are currently not removed in the treatment process and pass through the wastewater treatment facility (WWTF) and are either discharged to Vermont lakes and rivers or accumulate in sludge or biosolids. The Town of St. Johnsbury has several permitted land application sites to accept biosolids from their WWTF

In 2020, Stone performed PFAS assessments at three land application sites including sites in North Danville, Lyndonville, and Barnet. Stone prepared a work plan and standard operating procedures for VT DEC approval and implemented a soil assessment following University of Vermont Extension soil sampling guidance for agricultural testing, and groundwater assessment using existing edge of field compliance wells. Following the initial PFAS assessment, Stone further investigated two biosolid land application sites, including the North Danville and Lyndonville sites, due to PFAS in groundwater above the Vermont Groundwater Enforcement Standard (VGES). Stone performed a sensitive receptor survey, including nearby residential water supply wells within 1/4 mile of the North Danville and Lyndonville land application sites. Stone identified the potential for PFAS to impact private water supplies surrounding the Lyndonville site and assessed several drinking water supply wells but did not detect levels above the laboratory reporting limits.

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In 2021, VT DEC requested an additional assessment of the North Danville land application site triggered by requirements of the Groundwater Protection Rule and Strategy as adopted July 6, 2019. Per §12-603 Establishment of Compliance Points, Stone evaluated the site-wide hydrogeology of the unconsolidated aquifer using existing monitoring wells and a topographic survey. After using the data to site three compliance points, Stone oversaw the installation of the compliance point wells, and sampled the groundwater for PFAS analysis. Stone also identified three residential water supply wells within 1/2 mile of the land application site that may be impacted by PFAS contamination. Stone sampled the drinking water supply wells in April 2022.

Based on the data collected, recommendations for corrective actions for both Lyndonville and North Danville land application sites may include reclassifying groundwater to class IV at the point of compliance, institutional controls to restrict the use of contaminated groundwater, and/or a remediation plan in accordance with §12-607 Corrective Actions. A remediation plan may include a technical assessment of the contamination (i.e., fate and transport modeling) that demonstrates how the point of compliance monitoring wells will meet the VGES within ten years. If PFAS contamination is found within drinking water supply wells above the VGES, then the Town of St. Johnsbury will consider point-of-entry treatment system installation and operation.